

Physical Activity Among Young Educated Saudi Women

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For you my light, beautiful mother and greatest supporter

Fatima Al Ajaji

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Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Abstract

Physical inactivity is an important risk factor for the long term health of young people. Health risk behaviours established during youth often persist into adulthood, resulting in potentially harmful effects on long-term health. Although research on physical activity in Saudi Arabia is limited, the few available studies reveal high rates of physical inactivity, especially among youth and women. Hence, there is an urgent need to understand the factors that may shape engagement of young Saudi women in physical activity in Saudi Arabia.

This study uses the Social Ecological Model of physical activity to analyse the effects of multiple factors (individual, social environment, physical environment, and policy) on physical activity behaviour among young educated Saudi women (YESW). A sample of YESW aged between 18 and 24 years old currently enrolled as undergraduate students in the Faculty of Health Sciences at one University in Riyadh, Saudi Arabia were recruited. The study used a combination of in-depth interviews, focus groups and self-reported surveys to explore YESW's understanding of physical activity and the factors that affect their engagement in it.

The findings highlight a range of individual, environmental and policy barriers to physical activity behaviour among YESW. In addition, findings show how gender influences these factors and shapes physical activity behaviour. Potential intervention strategies include empowering young women in decision making, raising family and male guardians' support for physical activity, and increasing affordable and accessible physical activity options at individual and environmental levels.

Presentations arising out of this thesis

- AlMarzooqi M. Braunack-Mayer A, Xafis V, Salter A, Mahmood A. Walking behaviour among young educated Saudi women; Walking and Cycling Across our Lives, The Australian Walking and Cycling Conference, Adelaide, Australia, July, 2016.
- AlMarzooqi M. Braunack-Mayer A, Xafis V, Salter A, Mahmood A. Gender related barriers to physical activity among young educated Saudi women: A qualitative investigation; Differences, Inequalities and Sociological Imagination, 12th Conference of European Sociological Association 2015, Prague, Czech Republic, August 2015.
- AlMarzooqi M. Braunack-Mayer A, Xafis V, Salter A, Mahmood A. Factors that affect engagement in physical activity among young educated Saudi women. Public Health Association of Australia (South Australia Branch) State Population Health Conference, Adelaide, Australia, October 2014.
- AlMarzooqi M. Braunack-Mayer A, Xafis V, Salter A, Mahmood A. Physical activity among young educated Saudi Women; Health Issues in the Gulf Cooperation Council (GCC) Conference, Centre of the Gulf & Arabian Peninsula Studies, Kuwait University, Kuwait, April 2014.

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“Self-knowledge has no end- you don’t come to an achievement, you don’t come to a conclusion. It is an endless river” ~ Jiddu Kishnmurti

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Abbreviations

YESW	Young Educated Saudi Women
IPAQ	International Physical Activity Questionnaire
GPAQ	Global Physical Activity Questionnaire
ATLS	Arab Teens Life Style Questionnaire
BRFSS	Behavioral Risk Factor Surveillance State Questionnaire
MET	Metabolic Equivalent
PA	Physical Activity
BMI	Body Mass Index
U.S.	United States of America
m	Meter
GCC	Gulf Cooperation Council
UN	United Nations
WHO	World Health Organization
EMRO	The WHO Regional Office for the Eastern Mediterranean
PAT	Policy Audi Tool
kg	Kilogram
HEPA	Health Enhancing Physical Activity
PubMed	Public Medicine
CDC	Centres for Disease Control and Prevention
ACSM	American College of Sports Medicine

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1 Introduction

1.1 Background and rationale for research

Saudi Arabia has recently witnessed rapid cultural, political, economic and developmental changes. In the past three decades Saudi Arabia has experienced a gradual shift from rural to urban living; the proportion of the population residing in urban cities has increased from 20% in 1950 to reach 83% in 2014, and is expected to increase to 89% by 2050.⁽¹⁾ Today, almost two thirds of the Saudi population reside in three administrative urban regions: the capital Riyadh, Makkah and the Eastern region.⁽²⁾

These changes have been accompanied by increases in sedentary lifestyles.⁽³⁾ Rates of physical inactivity among Saudis⁽⁴⁻⁷⁾, particularly among youth^(3, 6, 8-11) and women⁽¹²⁾, are increasing. Saudi youth constitute a considerable portion of the Saudi population^(2, 13-19), and they tend to become less physically active and adopt a more sedentary lifestyle when transitioning into adulthood.^(6, 20-25) University students, particularly, are an important segment of the young adult population, as the future social opinion leaders and decision makers for Saudi Arabia.

More Saudi women are attending universities. Women account for 60% of all Saudi university students⁽²⁶⁾, ranking the country 25th in the world in terms of women's enrolment rates in universities.⁽²⁷⁾ This trend is expected to continue to increase, with the Saudi government generously investing in public education for females. There are more than 300 colleges and universities available for women in the country⁽²⁶⁾ and the government's

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commitment to women's education is also reflected in the financial incentives granted to female students while pursuing their degrees.⁽²⁸⁾

Young educated Saudi women (YESW) are, therefore, an important population group in Saudi Arabia. However, several studies have shown that women are less physically active than men in Saudi Arabia.^(3, 8, 10-12, 16-18, 29, 30) There is limited evidence about why Saudi women do not engage in physical activity⁽³⁾, with some suggestion that lack of time and lack of access to public sports facilities are important. No research to date has investigated how Saudi women identify and interpret the factors that facilitate or hinder their engagement in regular physical activity.

This study brings together the above factors to focus on physical activity amongst YESW. With the prevalence of overweight and obesity and of physical inactivity well defined in Saudi Arabia for the population as a whole, this research seeks to describe and analyse the factors that shape and inform YESW's engagement in physical activity. A second focus is on identifying policies related to physical activity and evaluating the implementation of these policies. This area is important, because there have been relatively few public health initiatives implemented in Saudi Arabia to combat this trend of inactivity. Indeed, although there are public health initiatives targeting risk factors such as smoking and obesity, there is no national public health initiative targeting physical inactivity.⁽⁷⁾ This will result in an enormous public health cost unless timely interventions take place to reduce physical inactivity in the Saudi population.⁽⁷⁾

1.2 Thesis aims and research questions

1.2.1 Thesis aims

The thesis has three aims: firstly, to describe and analyse the factors that shape engagement in physical activity among YESW; secondly, to identify existing policies related to promoting physical activity; and, thirdly, to describe the factors influencing the implementation of these policies.

1.2.2 Research Questions

1. How do YESW perceive the meaning of physical activity?
2. What are the patterns of physical activity among YESW?
3. What factors shape engagement of YESW in physical activity?
4. How do existing policies support or limit engagement of YESW in physical activity?
5. What can be done to promote physical activity engagement among YESW?

1.3 Thesis structure

This thesis is divided into four sections (research background and theoretical context; research methods; research findings; discussion and conclusion), comprising 11 chapters with six of these chapters presenting my findings. (The research questions and thesis sections are illustrated in Figure 1.1). The first section comprises an introductory chapter (Chapter 1), as well as the research background about physical activity and my theoretical framework (Chapter 2). Chapter 3 provides context on Saudi Arabia, including the status

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of women in Saudi Arabia, physical activity in Saudi Arabia, and Islam and physical activity.

The second section describes my research methods, study design, data collection and analysis. All of these issues are discussed in detail within Chapter 4.

The third section presents my research findings collected through interviews, focus groups and surveys with YESW, and a policy review (Chapter 5 to 10). Chapter 5 presents the demographic characteristics of my study participants. Chapters 6 to 9 integrate the findings from the qualitative and quantitative studies using the Social Ecological Model (SEM) as a framework. Chapter 6 analyses a range of individual factors related to participants' beliefs, knowledge about and engagement in physical activity. Chapter 7 focuses on social environment factors in two main areas: social networks and cultural and social norms. Chapter 8 describes the physical environment factors that impact the engagement in physical activity amongst YESW, including the natural and built environments. Chapter 9 describes legislative and policy aspects that have influenced Saudi women's rates of participation in physical activity. Finally, Chapter 10 demonstrates and identifies related physical activity policies initiatives in Saudi Arabia.

The fourth and final part provides a synthesis and discussion of findings (Chapter 11). It also provides key recommendations for the promotion of physical activity among YESW.

Introduction

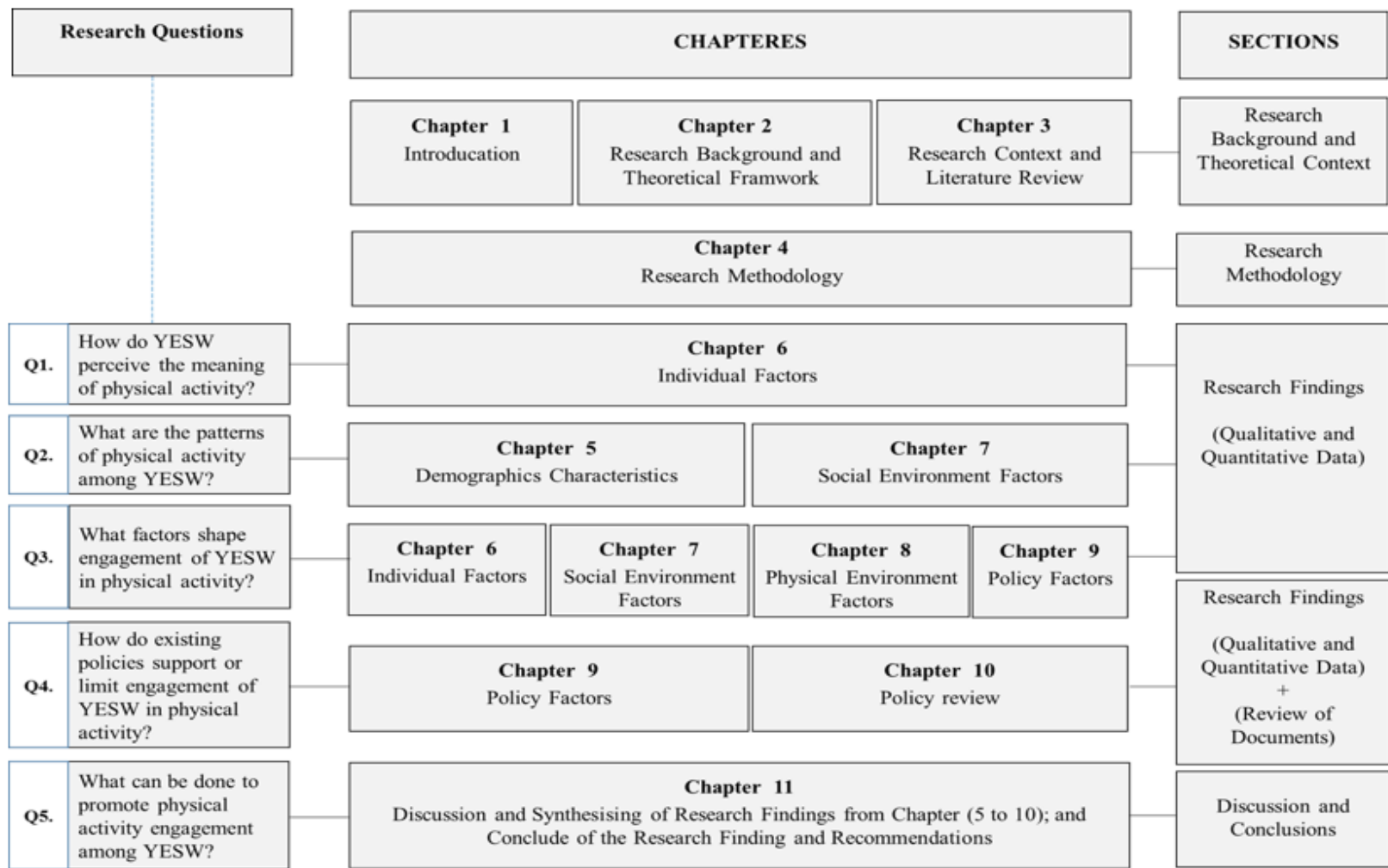


Figure 1.1: Research questions and thesis sections

2 Physical activity and theoretical framework

It is well recognised that physical activity is beneficial for the overall health of people at both the individual and population levels. However, what physical activity is and what we can do to encourage people to engage in physical activity is much more complex. To reach a full understanding of the factors that shape engagement in physical activity, this research draws on the social ecological model to provide a holistic and comprehensive approach that recognises the multiple factors that influence an individual's participation in physical activity. In the initial section of this chapter I provide the definition of physical activity and related concepts. Then, I introduce the theoretical framework for my thesis, beginning with an overview of the *Ottawa Charter of Health Promotion*. I then provide an overview of the *social ecological model* and explain how it will be applied in this thesis.

2.1 Defining physical activity and related concepts, recommendations and measurement

Physical activity is defined as “any bodily movement produced by skeletal muscles that result in energy expenditure”.⁽³¹⁾ There are a number of terms used interchangeably with physical activity. The terms *exercise* is considered a subcategory of physical activity and refers to planned, structured, and repetitive bodily movement done to improve or stay physically fit.⁽³¹⁾ *Physical fitness* refers to the ability to perform physical activity including aerobic exercise, muscular strength, flexibility or body composition.⁽³¹⁾

Physical activity and theoretical framework

Physical activity is an important goal of health promotion, because improvements in health are related to being physically active.⁽³¹⁾ Engaging in regular physical activity has proved to have physiological and psychological benefits for one's overall health. Physiologically, people who exercise regularly reduce their risk of several chronic diseases such as heart diseases and strokes, diabetes, hypertension, and cancers. Moreover, participating in regular physical activity plays an essential role in maintaining energy balance, bone mass, and weight control.⁽³²⁻³⁷⁾ Being physically active contributes to healthy psychological wellbeing; people who exercise regularly tend to feel less anxious, depressed, or stressed.⁽³⁸⁾ They also tend to enjoy a positive mood, increased alertness, energy and have the ability to cope. In addition, they enjoy a positive self-concept, body image, self-esteem, achievement attitudes, and cognitive functioning.^(39, 40) Furthermore, physical activity seems to decrease the risk of engaging in negative health behaviors like smoking and alcohol consumption.⁽⁴¹⁾

The clear benefits of physical activity on health has led to the concept of *health enhancing physical activity (HEPA)* "as any form of physical activity that improves health and has the fewest possible undesirable side effects".^(42, 43) Therefore, HEPA does not restrain physical activity to exercise alone but has a broad view of physical activity which encourages more engagement of daily activity, for example, it includes house chores, occupational tasks, active transport and leisure.⁽⁴³⁾

Promoting a more physically active lifestyle has proven positive outcome at the public health level.⁽⁴⁴⁾ Furthermore, physical activity guidelines and recommendations have become more public health oriented.⁽⁴⁵⁾ The U.S. Surgeon General's Report issued in 1996 by the Centres for Disease Control and Prevention (CDC) and the American College of

Physical activity and theoretical framework

Sports Medicine (ACSM) was the most widely known evidence-based physical activity recommendation for public health.⁽⁴⁵⁻⁴⁷⁾ The report recommended healthy adults to engage at least in 30 minutes of moderate-intensity activity on five days a week or vigorous-intensity physical activity for a minimum of 20 minutes on three days a week.⁽⁴⁷⁾ Updated guidelines, such as those from the World Health Organization⁽⁴⁸⁾ and Australia⁽⁴⁹⁾ have issued similar recommendation as well.

There is a range of methods that can be used to measure physical activity and these comprise: self-reported (surveys, diaries, logs), observation, and objective measures (such as pedometers, accelerometers or physiological measures).⁽⁵⁰⁾ These methods attempt to measure frequency, duration, and intensity and /or type of physical activity.

Self – report using a standardized instruments is the most feasible method for assessing prevalence of physical activity. In the past decade, many instruments were developed; among the most reliable and valid instruments are: the International Physical Activity Questionnaire - IPAQ which comes in both a short and long version⁽⁵¹⁾, Global Physical Activity Questionnaire - GPAQ⁽⁵²⁾, Behavioral Risk Factor Surveillance State Questionnaire – BRFSS⁽⁵³⁾, and Active Australia.⁽⁵⁴⁾ In chapter 4, I describe the instruments I used in my research.

2.2 Theoretical framework

Several factors affect one's physical activity and, as noted above, it is helpful to study physical activity as a health- enhancing behaviour within an ecological approach.^(44, 55) An ecological approach takes into consideration how people interact with their environments and the effect of these environments on people's behaviours and health outcomes.^(55, 56)

2.2.1 The Ottawa Charter

A holistic approach aligns with the *Ottawa Charter for Health Promotion* which emphasises the multiple effects of the environment on health.⁽⁵⁷⁻⁶⁰⁾ The *Charter* perceives the individual as part of his / her social environment, and a healthy individual as a person enjoying physical, mental and social well-being. Physical capabilities in addition to personal and social resources are required for people to stay healthy, satisfy their needs, aspirations, and adapt to their environments. Other factors, including political, economic, social, cultural, and environmental ones contribute, to good health as well.^(60, 61)

To promote health, the *Ottawa Charter* requires three basic strategies: advocate, enable, and mediate.⁽⁶⁰⁾ Health advocacy is the process through which individuals and organizations act to seek political commitment and social acceptance to demand for policies and support from concerned systems for a health-related matter. Mass and social media, lobbying, and community mobilization are common ways of health advocacy. Though anyone can advocate for health, health professionals and authorities are required to advocate for health at all levels in society to influence decision making of communities and governments affecting health including sharing power and resources with people.⁽⁶⁰⁻⁶²⁾

Enabling people involves mobilizing resources to empower, support and help people stay healthy and to promote and protect their health through controlling health determinants.^{(60,}

⁶¹⁾ Empowering a community to voice out its opinion on what they think is right for their health and demand policies and actions that help them stay healthy are essential to promote healthy living and environments.⁽⁶²⁾ For example, having access to health information enables individuals to better consider their health options, make healthier choices, and advocate for more supportive environments.⁽⁶²⁾

Physical activity and theoretical framework

It is inevitable that promoting health in communities affects some interests negatively.^(60, 61)

Therefore, the *Ottawa Charter* seeks to mediate different personal, social, economic, and political interests in society (in both public and private sectors) for the pursuit of health.

Professional and social groups including health personnel are essential players in the mediating process.⁽⁶⁰⁻⁶²⁾

The *Ottawa Charter* supports the three basic strategies by five priority action areas:

building healthy public policy, creating supportive environments, strengthening community action, developing personal skills and reorienting health services.⁽⁶⁰⁾ The

‘Create Supportive Environments’ action area of the charter, in particular, focuses on the complex links between people and their environments.⁽⁶⁰⁾

Research studies have demonstrated that these five health promotion actions can contribute to effective interventions against diseases and health determinants if applied collectively.⁽⁶³⁻

⁶⁵⁾ Research also suggested that successful health promotion interventions require applying multiple strategies in multiple settings at all the levels while involving multiple sectors.^{(66,}

⁶⁷⁾ In interventions, the social ecological model attempts to address behaviour change at multiple levels.⁽⁶⁸⁾ For instance, it promotes health through advocacy or coalition groups, organisations, policies, and environments such as facilities and programs.^(68, 69) However,

one limitation of the social ecological model is its complexity.⁽⁷⁰⁾ Therefore, to better integrate the social ecological model in health promotion practices interventions, strategies need to be planned and implemented in multiple settings and involving multiple sectors⁽⁷¹⁾ which is advocated in the five action areas of health promotion in the *Ottawa Charter*.

Hence, the *Charter* is recommended as a call for actions for public health promotion programs.⁽⁶⁰⁾

Physical activity and theoretical framework

In this thesis, the social ecological model will be used as a framework to better understand the factors that shape engagement in physical activity among YESW as described in the findings Chapter 6 to 9; and then in Chapter 11 the Ottawa Charter will be used as a framework for proposing recommendations for physical activity interventions programs among YESW. The social ecological model is described in the next section.

2.2.2 Overview of the social ecological model

The comprehensive approach of the social ecological model in understanding the multiple determinants of health behaviours and their interactions, including physical activity behaviour, has received growing interest by health researchers since the 1970s.^(56, 72) The social ecological model developed out of the work of a number of prominent researchers. Bronfenbrenner (1979) was the first to describe the ecological systems theory that focused on the relationship between individuals and their environments.⁽⁵⁵⁾ Later on, McLeroy and others (1988), created an ecological model of health promotion stating that each behaviour is affected by multiple levels of influences, including intrapersonal (knowledge, attitudes, beliefs); interpersonal (family, friends, peers); institutional (rules, regulations, informal structures); community (formal and informal social networks, norms and standards); and policy (laws that regulate or support healthy actions).⁽⁶⁸⁾ Though all of these levels are independent, their influences interact.^(68, 69) Elaborating on the work of McLeroy et al. (1988), Stokols (1992) created the social ecological model of health promotion focusing on the dynamics and mutual influences between individuals and their environments; while the individual make behaviour changes to maintain health and reduce illness, several factors at multiple levels affect their behaviours.⁽⁵⁶⁾ Stokols framework is a

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helpful tool that can be used throughout the design, implementation and evaluation of health promotion interventions.⁽⁵⁶⁾

In the next section, I will describe the framework of the social ecological model I applied in this thesis.

2.2.3 Applying the social ecological model in this thesis

As previously noted, the comprehensive approach of the social ecological model (SEM) in understanding the multiple determinants of health behaviours and their interactions, including physical activity behaviour has received growing interest by health researchers since the 1970s.^(56, 72) The SEM helps identify the multiple influences on behaviour and thus increases the chance of positive change in the long term.^(55, 73) The SEM is known for its adaptability to any behaviour and for any population.^(55, 74, 75) This has resulted in variations of the model evolving over the years.^(55, 68) In this research, I have adapted the Stockols social ecological model of physical activity composed of four levels: individual, social environment, physical environment and policy (Figure 2.1).⁽⁷⁶⁾

The model starts with the **individual level** located at its core. Individual factors are the first to affect one's engagement or not in physical activity^(56, 68, 76, 77); these include a wide range of personal attributes such as knowledge, attitudes, physical activity skills, self-efficacy, and disabilities or injuries.⁽⁶⁸⁾ Factors that also affect people's engagement in physical activity include their perception of facilitators and barriers to engaging in physical activity, their motivation, and their enjoyment (or not) in physical activity.⁽⁷⁶⁾ Demographic attributes such as age, sex (gender), level of education, socioeconomic status, and employment status are also individual influencers.^(68, 77) Physical activity educational

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programs, mass media campaigns, and support groups, are among the best ways to intervene at the individual level.⁽⁷⁶⁾

The **social environment** is the second level of the SEM.^(56, 68, 76, 77) People's relationships and interactions with others in addition to the cultural norms and background of the society contribute to their willingness to engage in physical activity.^(47, 68, 76, 78) For instance, active family members, friends, and co-workers tend to encourage an individual to be physically active too. Conversely, less active people are less likely to have a positive influence on an individual in terms of physical activity.^(68, 77, 78) The social environment is not restricted to relationships with individuals but also includes institutions and organizations such as schools, workplaces, and communities.^(68, 76) Group activities such as community education, support groups, peer programs are among the successful interventions at the social environment level. Intervening at the community level such as providing workplace incentives and social marketing campaigns also contributes to advocating physical activity in communities and thus offering the individual a positive social environment.^(60, 76, 77)

The **physical environment** where people engage in physical activity comprises the third level of the SEM.^(56, 68, 77) A physical environment can be natural (related to weather and geography) or built (such as availability of facilities and safety) influence physical activity.^(68, 76) For instance, having walk and bike paths available and offering affordable access to community pools and field sports provide a positive environment while living in an unsafe neighbourhood or lack of walk pathways will restrict or discourage people from physical activity.^(47, 60, 78) It is more feasible to intervene within a built environment; enhancing the conditions and safety of the street encourages people to exercise outdoors. However, little can be done about harsh weather conditions and unfriendly natural

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environments.⁽⁷⁸⁾ It is essential to provide an inviting environment even before promoting physical activity.^(47, 60) For instance, awareness campaigns to promote walking in neighborhoods are more likely to succeed when neighborhoods are well lit, safe, and have walk pathways.^(47, 60, 78)

The last level of the SEM is about **policies** and includes legislation or action taken by local, state or federal authorities intended to affect physical activity.^(56, 68, 76, 77) Rules regarding physical activity set by organizations and institutions – like schools and workplaces – are also included under the policy level of the SEM.^(68, 76, 77) Examples of policies that positively influence physical activity include those related to urban planning, active transportation, and physical education in schools.^(47, 60, 78)

Committing political will to promote physical activity is a challenge.^(60, 78) For policies to succeed in promoting physical activity, they need to address barriers at each of the SEM levels (individual, social and physical environment).^(47, 60, 78) For this, it is advisable to combine promotion of physical activity with priorities of other sectors. For example, promoting active transportation combines environmental and transportation policies with promoting physical activity.^(76, 78)

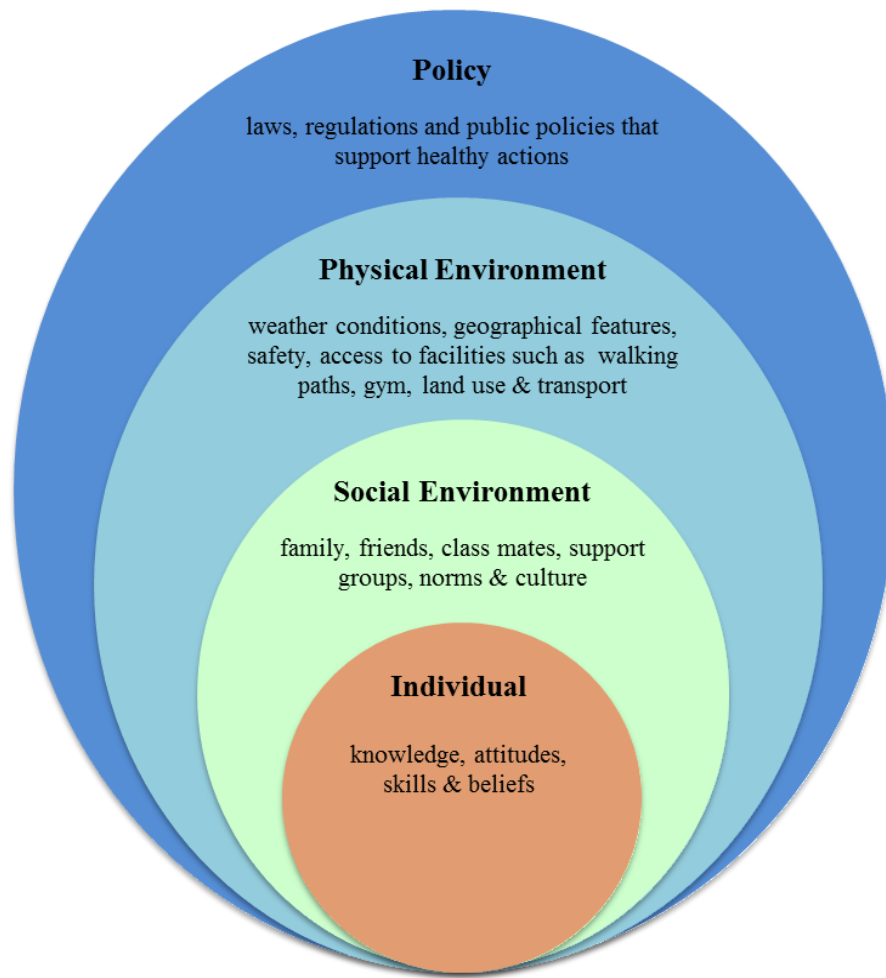


Figure 2.1: Socio Ecological Model of Physical Activity - Adapted from Stokols 1996

Source: ⁽⁷⁶⁾

These four levels of the social ecological model will be organized as framework for presenting my finding chapters (6 to 9).

2.3 Chapter summary

This chapter has provided a definition of physical activity and related concepts applied in this thesis. In addition this chapter introduced and discussed a suitable theoretical framework for this research. Lastly, the *Ottawa Charter* and the social ecological model as the theoretical framework for my thesis were described.

3 Literature review

This chapter presents the context and literature relevant to my thesis. I begin with an overview of Saudi Arabia where my research took place. I then elaborate on the status of women in Saudi Arabia and the view of Islam on physical activity (PA). Next, I present a review of current knowledge about PA which covers PA studies in Saudi Arabia in general, then PA studies among YESW. This review compares published studies on PA in Saudi Arabia and offers suggestions for physical inactivity among women in Saudi Arabia. Finally, I discuss the gaps in research regarding PA in Saudi Arabia.

3.1 Research context: Saudi Arabia

Saudi Arabia is a Middle Eastern Arab country located in the Southeast of Asia. It is the fourteenth largest country in the world, and is geographically four-fifths of the Arabian Peninsula (2,149,690 km²).⁽⁷⁹⁾ Saudi Arabia shares its northern borders with Jordan, Kuwait and Iraq. On its east are the Arabian Gulf, Bahrain, Qatar and the United Arab Emirates. The Sultanate of Oman and the Republic of Yemen are at the south and the Red Sea covers its western border (see Figure 3.1). Saudi Arabia is known for its wide desert areas, hot weather and rainfall scarcity. The four largest cities are the capital Riyadh, Jeddah, Makkah, and Dammam. The official language is Arabic.⁽⁸⁰⁾

While Saudi Arabia resembles its surrounding countries environmentally and culturally, it is distinct for the fact that it embraces the holy places for Muslims; God's Sacred House (the Kaaba) at Makkah al-Mukarrama and the Mosque of the Prophet at Madinah al-Munawwara.⁽⁸⁰⁾

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Saudi Arabia is a monarchy; the King heads the state and government and Islamic Sharia law is the basis of the legal system. Sons of the Kingdom's founder – King AbdelAziz Al-Saud – succeed the throne.⁽⁸¹⁾ In 1992, a royal decree was issued which implemented a governance system stating that the Quran and Prophetic Traditions are the formal constitution of the country.⁽⁸²⁾ The King presides over the Council of Ministers as prime minister. This Council includes the President and Vice President of the Council of Ministers in addition to Ministers of State, all of whom are appointed by royal decrees and serve as advisers to the King.^(83, 84) Saudi Arabia is composed of fourteen provinces, or emirates. The King appoints an Amir (governor) for each of them. There are no political parties or national elections. Senior members of the royal family serve as advisors to the King.^(81, 84)



Figure 3.1: Map of Saudi Arabia with its provinces

Source: ⁽⁸⁵⁾

In the past three decades, Saudi Arabia has achieved recognizable development and progress in the sectors of health, education, economy, housing, and the environment. ^(2, 86)

The country enjoys an extensive and modern infrastructure. Many Saudi Arabians benefit from modern hospitals, schools, universities, and recreational facilities. ^(2, 86)

In 2016, the population of Saudi Arabia was estimated to be around 32 million; 43% of them females. ⁽⁸⁷⁾ An annual demographic growth of 2.5% is expected with most population increase concentrated in the capital Riyadh, then in the cities of Jeddah, Dammam, and the holy cities of Mecca and Medina. ⁽⁸⁸⁾ Around three quarters of the Saudi population live in urban areas. ^(88, 89) Saudi Arabia has experienced a gradual shift from rural to urban living in

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the past four decades.⁽⁸⁸⁾ The World Urbanization Prospects revealed that the urbanization rate increased from 20% in 1950 to 80% in 2000 to reach 83% in 2014, and is expected to increase to 89% by 2050.⁽¹⁾ Six regions recorded urbanization rates higher than 80%, namely the Eastern Province (93%), Riyadh (91 %), Holy Makkah (88%), the Northern Borders (87%), Tabuk (86%), and Jouf (85%).^(88, 90) Moreover, the urban population in Saudi Arabia has increased 36-fold in 65 years; from 665 thousand in 1950 to 24.8 million in 2015.⁽⁹¹⁾ The number of cities in Saudi Arabia has already increased from 58 in 1936 to 258 in 2004 and 285 in 2015.⁽⁹¹⁾ The urban population is expected to reach 35.8 million by 2050.⁽¹⁾ Such a population increase requires the Kingdom to build new cities to accommodate the urban population growth in a sustainable manner.⁽⁹¹⁾

The youth population comprises approximately 60% of the total population in Saudi Arabia; youth under the age of 24 constitute almost half of the nation's population where those under the age of 15 make up one third.^(87, 92) This large youth portion requires the government to provide adequate economic opportunities, jobs, housing and quality services that match their aspirations.⁽⁹²⁾

The mortality rate of the Saudi population declined from 15 per thousand to 12.5 per thousand during the period 1975-1980, and to 3.8 per thousand in 2008.⁽²⁾ Such declines in mortality rates are due to the Kingdom's efforts to improve living standards in various areas such as, education, health services, and environmental conditions.⁽²⁾

Non-communicable diseases are prevalent in Saudi Arabia.^(86, 93) Increased longevity and a shift to a less active lifestyle has led to an increase in non-communicable diseases, such as cardiovascular disease and diabetes.⁽⁸⁶⁾ Non-communicable diseases constitute 40% of all diseases and are expected to increase to 60% by 2020.⁽⁹⁴⁾ For instance, obesity is highly prevalent in Saudi Arabia, especially among women, and is consistent with the sedentary

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lifestyle of many Saudis.⁽⁹⁵⁾ Mental health disorders are also highly prevalent and this is higher in women (22.2%) than in men (13.7%).⁽⁹⁶⁾

The year 2002 marked an important shift in provision of health care in Saudi Arabia with the establishment of a comprehensive health system to all citizens.⁽⁹⁷⁾ The Health Services Board and the Cooperative Health Insurance Board were established to boost health insurance coverage to non-citizens and citizens. Health services are provided through a wide network of facilities composed of 404 hospitals, 136 private hospitals, 268 Ministry of Health hospitals, and 2225 Health Centers (2013).⁽⁹⁷⁾

Saudi Arabia allocates special attention to its education system to provide its large youth population with quality education and skills.^(2, 86) Government plans focus on science, technology and mathematics, innovation and entrepreneurship. Several measures have been taken to enhance the quality of education and provide equal education to all children, boys and girls alike.⁽²⁾ For instance, primary education was made compulsory in 2004 and involves the private sector in educational provisioning and planning.⁽²⁾ The government increased its spending on education and on women's education specifically, which resulted in higher literacy, with literacy rates reaching rates 94% of people aged 15 years and 91% of females in 2013.^(97, 98) Literacy rates for female youth ages 15-24 reached 99% in 2013.^(97, 99) The same rate was noted for male youth as well.^(97, 100)

3.2 Status of women in Saudi Arabia

Many Saudi Arabian women still struggle to achieve their dreams and ambitions.^(27, 101)

Often, hindrances appear to be related to religion when, in fact, they are based on cultural beliefs and norms.⁽²⁷⁾ Islam is clear about offering women full opportunities to contribute effectively to the development of society and to accomplish the highest ranks of

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intellectual and spiritual progress.⁽¹⁰²⁻¹⁰⁴⁾ Islam, as a religion, has always empowered women to claim both religion and equality to create a strong balanced foundation in their lives.^(105, 106) It encourages men and women to learn and work to the extent it considers working as a worship.⁽¹⁰⁴⁾ For instance, some families will not allow women to leave their houses without a male companion and a valid reason like visiting a doctor⁽¹⁰⁷⁾, whereas the Prophet Mohammad first met his wife Mrs Khadija through her work in trading.⁽¹⁰⁸⁾ Moreover, the Prophet welcomed Muslim women in his army, where they treated wounded men.⁽¹⁰⁸⁾ Today, women must wear the traditional veil though Islam only requires ‘decent’ clothing.^(104, 109, 110) The government still asks for permission of a male guardian in most administrative issues.⁽¹¹¹⁾ Even the timid community efforts to end the ban on women’s driving were denied by both society and government, even though.⁽¹¹²⁾ Islam does not prevent women from driving, playing sports, or working at any job if they maintain their decent attire.⁽¹¹³⁾ However, Saudi society favours segregation between men and women and thus binds women to the traditional role of wives and mothers and deprives women from achieving higher ambitions and practising full rights and duties of citizenship and self-fulfilment.⁽¹¹³⁾

Cultural restrictions imposed on Saudi women not only affect their personal goals and ambitions but also have a negative impact on their health.⁽¹⁰⁷⁾ For instance, a woman in Saudi can neither be admitted to a governmental hospital nor sign a consent form for an invasive medical procedure without male guardian approval. Furthermore, woman in rural areas are not allowed to be seen by a male gynaecologist or obstetrician.⁽¹⁰⁷⁾ Many Saudi people still refuse women practising sports other than in their houses, mainly because they do not want them to change into sports attire outside home, even in women only premises such as schools and universities or women only health clubs.⁽¹¹⁴⁾

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Girls' education started in the 1950s and was opposed by religious leaders and some parts of society.^(27, 114) However, King Faisal managed to convince them after agreeing to have girls' schools under the supervision of the Mufti – the highest religious authority. At that time, girls were only taught Islamic studies and Arabic language and skills related to becoming a good wife and mother.⁽¹¹⁴⁾ Contrary to boys, girls were not taught anything related to self-advancement or citizenship and the only higher education available was a girls' college with education as the only major.^(114, 115)

Though management of girls' schools has been transferred to the Ministry of Education, where boys' schools are managed, girls still have different curricula to boys.^(112, 114) The content of the curriculum for girls still focuses on traditional roles of women as mothers and wives. For instance, no physical education is offered in girls' schools.⁽¹¹⁴⁾ Some Saudi families seem to agree with such policies and perceive playing sports as negatively affecting their daughters. However, Islam does not prevent girls from playing sports; it is cultural norms that prevent girls from playing sports, even in closed buildings where men have no access.⁽¹¹⁴⁾

Based on the United Nations Human Development Report 2016, Saudi Arabia's score using the Human Development Index (HDI) increased from 0.698 in 1990 to 0.847 in 2015, an increase of 21.3 percent. The HDI measures achievement in three basic dimensions: health (measured by life expectancy at birth), education (measured by female and male expected years of schooling for children and mean years for adults aged 25 years and older); and command over economic resources (measured by female and male estimated Gross National Income (GNI) per capita) (see Table 3.1). However, Males scored higher HDI values (0.884) compared to females (0.779) in 2015. Also, Saudi female

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HDI values for Saudi Arabia were less than HDI for females in countries of higher development indices (see Table 3.2).

As mentioned previously Saudi Arabia supports education for all and especially for women. Female enrolment rates at all educational levels have increased sharply and rapidly over the past five decades.⁽⁹⁷⁾ Nevertheless, there are still challenges to be resolved regarding cultural beliefs and norms. Girls' curricula have been changed response to several factors, including societal pressure, international criticism of women's rights in Saudi Arabia, and the need to prepare the future generation for the shift of Saudi Arabian economy to less dependence on oil.^(27, 114) However, girls' curricula still need more revisions to suit the demands of contemporary life.⁽¹¹⁴⁾ In 2009, the first mixed university was launched by late King Abdullah, in which male and female students take the same classes. Women have responded to higher education opportunities; they constitute half of university graduates and have earned more PhD degrees than men.⁽⁹⁷⁾ Certain education specialities are still restricted to males and women tend to major in education and the humanities.⁽¹¹⁶⁾ The government is providing women with more specializations such as engineering and law in addition to scholarships to pursue higher education abroad.⁽⁹⁷⁾ Yet, nominated female students still need to obtain a male's consent and be accompanied by a male guardian for the Ministry of Higher Education to approve their scholarship to study abroad.⁽⁹⁷⁾

Interestingly, despite all the restrictions and challenges, some Saudi Arabian women have recorded remarkable achievements. In the past decade, Saudi Arabian women have proven their presence in many areas including political engagement⁽¹¹⁷⁾, the Olympics Games⁽¹¹⁸⁾, and entrepreneurship.^(111, 119) For instance, in 2011, late King Abdullah granted 20% of the Shura Council to women and allowed them to cast votes and run for municipal seats in

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2015.⁽¹²⁰⁾ Moreover, Saudi Arabia sent two female athletes to the London Olympics in 2012 for the first time, and then four women to the Rio de Janeiro Olympics in 2016.⁽¹¹⁸⁾

Table 3.1: Saudi Arabia's HDI trends based on consistent time series data

Years	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI* per capita	HDI value
1990	69.0	10.8	5.7	45,280	0.698
1995	70.9	11.4	6.2	44,584	0.722
2000	72.4	12.0	6.7	41,931	0.742
2005	73.1	12.5	7.6	44,375	0.767
2010	73.7	13.9	8.9	44,764	0.803
2011	73.8	14.5	9.1	48,161	0.818
2012	74.0	15.2	9.4	49,563	0.830
2013	74.1	15.8	9.6	49,843	0.841
2014	74.3	16.1	9.6	50,641	0.845
2015	74.4	16.1	9.6	51,320	0.847

Source: ⁽¹²¹⁾

Table 3.2: Saudi Arabia's Gender Development Index (GDI) for 2015 relative to very high HDI countries

	Life expectancy		Expected years of schooling		Mean years of schooling		Population with at least some secondary education (%)		Labour force participation rate (%)		Female seats in parliament	GNI* per capita		HDI value		F-M ratio
	F	M	F	M	F	M	F	M	F	M		F	M	F	M	
Saudi Arabia	75.9	73.2	15.3	17.0	9.0	10.0	63.3	72.1	20.1	79.1	19.9	19,300	75,923	0.779	0.884	0.882
Very high HDI countries	82.4	76.6	16.7	16.0	12.1	12.2	88.4	89.3	52.6	68.6	25.8	29,234	50,284	0.881	0.898	0.980

Source: ⁽¹²¹⁾

3.3 Islam and physical activity

Early Islam acknowledged men and women as equal essential contributors to their private lives and society.⁽¹¹³⁾ Over the years, Islam became a global religion with 1.6 billion Muslims living across the world.⁽¹²²⁾ The spread of Islam into different countries, together with the effects of globalization, conflicts, acculturation, and migration, has led to various location-specific interpretations and experiences of Islam. Muslim women are not a homogeneous group; they deal with religious demands differently depending on their culture.⁽¹⁰⁴⁾ Similarly, the treatment of women, their status, rights and duties, vary from one place to another. While some Muslim women are deprived of essential rights in some countries, others contribute fully to their families and, as citizens, to their society as well.⁽¹⁰⁴⁾

For example, more than half of all Pakistani women do not have a basic level of education; many Pakistani women are required to care for their extended families and are excluded from decision making.^(123, 124) On the other hand, Ahmad's (2001) study to explore motivations and influences for entering higher education among Muslim women in Britain show that British Muslim women considered higher education as a necessary asset in maintaining and gaining social prestige.⁽¹²⁵⁾

Regarding PA and Islam, it should be clearly stated that Islam does not prohibit sport. On the contrary, Islam has a holistic approach to the life of human beings which recommends maintaining healthy lifestyles in body, mind and spirit for both women and men.⁽¹⁰⁴⁾ It encourages males and females equally to maintain their health and fitness. For instance, Prophet Mohammad recommended teaching children sports such as swimming, archery and horse riding. (Hadith- Caliph 634-44H, 20-21) He also encouraged his wife Aisha to

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run with him. Islam has a positive attitude toward sports and does not oppose women's sports.⁽¹⁰⁴⁾ However, it is still difficult for Muslim women to participate in physical activities and sport competitions in some countries. Traditional and cultural concepts and social stigma about women's lives and roles, living conditions, and legal bans are the main barriers preventing Muslim women from practicing sports.⁽¹⁰⁴⁾

3.4 Physical activity studies review

3.4.1 Physical activity status in Saudi Arabia

To search for available articles on the status of PA in Saudi Arabia, the electronic databases PubMed, Google Scholar, and WHO/ EMRO were used with the following combination of keywords (physical activity; physical inactivity; sedentary; active living; exercise; walking; screen time; Saudi Arabia; and Saudi women). The search was limited to studies published in the English language between 1990 and 2016. The reference lists of articles were also reviewed to identify additional data sources. Furthermore, I contacted several researchers in Saudi Arabia to inquire about any unpublished studies or other relevant studies. However, no unpublished studies were included in this review.

As indicated by the search method, only studies published between 1990 and 2016 were included. A total number of 58 studies were identified; 54 of them published in the 2000s (see Appendix A)^(8, 10, 11, 13-19, 29, 126-168) and only four studies were published between 1990 and 1999.^(12, 30, 169, 170) Geographically, several studies targeted the capital Riyadh^(8, 15, 16, 29, 128, 130, 153, 154, 169, 170), and some other cities, mainly Al Hassa area^(17, 18, 149), Jeddah^(127, 143, 161), and Asir.^(139, 145, 165) Nine studies covered multiple cities^(19, 126, 135, 136, 141, 148, 150, 151) and five studies were national cross regional studies.^(14, 131-134)

The sample size in these studies varied from 16 participants⁽¹⁵⁵⁾ to 17,395⁽¹⁴⁾; 16 studies had

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less than 300 participants^(13, 30, 127, 128, 130, 138, 140, 143, 149, 155, 156, 159, 160, 164, 167, 170) nine studies between 301 and 600 participants^(8, 16, 137, 152, 158, 163, 166, 168, 169), and seven studies between 601 but less than 1000 participants.^(11, 12, 129, 144, 154, 162, 165) The remaining studies had a sample size of more than 1000.^(10, 14, 15, 17-19, 29, 126, 131-136, 139, 141, 142, 145, 146, 148, 150, 151, 153, 157, 161) Several researchers chose random sampling technique^(14, 19, 126, 131) while others used a stratified sampling technique.^(155, 156, 160, 162)

Thirty-eight studies considered PA among males and females^(8, 10-12, 14-19, 29, 30, 126-151), ten focused on males only^(152-159, 169, 170), and ten studied females only^(13, 160-166, 168) (Appendix A). The majorities of these studies targeted adult. However, young people also received the attention of researchers with 16 studies targeting ages between 11 and 19 years old.^(10, 29, 30, 126, 135-137, 141, 142, 145, 148, 150, 151, 157, 168)

No qualitative studies on PA have been published in Saudi Arabia. Most studies used quantitative questionnaires. More specifically, two studies adapted the IPAQ (International Physical Activity Questionnaire)^(11, 15) while other studies used the GPAQ (Global Physical Activity Questionnaire)⁽¹⁷⁾, and ATLS (Arab Teens Life Style questionnaire).^(126, 148) The number of steps per day was another technique used to measure PA, including the WHO STEPwise approach to surveillance.^(13, 19) The total Metabolic Equivalent of Tasks (METs) minutes/week provided yet another way to measure PA.^(17, 29, 126) Some researchers also asked the time spent in moderate or vigorous activities for at least 10 minutes^(11, 15) or 20 minutes.⁽⁸⁾ Interestingly, some studies did not define PA, probably because PA was not the primary purpose of their research.^(18, 152, 169) Therefore, different studies implemented different definitions of being “physically active”. For instance, the most popular definitions revolved around doing at least 30 minutes of PA for more than one day; some specified doing so at least twice a week⁽¹⁵³⁾, or three times a week.^(12, 14, 154, 170) Other studies specified

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sessions of 30 to 60 minutes of moderate PA on daily basis⁽¹⁰⁾ or at least a 20 minute session of leisure activities for at 3 times per week.⁽³⁰⁾

Though using different research methodologies, samples, instruments and definitions of PA, most research studies reported alarming figures of physical inactivity among Saudi people. Being physically inactive seems to start at an early age in Saudi Arabia; a study assessing PA and sedentary behaviors among adolescents aged 15-19 years showed that 35.7% of males and 81.5% of females are inactive, and that only 19.8% of males and 14.5% of females engaged in minimal levels of PA respectively.⁽²⁹⁾ Al-Nuaim et al. (2012) reported that 44.5% of males are active compared to only 4% of females.⁽²⁹⁾ Other researchers reported that almost half of male adolescents (48%) are not sufficiently active.⁽¹⁵⁴⁾ Similarly, another study revealed that 84% of male adolescents aged 14-19 years and 91.2% of females of same age spent at least 2 hours a day in front of a screen and almost half of males and three quarters of females do not meet the recommended guidelines for PA.⁽¹²⁶⁾

When assessing PA among university students, 78.2% of male students aged 17-30 years were not physically active.⁽¹⁶⁹⁾ Gawwad (2008) reported that 4.6% of male and female university students aged 20-26 years engaged in vigorous PA and 45.6% engage in physical activities of moderate intensity.⁽⁸⁾ Of these who conducted moderate activities, 24.4% did so at least 3 times a week on average, and 39% engaged for a 20-minute session each time. Another study on Saudi youth aged 17-25 years revealed that around 41.1% of Saudi youth are physically inactive.⁽¹¹⁾

Physical inactivity seems to increase with age; the majority of male adults aged 20-86 years are physically inactive⁽¹⁵²⁾, and other studies reported similar findings among men.

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For example, 80.9% of those aged 19 – 68 years and 76.5% of those aged 20-60 years are inactive.^(153, 170) Female adults seem to even be more physically inactive; a study assessing PA in adults aged 30-70 years revealed that 96% of adults are physically inactive, with women being more inactive (98.1%) compared to men of same age (93.9%).⁽³⁾ Other researchers found that women are less physically active than men with 87.6% of women aged 15-80 years being physically inactive compared to 71.5% of men in the same age group and a prevalence of 82.4% for both sexes combined.⁽¹⁶⁾

Al Hazzaa (2007) went further and used the IPAQ which asked about the number of times per week spent in walking or engaging in moderate or vigorous PA for at least ten minutes' duration. He found that 40.6% of people aged 15-78 years are physically inactive, 34.3% engage in minimal levels of PA and 25.1% can be considered physically active.⁽¹⁵⁾

Similarly, another study using a cutoff point of 600 METs minutes per day (or 150 minutes of moderate PA for at least five days) concluded that around 80% of the population did not meet the recommended leisure time physical activity needed to maintain a healthy life; it clarified further that while 21% were sufficiently active, and 10.4% were highly active, still 50.0% were not engaged in any type of physical leisure activities.⁽¹⁷⁾

Fifteen studies explored factors associated with participation in PA including individual, social, physical environment and policy level factors. At the individual level, some studies reported lack of time^(8, 139, 149, 150, 153, 158), lack of energy^(18, 139), lack of willpower^(18, 139), self-motivation^(16, 18, 139, 153, 158, 167), and interest in sport⁽¹⁷⁾, in addition to limited knowledge and awareness about PA.^(13, 30, 139, 165) In addition, three studies revealed that consumption of food high in fats, salts and sugar was negatively associated with PA.^(141, 165) However, three

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studies reported healthy diet (i.e. the consumption of milk, fruit and vegetable) as positively associated with participation in PA.^(148, 150, 164)

At the social level, laid-back lifestyle and lack of social support from friends and family especially for women^(13, 139, 165) was indicated as a cultural and social norms barrier to PA.^(13, 16, 18, 139, 149, 150, 165) Moreover, few studies reported barriers physical environment related factors such as living in a crowded urban area^(13, 17), high dependency on cars in transportation and lack of access to safe PA facilities and programs especially for women.^(13, 16-18, 139, 153, 165) Harsh weather conditions especially the extreme hot summers prevent people in Saudi from exercising outdoors.⁽¹⁸⁾

Additionally, the high cost of membership in a PA facility and the limited mobility or transportation means especially for women were considered policy-related barriers for women to engage in regular PA.^(13, 139, 165)

3.4.2 Physical activity status amongst YESW

Of the 58 studies reporting on PA status in Saudi Arabia (Appendix A), seven studies were published on PA among YESW aged between 17 and 25 years^(8, 138, 139, 160, 165-167); with three studies including males and females' university students^(8, 138, 139); and four only targeted female students.^(160, 165-167) These seven studies published between 2008 and 2016.

Geographically, three studies targeted the capital Riyadh^(8, 160, 167) two in Asir^(139, 165) and one in Dammam⁽¹⁶⁶⁾ and Madinah.⁽¹³⁸⁾

The sample size of female participants in these studies varied from 58 participants⁽¹⁶⁷⁾ to 831⁽¹³⁹⁾; four studies had equal or less than 152 participants^(8, 138, 160, 167), two studies between 370 and 663 participants^(165, 167) and one study with 831 participants.⁽¹³⁹⁾ Most researchers chose cross-sectional study design^(8, 138, 139, 165, 167) except for one prospective⁽¹⁶⁰⁾ and another

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quasi-experimental intervention study.⁽¹⁶⁷⁾

Several different tools were used to measure PA levels. Five studies used only self-reported questionnaires^(8, 138, 139, 165, 167), of which two used reliable and validate instruments such as IPAQ short and ATLS^(138, 139), while one study an adapted tool for gathering cognitive and psychosocial data related to PA such as stages of change, self-efficacy and perceived benefits and barriers⁽⁸⁾ and one provided very limited description of measuring (frequency, intensity and duration) of PA.⁽¹⁶⁰⁾ Only one study used three different tools (i.e. pedometer, daily PA log and self-reported survey) to measure PA levels.⁽¹⁶⁰⁾ None of the seven studies used tools concerning the physical environment and PA.

Many studies showed consistently high prevalence rates of physical inactivity levels among female university students but each study reported their data differently.^(8, 138, 139, 165, 166) For instance, one study found that female medical science students reported a higher rate of physical inactivity (65%).⁽¹³⁸⁾ Gawwad (2008), found that of the 38.8% of female university students who reported engaging in PA only 21.1 % participated in PA three times or more per week with 49.3 % engaging in light activities.⁽⁸⁾ Similarly, a study conducted by Awadalla et al. (2014) assessing physical inactivity among South Western health science university students in Saudi Arabia showed that only 12.3% of female students participated in high levels of PA, 28.9% moderate and 58.8 % low levels of PA.⁽¹³⁹⁾

Only two studies focused solely on assessing the PA levels and associated factors among female university students^(139, 165); one study assessed the readiness towards engaging in PA, self-efficacy, perceived benefits and barriers.⁽⁸⁾ Two studies focused on other aspects of health or risk factors (i.e. nutritional and health status, prehypertension), however PA

Literature review

levels of participants were reported.^(138, 166) Another study examined the correlation between PA and mental health variables, including attention, depression and insomnia, in female Saudi students.⁽¹⁶⁰⁾ Only one study tested an educational intervention to examine the effectiveness of using social media (Instagram) as a motivational tool to measure motivational factors that influence engagement or maintaining a PA program.⁽¹⁶⁷⁾

3.4.3 Reasons for physical inactivity amongst women in Saudi Arabia

Globally, physical inactivity is more prevalent among girls and women than male youth and adults.⁽¹⁷¹⁾ Cultural norms regarding women's roles in Saudi Arabia make engaging in regular PA even more challenging.^(13, 139) This can be attributed to the dominance of males in society, women leading caregivers' roles, and women's limited mobility.⁽¹³⁾ Moreover, not offering physical education programs in female public schools and universities and the high membership fees to access women's only PA activity facilities add to the barriers facing women.^(13, 139, 165)

3.5 Addressing the gap in research studies

Data on PA in Saudi Arabia is still scarce; the available studies provide some information on PA status in the country. However, all studies were quantitative and none tackled engagement of YESW in PA. Conducting qualitative studies on PA will bring more insights and a deeper understanding of the reasons and factors that shape engagement in PA, which might be overlooked in quantitative studies.⁽¹⁷²⁾

In addition, most studies on PA in Saudi Arabia have focused on the prevalence and type of PA beyond a few studies reporting individual perspectives on PA.^(8, 13)

Literature Review

In addition, there are no published studies on PA related policy in Saudi Arabia. Public health policy development is another major missing link in terms of knowledge in Saudi Arabia. Internationally, there is more focus on research to examine the impact of different policies such urban planning and transport on PA.⁽¹⁷³⁻¹⁷⁵⁾ Given that rapid urbanization and development in Saudi Arabia, more research is needed to understand the current situation regarding PA-related policies in the country.

Taking all the above reasons into consideration, there is a need for more research in Saudi Arabia to address the cultural and social norms, physical environment and policy related factors for promoting PA especially among YESW. I hope the findings of this research will help inform program planners to develop more effective, culturally and gender appropriate PA interventions for YESW. So far, no study of this kind has been conducted in Saudi Arabia.

3.6 Chapter summary

In this chapter, background information of the research context (Saudi Arabia), the status of women in the country, Islam, and PA were described. A literature review on PA in Saudi Arabia, and among YESW, was conducted to ascertain the status of PA in Saudi Arabia and understand the areas that need greater intervention to increase engagement in PA among YESW. The studies generally indicted a high prevalence of physical inactivity in the Saudi population and particularly among women. In addition, PA studies among women revealed the need for more research to understand the factors that influence PA participation among women. There is room for further multidisciplinary intervention research to guide Saudi Arabian national policies and programs on PA.

4 Research methods

In Chapters 1 and 2, the aims, research questions and theoretical framework were outlined. Chapter 3 reviewed the literature relevant to PA. In this chapter, the overall study design of my research will be described. This will include a study rationale, methods and design used for data collection and analysis of each of the four research phases – qualitative, quantitative, merging results and policy review – of my research. I will outline the procedure, research instruments and data analysis that were used for phases one and two. I will explain the approach that I took in phase three to merge the findings of phases one and two. I will present a brief description of the methods and tool used for phase four. In addition, a brief description of ethical considerations will be provided. Lastly, I will integrate a discussion of the nature of and rationale for mixed methods designs and of key methodological concepts (pragmatism, thematic analysis, triangulation, and reflexivity) as they apply in my thesis.

4.1 Overall study design

Taking into account the aim and objectives of this research study and the questions posed previously in Chapter 1, I designed my study in multiple interrelated phases as follows (Figure 4.1):

- **Phase 1** (*Qualitative*): face to face interviews and focus group discussions with YESW helped me understand the perceptions of YESW of PA and inactivity and the factors affecting their engagement with it.

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- **Phase 2** (*Quantitative*): Survey with YESW. This enabled me to identify and measure the prevalence of factors.
- **Phase 3** (*Merging results*): a comparative analysis from the results of phases 1, and 2 to confirm and validate the findings (described in Chapters 6 to 9). This comparison helped me validate the findings and to draw meaningful conclusions and implications.
- **Phase 4** (*Policy review*): a policy review of PA in Saudi Arabia to explore possible ways to promote PA among YESW.

The following sections of this chapter describe my study rationale, methods and design used for data collection and analysis of each of the four research phases of my research.

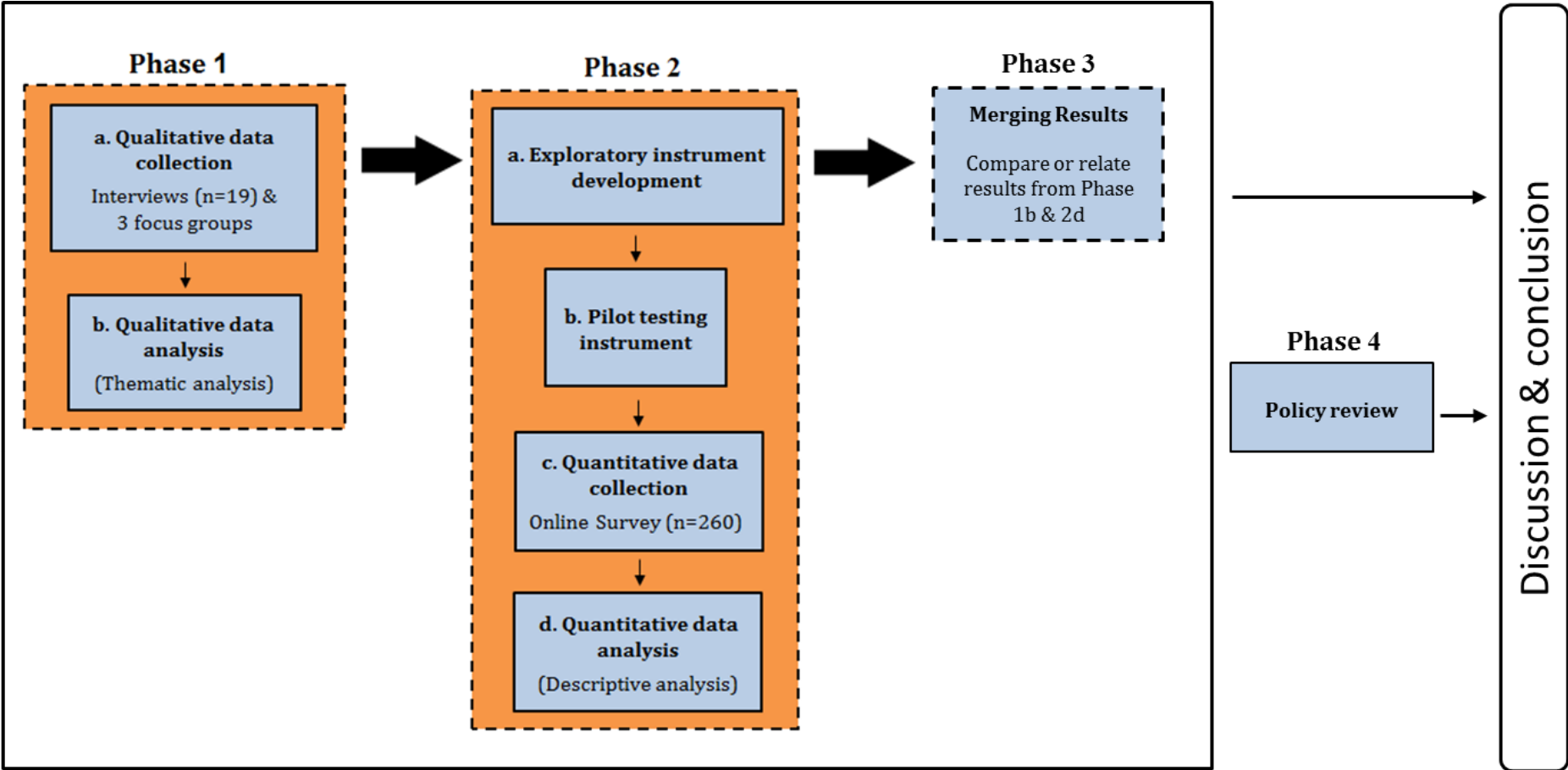


Figure 4.1: The study design

4.2 Study rationale

This study has used a mixed methods design with qualitative and quantitative approaches. In this section I briefly outline my overall theoretical perspective and then describe how I approached combining qualitative and quantitative methods.

Quantitative and qualitative methods are often regarded as differing epistemologically. For example, scholars such as Tashakkori & Teddlie suggest that quantitative methods are mostly based on a positivist or post positivist paradigm, whereas qualitative methods are often based on a constructivist or interpretivist paradigm.^(176, 177)

Despite these theoretical differences, health and social behavioural studies have been able to combine these approaches over the past thirty years. From an epistemological perspective, pragmatism offers a way to combine the strengths of qualitative and quantitative methods.^(178, 179) It can be defined as a theoretical perspective that supports an intuitive approach to research and allows researchers to select methods that are consistent with their intuitions and value systems.^(177, 180) Pragmatists argue that mixing design throughout the planning, data collection, analysis and inference stages of a study can enrich the multiple sources of data and their interpretation.⁽¹⁷⁷⁾ What is critical to pragmatism is not how well the research matches a set of conventions, but rather how well methods fit with the purpose of the research.

In my study, I used pragmatism and took account of standards to decide what methods to use. These include:

- Selecting methods that yield data that answer the research questions;
- Ensuring coherent background assumptions to the research; and
- Efficient application of methods and data analyses to provide credible results.⁽¹⁸¹⁾

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A mixed methods research design allowed me the freedom to choose the most appropriate data collection method for each phase of my research.⁽¹⁸²⁾

The literature provides several definitions and examples of mixed method designs (e.g., see Johnson, Onwuegbuzie, & Turner, 2007).⁽¹⁸³⁾ Interpretations of mixed methods design are still evolving^(177, 183, 184). Johnson, Onwuegbuzie and Turner (2007) have gathered several definitions from social science studies as follows: Tashakkori and Teddlie (1998) have defined mixed methods as simply a combination of “qualitative and quantitative approaches in the methodology of a study”. Others described mixing as applying quantitative and qualitative components across separate phases/strands.⁽¹⁷⁸⁾ A “multiple methods” study refers to mixing two complete research projects within the same study.⁽¹⁸⁵⁾

Tashakkori and Creswell (2007), explain that researchers need to distinguish between a definition of mixed methods as either the *collection and analysis* of the two types of data (qualitative and quantitative) or the *integration* of both approaches to research. They argue that the first definition focuses more on “methods” while the latter on “methodology.” The first combines two types of data without integrating the result whereas the second integrates the findings. A method refers to the details of the techniques or procedures used to collect and analyse data, such as survey, interviews, or participant observation. By contrast, a methodology refers to the philosophical assumptions guiding the choice and use of methods, for example ethnography, survey research or phenomenological research including the mixture of the two approaches.⁽¹⁸⁷⁾ Creswell and Tashakkori adopt a definition that captures both aspects:

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“mixed methods research is defined as research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry”^(178, 184)

In my study, I used the mixed methods approach described comprehensively by Creswell and Plano as follows:

- “collects and analyses persuasively and rigorously both qualitative and quantitative data (based on research questions);
- mixes (or integrates or links) the two forms of data concurrently by combining them (or merging them), sequentially by basing one on the other, or embedding one within the other;
- prioritizes between both forms of data (in terms of what the research emphasizes);
- uses these procedures in a single study or in multiple phases of a program of study;
- frames these procedures within philosophical worldviews and theoretical lenses;
- and
- combines the procedures into specific research designs the direct the plan for conducting the study”⁽¹⁸²⁾

As indicated in the above definition, researchers have to complete several tasks when applying mixed methods designs; they may use quantitative and qualitative techniques together, in parallel, or in sequential phases.⁽¹⁸⁸⁾ Creswell, Plano Clark, Gutmann, and Hanson (2003), classified these techniques into two major categories, *sequential* and *concurrent*, with three variations of both.⁽¹⁸⁰⁾ In sequential designs, either the qualitative or quantitative data are collected in two distinct sequential phases. In contrast, concurrent designs are characterised by the collection of both types of data during the same research phase. Design plans are based on the priority given to the qualitative and quantitative data (equal or unequal), the methods used to analyse and integrate the data, and the theoretical basis underlying the study’s methodology.^(180, 189)

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In my study, I implemented an exploratory sequential mixed methods design, starting with the collection and analysis of qualitative data followed by the subsequent collection and analysis of quantitative data.⁽¹⁸²⁾ I chose this approach because:

- Most literature on PA in Saudi Arabia is of a predominantly quantitative nature which does not describe *how* and *why* YESW engage in PA. A qualitative approach would offer new and unique findings;
- I could use the findings from the in-depth face to face interviews to develop the research instrument for the focus groups discussions. Both interviews and focus groups findings could be used to identify the variables for developing a quantitative instrument for the next phase;
- This instrument can used to explore perceptions and measure the prevalence and association of factors;
- I could compare my qualitative and quantitative findings, and confirm and validate them.

Finally, I could compare my merged findings with a discrete policy analysis, which I included as phase 4. Therefore, a sequential exploratory mixed methods design would be most appropriate for my overall study design.

4.3 Phase 1 (Qualitative): Semi-structured face to face interviews and focus group discussions with YESW

4.3.1 Rationale for the interview and focus groups

Conducting in-depth interviews is a common approach to obtain qualitative data.⁽¹⁹⁰⁾ It enables a researcher to explore individual experiences, thoughts, attitudes, beliefs, opinions, perceptions and views in regard to particular research questions while interacting with the research participant.⁽¹⁹¹⁻¹⁹⁴⁾ On the other hand, a focus groups are guided discussions among a small group of people who share common characteristics related to the topic being discussed.⁽¹⁹⁵⁻¹⁹⁷⁾ Focus group discussions include interactions among group members and their comments and reactions to each other reveal unknown facets of the studied phenomenon.⁽¹⁹⁸⁻²⁰⁰⁾ Such interactions can highlight similarities and differences among group members and thus generate unique insights about shared experiences, social norms, and public understandings especially when aiming to understand differences in perspectives or to determine the factors that influence opinions or behaviors.⁽¹⁹⁷⁾ According to Krueger (2009), a group discussion is the best way to investigate a topic in a social setting and encourage the sharing of experiences. In this context, researchers have identified advantages to using focus groups. In particular that they:

- Provide participants with the flexibility and freedom to express their opinions and views;⁽²⁰¹⁾
- Solve problems that might occur during discussions;⁽²⁰¹⁾
- Provide rich data at a small cost;⁽¹⁹¹⁾

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- Categorize individuals and document their reactions and opinions in a controlled and systematic manner while eliciting a broad range of ideas;⁽²⁰²⁾
- Uncover macro level data.⁽²⁰³⁾

In my study, I conducted face to face interviews and focus group discussions sequentially. Face to face interviews were conducted first because it is possible that my topic could be sensitive to some YESW because it covers questions on individual attitude, feeling, beliefs and culture norms. Therefore, face to face interview can ensure anonymity for participants also its can allow me to provide them with total attention and prompt them for future detail during the discussion to explore private understandings and personal views and perceptions of YESW in PA.⁽²⁰⁴⁻²⁰⁶⁾ Conducting focus groups discussion next, can allow me to examine opinions and beliefs of public understandings of PA participations among YESW. Hence, in this study, the focus groups were shaped by the data gathered during the initial face to face interviews, and the two methods interacted to produce richer data. I combined data from face to face interviews and focus groups for data completeness and/or confirmation.^(207, 208) Each method revealed additional information and complementary views contributing to a more comprehensive understanding.⁽²⁰⁷⁻²⁰⁹⁾

4.3.2 Research participants

I selected Saudi female undergraduate students (18 to 24 years old) currently enrolled at the Faculty of Health Sciences in one university in Saudi Arabia for both phase one and two of my study. This university is in a large city with 5000 students from both the city and smaller surrounding towns. More details about participants' demographical information are provided in Chapter 5. I chose YESW as the target

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population for the following four reasons:

1. Research studies on PA status, perceptions and beliefs among YESW are limited;
2. Young university students are at an age where they typically shift to becoming less physically active;⁽²¹⁻²⁵⁾
3. University students represent a major segment of the young adult population; they are also the future social opinion leaders and decision makers. More specifically, students from the Faculty of Health Sciences – more so than others – are expected to promote healthy lifestyles in their future careers;⁽²¹⁰⁾
4. Considering the funding, accessibility to the target populations, and time frame limitations of my PhD program, feasibility is an important parameter to define which target population group is to be selected.

4.3.3 Participants' motivations to participate in face to face interviews and focus groups

Though participation in the interviews and focus group discussion was voluntary and no reimbursement of any kind was offered to anyone, participants expressed feelings of excitement about the opportunity to be heard and express their opinions and share experiences face to face, especially given that the research invitations they receive are typically of a quantitative nature. Other participants hoped that this discussion would lead to immediate change in the facilities for PA at the university.

4.3.4 Procedure

Face to face interview

I conducted interviews at the place of recruitment (Faculty of Health Sciences in one university in Saudi Arabia) between January and March 2014. Potential participants were recruited with the help of a Faculty member who accessed a list of currently registered students (approximately 900) including their names, classes, email addresses, and phone numbers. Following that, she forwarded my e-mail to individuals on this list, briefly explaining the research study and asking them if they were interested in receiving further information about the study via e-mail. In addition, for phase 1 (interviews and focus groups) I also recruited participants by asking permission from some lecturers at the Faculty of Health Sciences to speak face to face to students at the beginning of their class to briefly explain the study and invite them to take an information sheet (see Appendix B & C) to participate in either an in-depth interview or focus group discussion. When potential participants indicated their interest to the Faculty member or me personally, they later emailed me their contact details. Next, I emailed them the information sheet containing the aims of the research, potential outcomes, benefits of the research, and the requirements for participating. Following this, I either called or e-mailed potential participants to discuss their involvement in the study. Participants had the opportunity to ask me any questions about the study before deciding whether to participate or not. I asked participants to sign a consent form confirming their voluntary participation without any financial reimbursement.

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During the recruitment period, a total of 25 potential participants approached the Faculty member or me to indicate their interest in the study. After these 25 potential participants read the information sheet and discussed the study with me, they all agreed to participate in the study and I scheduled an interview time with them. However, six people did not show up. I contacted these six potential participants to reschedule the interview; however, four potential participants cancelled and withdrew and the other two did not answer my call. In total, I conducted nineteen semi-structured face to face audio recorded interviews with a mean duration of 55 minutes (range: 35-75 minutes) in a meeting room on campus (Figure 4.2). This sample size allowed me to reach data saturation ⁽²¹¹⁾, because I did not find any new data with little and no change to my coding.⁽²¹²⁾

Focus group with YESW

I conducted three focus groups between April and June 2014. Nineteen participants attended the discussions (six in the first, seven in the second, and six in the third group). All focus group discussions were audio recorded and lasted 95 minutes on average. A more detailed description of participant demographics is discussed in Chapter 6.

The same procedure used to recruit participants for face to face interviews – described earlier in the above section – was used to select participants for focus group discussions. During recruitment, thirty-one potential participants considered taking part in focus group discussions. After reading the information sheet and discussing the study with me, they agreed to participate. I scheduled three focus group discussion sessions and times and

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invited the 31 potential participants to select the best time for them to attend. Next, I confirmed the dates and times for the three focus groups and informed the 31 potential participants. Ten did not attend their scheduled focus group discussion. I contacted these ten potential participants to reschedule the focus group; however, seven potential participants could not agree on a date. Therefore, I cancelled the focus group discussion with the remaining three potential participants due to the insufficient number of participants for a focus group discussion.

I found that when coding the third focus group I did have a new data or coding different than what I found in the prior focus groups and face to face interviews, thus these three focus groups enabled me to reach data saturation.⁽²¹³⁾ Prior to the focus group discussions, participants were required to sign a consent form to indicate their voluntary participation without any financial reimbursement.

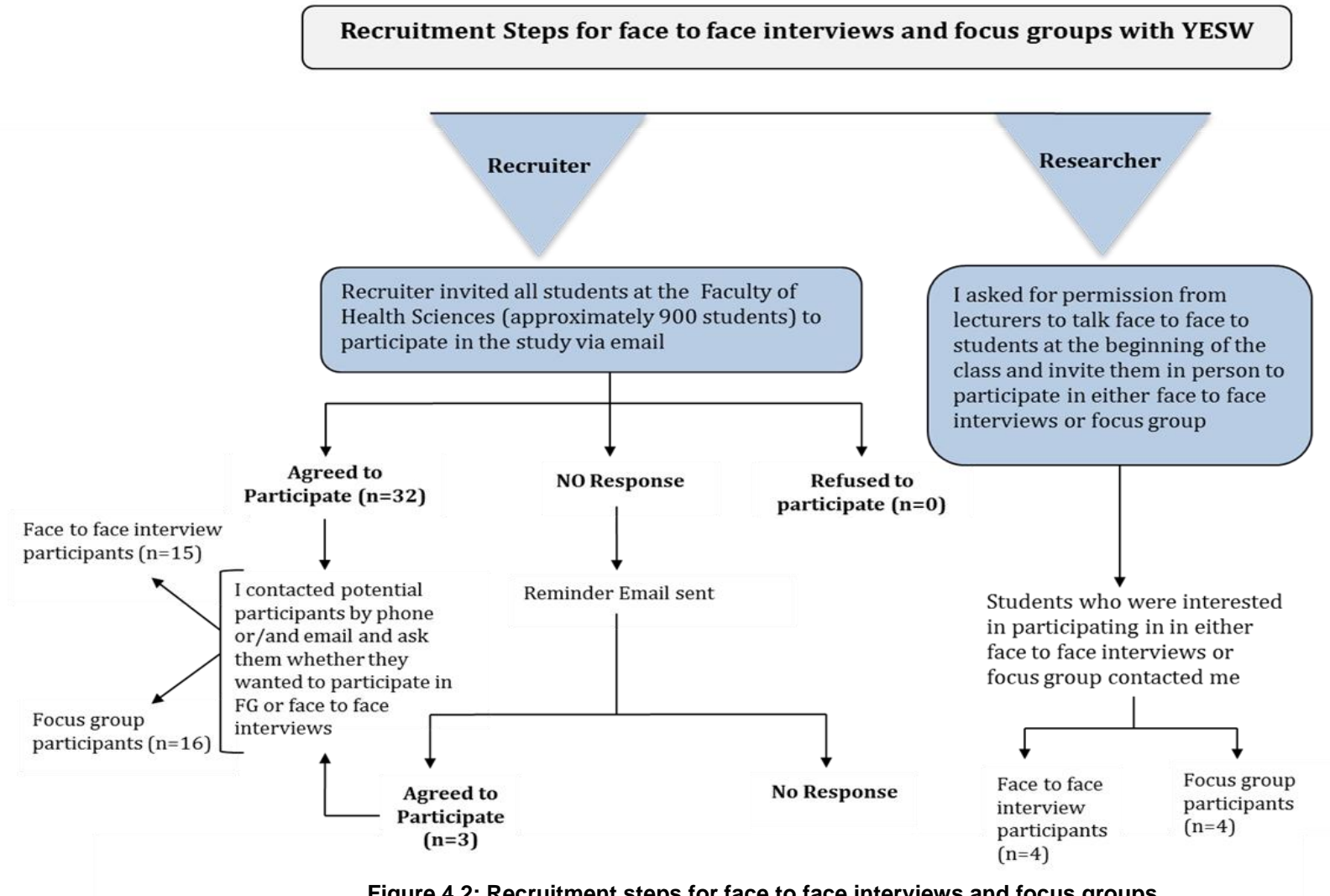


Figure 4.2: Recruitment steps for face to face interviews and focus groups

4.3.5 Schedule and data collection

Face to Face interviews

I conducted the face to face interviews using a semi-structured guide with open-ended questions.⁽²¹⁴⁾ I designed the interview questions around the components of the social ecological model (individual, social environment, physical environment and policies) as I previously described in Chapter 3, and focused on: (1) the meaning of PA; (2) barriers and facilitators to PA; and (3) potential intervention activities and strategies. For example, I started the face to face interview by asking the participant about her weekly routine. Then I used prompts questions such as PA attitude and *practices*. Some examples of the interview schedule are illustrated in Table 4.1. The full interview guide is attached in Appendix D.

Table 4.1: Phase 1 Face to face interviews schedule- Examples of interview questions

Questions	Prompts
Tell me about your weekly routine?	<ul style="list-style-type: none"> • Tell me a little bit about if you have a favorite physical activity. Where do you do it? With whom? For how long? And how often? • Have you always been like this? • How and where do you spend your free time? • If not, can you tell me about how that might have changed over time? • How do you get around? What kind of transport do you use to get around? • What do you think about the weather in terms of physical activity? What is better? What is worse? • Some people think that having good access to swimming pools or health clubs/gyms is important! Does this matter to you? • We haven't talked about if you walk anywhere. Tell me about that! That sounds interesting! Thank you very much, It's seems to me that you are saying that you don't do a lot of walking! Can you tell me a little bit about the things that make it easy or difficult to you to walk
What other things do you think the university could do in terms of enabling more physical activity?	<ul style="list-style-type: none"> • Tell me about the facilities and services for physical activity here in the university! Would you use them? Why? And why not?

Initially, I conducted four pilot interviews (two in Australia, and two in Saudi Arabia).

Interviews conducted in Australia were by two volunteers with similar characteristics to those in the target population (e.g. Saudi female students studying at the Faculty of Health Sciences in Australian universities). My supervisors observed the interviewing process, discussed the transcript with me, and then approved the interview guide. After that, I conducted two pilot interviews with volunteers from the Faculty of Health Sciences in Saudi Arabia. After each interview, I asked the participant for her feedback about the questions, or ways to improve the interview schedule, face validity, and cultural sensitivity.

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These participants did not suggest any changes; therefore, these pilot interviews were included in the final data set.

After securing the permission of participants, I audiotaped all interviews and wrote a few notes and observations on the day; additionally at the end of each interview I asked participants to answer on a sheet some demographical questions such as age, year of study, parental occupation and education level (see the Appendix D for the full questions). I transcribed all interviews and then coded two transcripts at a time to monitor for data saturation before further recruitment. I hired a *professional* translator to assist me in transcribing and translating the interviews from Arabic to English and vice versa. The majority of the translations were word for word, were not easily accessible to an English-speaking reader and, as translated, did not convey the intended meaning. With the assistance of one of my supervisors, Dr Xafis, who also has a linguistics background, the transcripts were adjusted to convey the intended meaning and be accessible to the English speaking reader.

Focus group discussions

My focus group discussion questionnaire guide built on the questions I used for face to face interviews. I started the focus group by asking the participants to write down their own definition of PA, and then I discussed their answers with them. Some example of focus group questions are described in Table 4.2. A full copy of the focus group discussion guide can be found in Appendix E.

My supervisors and I then revised the guide several times until there was agreement from all. After that, I conducted a pilot focus group discussion with volunteer students at the

Faculty of Health Sciences in Saudi Arabia. The data collection procedure was the same as that for face to face interviews described earlier in previous section.

Table 4.2: Phase 1 Focus groups guide- Examples of interview questions

Questions	Prompts
<p>An opening and question:</p> <p>Today, I would like to discuss some of the face to face interview results with you, to see how they fit with your own views and experiences. But, I would like to begin by asking you to write down on the piece of paper in front of you how you define physical activity. Then, we will discuss your answers together</p>	<ul style="list-style-type: none"> • physical activity • Fitness • Exercise
<p>Do you think being physically active is important to YESW? Why? Why not?</p>	<ul style="list-style-type: none"> • What sort of impact do you think physical activity might have on physical health? • What sort of impact do you think physical activity might have on mental health? • Do you think physical activity could be harmful to YESW? If yes, in what way?

4.3.6 Data analysis

I used thematic analysis to analyse the data from interviews and focus groups. Thematic analysis is commonly used in the analysis of qualitative data⁽²¹⁵⁾, as it enables researchers to recognize patterns within a data set and unfold further aspects of the research topic.⁽²¹⁶⁾

²¹⁷⁾ Usually, a theme describes and organises observations; however, it may contribute to interpreting parts of the phenomenon under study as explained by Boyatzis.⁽²¹⁶⁾ A theme can be constructed as a state captures and brings meaning to pattern of response within a

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data set.⁽²¹⁷⁾ Careful reading and re-reading of responses is key to identifying themes within a data set.⁽²¹⁸⁾

In my data analysis, I used this thematic approach and followed the six phases of Braun and Clarke's guidelines for thematic analysis (Figure 4.3). In their thematic analysis guidelines, Braun and Clarke (2006) propose two primary approaches to identify themes: first, they suggest linking codes and themes to data (inductive approach), and, second, identifying codes based on a particular theoretical interest (theoretical/deductive approach).

Phase	Description of the process
1 Familiarising yourself with your data	<ul style="list-style-type: none">• Transcribing data,• Reading and re-reading the data• Noting down initial ideas
2 Generating initial codes	<ul style="list-style-type: none">• Coding interesting features of the data in a systematic fashion across the entire data set• Collating data relevant to each code
3 Searching for themes	<ul style="list-style-type: none">• Collating codes into potential themes• Gathering all data relevant to each potential theme
4 Reviewing themes	<ul style="list-style-type: none">• Checking if the themes work in relation to the coded extracts and entire data set• Generating a thematic 'map' of the analysis
5 Defining & naming themes	<ul style="list-style-type: none">• Ongoing analysis to refine the specific of each theme, and the overall story the analysis tells• Generating clear definitions and names for each theme
6 Producing the report	<ul style="list-style-type: none">• The final opportunity for analysis. Selection of vivid, compelling extract examples• Final analysis of selected extracts,• Relating back of the analysis to the research question and literature,• Producing a scholarly report of the analysis

Figure 4.3: The six phases of thematic analysis (adapted by Braun and Clarke, 2006)

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After transcribing and translating all transcripts from Arabic into English, I saved and organised all transcripts using the Nvivo qualitative analysis software package (version 10). Next, I read the transcripts while simultaneously listening to the audio recordings repeatedly to familiarise myself with the data and ensure I understood the key messages conveyed by each participant.

I started my analysis by reading and rereading the transcripts. I open-coded one transcript⁽²¹⁹⁾, and then discussed the coding with my supervisors. We agreed I would then use the social ecological model as a framework for my analysis because my initial coding fitted into this well. My supervisory team reviewed my theme identification process and results. I coded all transcripts and each member of the supervisory team coded a few transcripts. To ensure accuracy and agreement on a consistent coding system, I periodically met with my supervisors and discussed key findings and any unclear issues or difficulties arising in the phase of data analysis. After reaching a consensus on the coding system, I assigned axial codes to particular ideas or reactions and, if necessary, created sub-categories for particular themes to show they were nested under broader ideas or concepts. Then, I refined the main themes and sub-themes and matched them with the relevant levels of the social ecological model (SEM): the individual, social environment, physical environment, and policies as previously described in Chapter 2. Finally, the sub-themes were categorised using predefined codes according to the SEM factors: beliefs, knowledge, skills, attitudes, friends, family, social networks, cultural norms and values, built environment, climate, national and public policies on PA. I identified five primary themes: cultural and social norms; natural environment; access to PA facilities; personal reasons; and lack of physical education. For example, I took quotations such as *“I always feel great after exercise even if I was tired before; everything changes after, my mood, my energy, I love exercising”*

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(*Interview, Participant 7*) and included it in category *attitude* and then created subtheme *happiness* and then theme *emotions* which I matched it with relevant SEM factors *individual*. An example of the coding process from text to theme is given in Table 4.3. The final themes and sub-themes are as shown in Table 4.4. The results of the thematic analysis are presented in Chapters 6 to 9.

Table 4.3: Coding process from text to theme

Text	Categories	Subtheme	Theme	Relevant SEM factor
<i>“I always feel great after exercise even if I was tired before; everything changes after, my mood, my energy, I love exercising” (Interview, Participant 7)</i>	Attitude	Happiness	Emotions	Individual
<i>“People don’t really accept women walking in the street! Like my dad, for example, will tell me, (No, do not! Why? Why would you be the only woman walking in the street like this?).” (Interview, Participant 4)</i>	Social networks	Influence of family	Influence of family and friends	Social environment
<i>“There are no footpaths for pedestrians. It is either you are walking on a mound of sand, the highway, or on the road.” (Interview, Participant 1)</i>	Built environment (infrastructure)	Conditions of neighbourhoods and streets	Built environment	Physical environment
<i>“Female public schools have no places to practice physical activity because I feel they do not have budget for this, they need equipment and big space like fields; also they must bring female PE teachers and it’s hard to find them.” (FG1)</i>	National PA policy		Public policy	Policy

Table 4.4: Final themes and sub-themes

Theme	Sub-theme
Beliefs	About PA
Knowledge and skills	About PA About healthy diet
Time and commitment	
Emotions	Embarrassment Fear Happiness
Social support networks	Family and friends Social media and PA
Cultural norms	Freedom to move <ul style="list-style-type: none"> - attire and PA - walking on footpaths in the streets without a male accompanying - fear of harassment in public and in the street Role of marital status on PA
Built environment	Infrastructure, instructions for pedestrians, traffic, and safety PA facilities for women
Effect of climate	
Transportation	
Legislation impacting on PA	Physical education in schools and universities Encouragement for women Engagement in PA
Public policy	Government/ legislation for women's-only health clubs Cost of women's health club membership

4.4 Phase 2 (Quantitative): Online survey with YESW

4.4.1 Survey design

Reflecting on the findings of in-depth interviews and focus groups, together with the literature review on PA, I adapted the framework of the social ecological model of PA and developed a quantitative exploratory instrument (Online Survey via Survey Monkey). Full details survey is provided in Appendix G.

The survey included questions on three main parts: PA level and type, social ecological factors of PA and socio-demographics including the following:

- **PA level and type**

I adapted the short International physical activity Questionnaire (IPAQ) to assess PA level by asking each YESW how often (the number of days per week) and for how long (the average time in minutes) she had been active at light, moderate, and vigorous intensities during the last seven days.

I assigned intensities to an average Metabolic Equivalent Time (MET) to yield MET-minutes (MET-min) per week. I based the overall MET value on average MET value for each intensity in the MET-compendium.^(220, 221) Light activity was 3.3 MET, vigorous 8.0 MET, and moderate 4.0 MET. I scored data according to IPAQ scoring protocol, Version 2.0.⁽²²²⁾ All participants who, in one or more intensity level had reported days (frequency) and time (duration) of PA or vice versa, were included in the analysis by summing up the frequency and the duration of PA.

Table 4.5: PA levels of the International PA Questionnaire (IPAQ)

PA level	Cut-off levels
Light	- some activity is reported but not enough to meet moderate or high intensity MET guidelines ⁽²²²⁾
Moderate	- three or more days of vigorous activity for at least 20 minutes per day or - five or more days of moderate or vigorous intensity activities achieving a minimum of 600 METmin per week ⁽²²²⁾
High	- three or more days of vigorous activity accumulating at least 15000 METmin per week or - seven days of any combination of light, moderate or vigorous intensity activities achieving a minimum of 3000 METmin per week ⁽²²²⁾

The IPAQ scoring protocol is used to categorise the PA levels of participants.

Table 4.5 illustrate the cut-off limits for the PA levels that are based on IPAQ.

Below are more detail in how the IPAQ measures each activity per week as follows:

1. Light activity level refers engaging in some activity but not enough to meet moderate or high intensity. Subjects at this level are not meeting the recommendations level of PA;
2. Moderate level refers to PA of moderate or vigorous intensity equal to 600 MET minutes/week (5 days * 30 minutes * 4.0 MET), or three days of vigorous activity per week for 20 minutes (3 days * 20 minutes * 8.0 MET = 480 MET minutes/week). Performing this amount of activity for either moderate or vigorous viewed as a cut-off recommendations for health benefits;

3. High level of PA refers to persons who accumulate a minimum of 1500 MET minutes/week (60 min * 3days * 8 MET) of vigorous activity or a minimum of 3000 MET minutes/week of any intensity in seven days. Subjects operating at this level are believed to be adequately active for health benefits.⁽²²²⁾

I also added a question on type of PA, with types including: running, jogging, walking outdoor, and walking indoor (treadmill machine), dancing, yoga, swimming, aerobics, or other activities.

- **Social ecological factors of PA**

As mentioned earlier, I adapted the SEM to explore factors shaping the engagement of YESW in PA (Figure 4.4). I prepared forty-eight questions on individual, social, physical environment and policy factors. These questions were built on the findings of in-depth interviews and focus groups, together with the literature review on PA. A few examples are presented in Table 4.6.

Table 4.6: Examples of How the Qualitative Data Were Used to Build Quantitative Survey Items

SEM Factors	Quotations from Qualitative	Corresponding Survey Item using three-point Likert scale (Agree, Disagree, Neutral)
Individual	<i>“It is very embarrassing to walk fast in public places; people would think that I am a woman with no manners and I feel strange running in front of everyone.” (FG3)</i>	I feel embarrassed to engage in outdoor physical activity in front of people (e.g. fast walking or running)
Social environment	<i>“Our traditions dictate that if a girl wants to go out walking, a man [brother/father/ husband/ son/ relative] should accompany her.” (FG1)</i>	I can walk alone without a male accompanying me on sidewalks in streets
Physical environment	<i>“In our neighbourhood there are no footpaths, there is no place to walk; honestly, even if you go from one house to another, there is no place to walk, you must walk on the street.” (Interview, Participant 10)</i> <i>“I feel scared to walk in my neighbourhood especially at night, it is dark and you really don’t find people walking.” (Interview, Participant 12)</i>	It is difficult to walk where I live because there is a lack of infrastructure e.g. sidewalks, walking signals and lights
Policy	<i>“There is a curriculum on “Physical Education” taught only in boys’ schools and they have sports halls equipped for this purpose, whereas this curriculum is not taught in girls’ school at all (except for some private schools, where school fees are high).” (Interview, Participant 11)</i>	Lack of physical education classes/ curriculum in (schools and universities) education system is one of the barriers for Saudi women to participate in regular physical activity

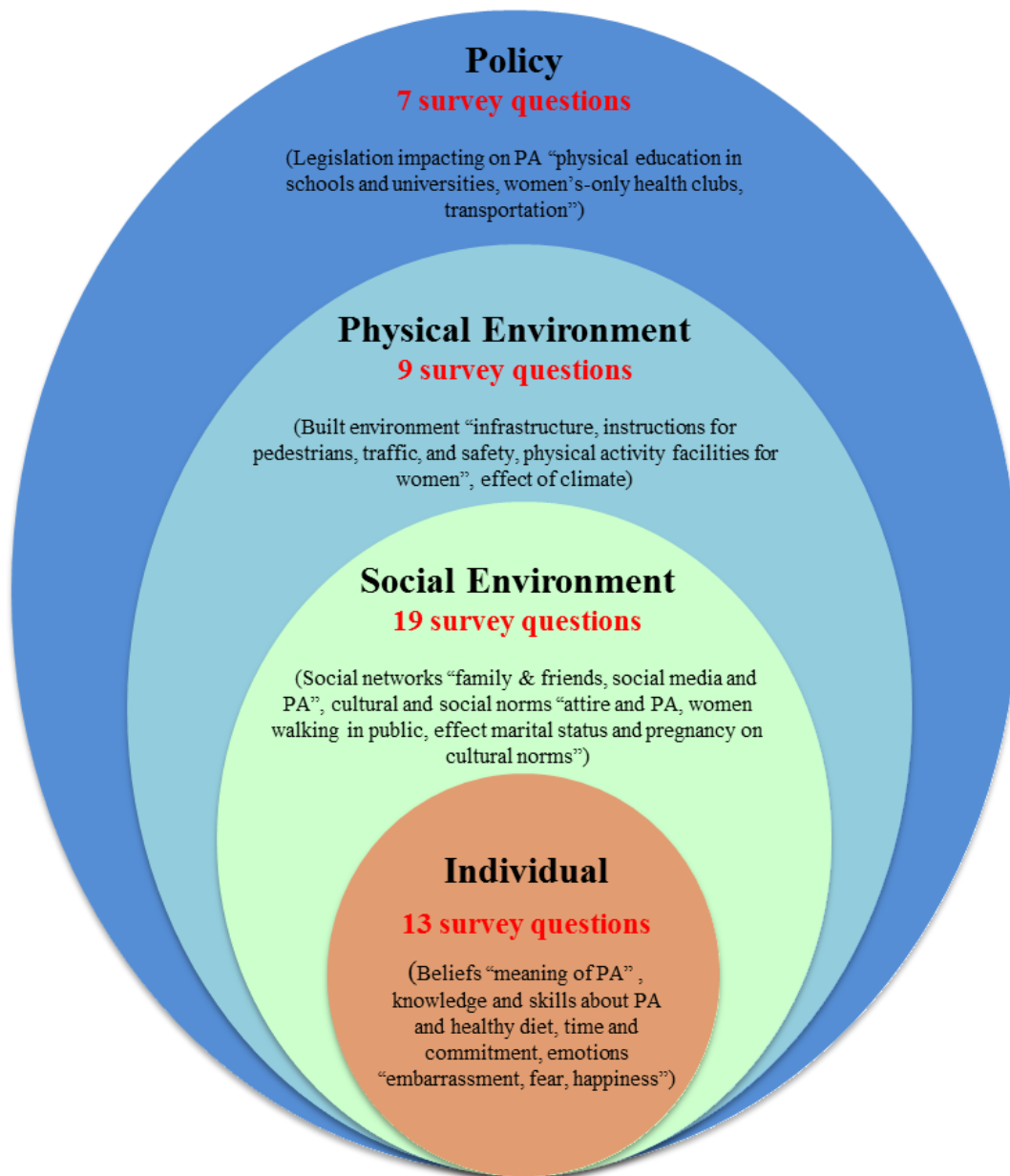


Figure 4.4: Numbers of survey questions that relate to the SEM factors

As shown in Figure 4.4, I captured individual factors in 13 questions related to knowledge and skills of PA and diet, motivation to perform PA, time and commitment, in addition to feelings of embarrassment, fear, and happiness. To assess the effect of social environment, I added 19 questions on perceptions of social networks (family, friends, and social media)

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in addition to social and cultural norms. I also added nine questions regarding the physical environment covering issues related to the built environment such as infrastructure, instructions for pedestrians, traffic, safety, presence and maintenance of footpaths and recreational facilities. In addition, there was also a question about the effect of climate on PA. For policy factors, I included seven questions about legislation related to PA (e.g. physical education in schools and universities), opportunities to engage in PA for women, membership fees in women's health clubs, and transportation. I used the three-point Likert scale (agree, disagree, neutral) for all questions except for the following two:

1. "During the last year, I have considered joining a gym outside of the university but could not do so due to the high cost"
 - a. I agree with this statement;
 - b. The cost is not a barrier for me, but I don't want to join a gym;
 - c. I am already a member of a gym.

2. Please rank the following activities from 1 to 5 (1 = most preferred, 5 = least preferred)" :
 - a. Physical Education course as an elective in female education system (Schools and Universities);
 - b. Extracurricular activities and events for physical activity such as marathon, cycling etc... in Schools and Universities;
 - c. Sports teams and competitions such as basketball in Schools and Universities;
 - d. Community awareness events on physical activity;
 - e. Affordable and accessible women's health clubs;
 - f. Other activities: please specify.....

To assess the internal consistency of the 48 questions, Cronbach's alpha will be calculated for questions relating to policy, social environment, physical environment, and individual factors. A commonly accepted rule for describing internal consistency using Cronbach's alpha is given in Table 4.7 and will be used to guide interpretation. It is important to note however that while Cronbach's alpha can provide a useful indicator of internal consistency when questions within a factor are trying to measure the same construct, it is not helpful when questions are purposively chosen to measure different constructs within a factor. In

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the case of the latter, we would expect (and not be disappointed by) a lower value for Cronbach's alpha. It should also be acknowledged that a greater number of items in an individual test can artificially inflate the value of alpha and conversely, fewer items can deflate it, so this rule should be used with caution.^(223, 224)

Table 4.7. Internal consistency

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor

Source: ⁽²²⁵⁻²²⁷⁾

• **Socio-demographic**

The socio-demographic questions included age, height, weight, and educational levels for parents, marital status, tobacco use, chronic diseases, college name and year of study.

Participants' ages were divided into two age ranges; 18-21 years, 22-25 years. Participants were asked to report their height and weight and then Body Mass Index (BMI) was calculated by dividing body weight by height squared (kg/m^2). Following the international BMI cut-off points for adults by WHO, a BMI of less than $18.5 \text{ kg}/\text{m}^2$ was classified as underweight, between $18.5\text{-}24.9 \text{ kg}/\text{m}^2$ as normal weight, between 25 and $29.9 \text{ kg}/\text{m}^2$ as overweight, and more than $30 \text{ kg}/\text{m}^2$ as obese.⁽²²⁸⁾ Options for the highest educational levels achieved for parents were university/college or equivalent, secondary school, intermediate or under. Participants were also asked to report on the size of their household,

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which was divided into 3 categories: 4 members or less, 5 to 9, 10 and more members. Marital status was classified into three categories (single, married or divorced). For tobacco use, participants were categorized as daily smokers, rarely smoke, sometimes smoke or non-smokers. Chronic diseases were categorised by their presence or absence. Participants recorded their college name and year of study as well (Appendix G).

4.4.2 Procedure and data collection

The survey was originally developed in English and after I reached agreement on the final form of the survey items with my supervisors, I translated it into Arabic. Initially, I translated myself the survey from English to Arabic then my external supervisor Prof. Gawaad (who is bilingual English and Arabic and Arabic is her mother language) translated the survey separately. We both retained the meaning of the items as close to original version as possible. Then we compared and assessed item-by-item similarity and differences across the two translations. Then we discussed and revised the items until we reached an agreement. When the Arabic survey version was finalised we back translated it to English following the same process.

I used the Arabic survey version and conducted twenty pilot interviews to test appropriateness of the questions' format and sequence and ensure face validity and cultural sensitivity. Following each pilot interview, I asked the participant for any feedback and comments. Based on the feedback received, I modified a few questions for better interpretability.

I collected data between February and March 2015. Potential participants were recruited with the help of the same faculty member who recruited participants for phase 1. She accessed an updated list of currently registered students (approximately 901 students),

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including their names, classes and email addresses. Next, she forwarded on an e-mail briefly explaining the nature and aim of phase 2 of the study with a link to fill out the survey online (see Appendix F). Three reminders, one every ten days, were sent to those who did not decline to participate.

Participants were asked to consent confirming their voluntary online participation before taking part in the survey. As a thank you gesture, a two dollar donation was made for each completed online questionnaire. Participants were asked to select donating to either the Zahra Breast Cancer Association or to the Child Care Association (see Appendix F).

4.4.3 Missing Data

Missing data is a common challenge in cross-sectional studies and is particularly evident in studies that use self-report instruments. Missing data occurs when respondents fail to answer all items or partially answer only some questions in a survey. In phase 2, as previously discussed in this chapter, we invited 901 students to take part in the study.

Nearly 29% of students (n=260) responded to the request. Some respondents accessed the survey but did not answer any items (n=68) and were subsequently excluded from analysis. All respondents who completed at least one survey question were included in the analysis (n=192) (Figure 4.5). Around 45% of all survey respondents completed all items of the survey, which is a particularly high (full completion) response rate.⁽²²⁹⁾

Many studies have indicated that participants who do not complete or partially answer a survey are different from those who complete it.⁽²³⁰⁾

As a result of this consideration, I compared the nature of those participants who partially completed the survey with those who completed all questions and then kept any

differences in mind when interpreting the quantitative survey findings. An explanation of the natural of missing data is provided in Chapter 5.

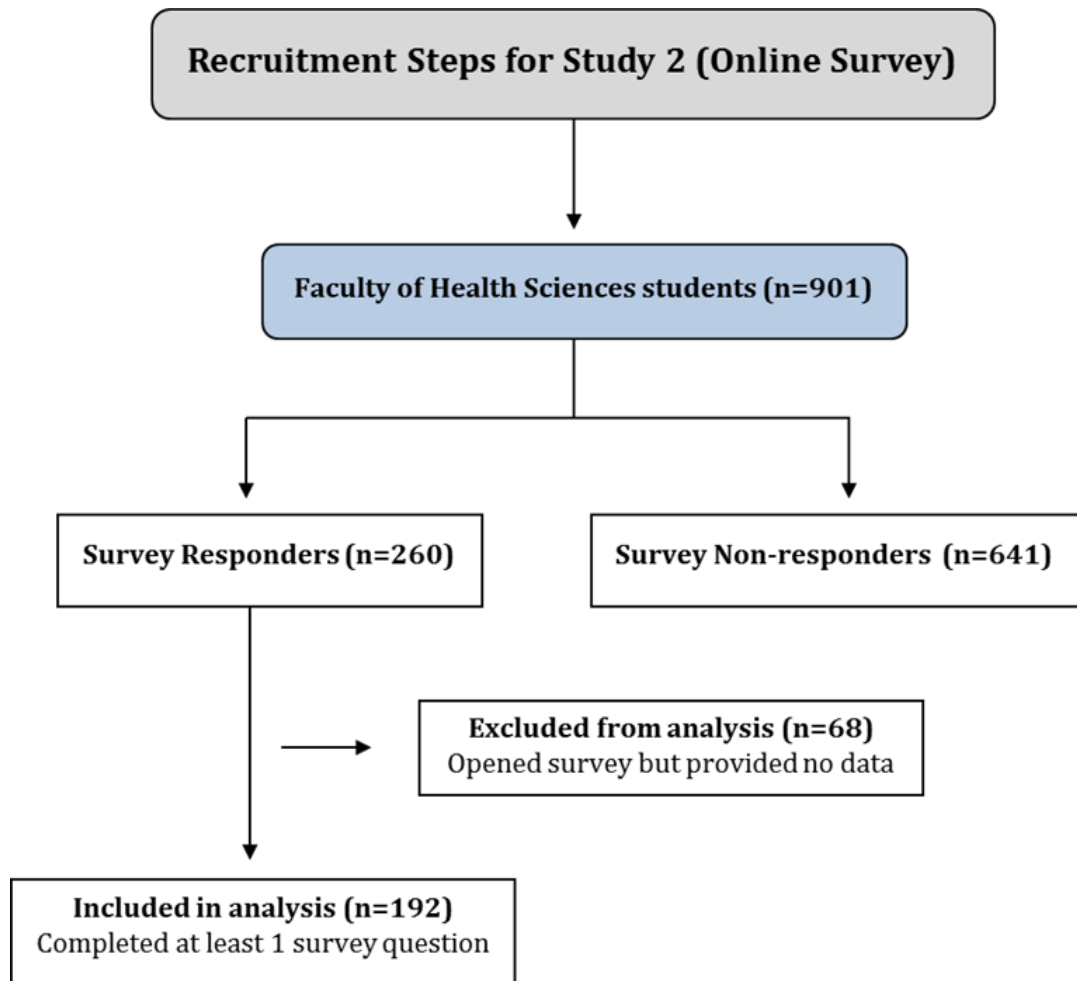


Figure 4.5: Recruitment steps for study 2 (online survey)

4.4.4 Data analysis

In the second phase of my study, I aimed to describe how common the factors shaping YESW's engagement in PA were as identified in phase 1. I also aimed to describe possible associations between these factors. In order to achieve this, I derived descriptive statistics using two-way contingency tables and numerical summary statistics. I completed all analyses using Microsoft Excel 2013.

4.5 Ethics considerations and data storage

This study was approved by both the ethics committees of the King Saudi University Approval number (3/12/45995) and by the Human Research Ethics Committee of the University of Adelaide (Approval number H-2012-174). (Appendices H & I). As per the approved ethics protocol, all participants consented to recording the sessions and audio tapes were securely stored. All study participants were provided with an information sheet clarifying the purpose and aspects of the study and ensuring the anonymity of participants and confidentiality of all information, in addition to their right to withdraw at any time.

Only the research team had access to audiotapes and data was stored in password protected files on a password-protected computer in my lockable office at the Saudi University and a copy of the files was transferred to the University of Adelaide as per section 2.2.2 of the Australian Code for the Responsible Conduct of Research (2007)^{i (231)} The data was securely stored in my lockable office at Adelaide University as well.

ⁱ Section 2.2.2 “Wherever possible and appropriate, research data should be held in the researcher’s department or other appropriate institutional repository, although researchers should be permitted to hold copies of the research data for their own use. Arrangements for material held in other locations should be documented”

4.6 Phase 3: Merging and triangulating findings

After analysing the two data sets from phase 1 (qualitative) and phase 2 (quantitative) separately, I conducted a comparative analysis to integrate and merge both data sets.

The purpose of this comparative analysis was to link the quantitative and qualitative findings and check for similarities and differences for greater credibility. To report results, I presented the qualitative and quantitative findings together, highlighting common themes and/or concepts to refine the final reporting of merged results. This process entailed using the data of each phase to clarify, elaborate, and enhance results from the other phase. Results from face to face interviews and focus groups revealed the views and perceptions of YESW regarding PA behaviour, while the survey measured their frequency and association with other views/perceptions. I organised the themes under the appropriate level of the Social Ecological Model (SEM) which will be described in Chapters 6, 7, 8 and 9. This exercise allowed me to pinpoint any differences between the results and map the complexity of PA behaviour of YESW. This process of intergradation and merging data helped me to validate the findings and then draw meaningful conclusions and implications.

4.7 Phase 4: Policy review

In phase 4, I conducted a policy review on PA in Saudi Arabia. I identified and then reviewed all available documents on related policies, regulations and strategies, programs and relevant activities. I used several methods including, internet searches (in Arabic and English). I searched Saudi ministerial websites (i.e. Ministries of Health, Education, Transportation etc.) using the keywords of policy, guidelines or action plan, each coupled with PA, physical inactivity, obesity prevention. Second, I used the Health Enhancing Physical Activity Policy Audit Tool (PAT), a standardized instrument to assess in mapping

national policy approaches to PA (Appendix J). Because this chapter was a separate piece of research, the methods and tools for this phase are described in more detail in Chapter 10.

4.8 Generalisation and transferability of findings

Research findings are said to be generalisable or transferable if they fit into new contexts outside the original study context.⁽²³²⁾ Generalisation refers to the extent to which the findings of a particular situation or population can be extended to another time, place, people or social context other than those directly studied.⁽²³²⁾

Transferability is comparable to external validity, which is the extent to which the findings can be generalised.⁽²³³⁾

Generalisation is one of the major criteria used to measure the quality of quantitative research.^(234, 235) However, given its complexity, issues relating to generalisation can arise even in studies that are considered to have high-quality data.^(234, 235) The issue of generalisation is even thornier in qualitative studies.⁽²³⁶⁾ Many qualitative researchers consider “generalisability” inappropriate since the inherent subjectivity of the researcher, sample size, and sample selection all raise questions about the extent to which results can ever be meaningful in other contexts.^(236, 237) Generalisability is sometimes replaced in qualitative studies in favour of enhancing the understanding of a situation.⁽²³⁶⁾

Using of mixed methods research which involves integration of qualitative and quantitative data can promote confidence in generalisation by providing better understanding of the similarities between findings and, through this, lead to transferability.⁽²³⁶⁾ As a result, since this study adopted a mixed method approach. I documented, justified and described the methodological approach undertaken for this

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research study (qualitative, quantitative, integration of qualitative and quantitative data and policy analysis) to assist readers interpreting my findings in other contexts.

Additionally, in Chapter 3, I described in detail my research context and relevant setting and women status in Saudi Arabia in order to assist readers interested in making use of my research findings in other situations. Moreover, Saudi Arabia shares traditional and cultural values which some are embedded in many Middle Eastern countries. The status of women in these countries especially in the GCC regions is related and is undergoing changes at a similar pace as that of Saudi Arabia; therefore the research findings may be applicable and of relevance in neighbouring countries (such as Bahrain, Kuwait, Oman, Qatar, and United Arab Emirates).

Lastly, this research may provide a deeper understanding for western citizens who interact with Middle Eastern women. Middle Eastern women who live and work in western cultures sometimes find it difficult to participate in PA programs that are available to them, especially in educational environments. Schools where there are large numbers of Middle Eastern women may also benefit from the research findings, as they may be able to understand the types of choices that inform many Middle Eastern women's experiences of PA. Consequently, educational institutions may be able to accommodate these students' needs so that they may also benefit from increased PA.

4.9 Reflexivity

Reflexivity has been increasingly recognised as a critical component of qualitative research.⁽²³⁸⁻²⁴⁰⁾ Reflexivity means that the researchers understand the influence of their social world during the study, and they have the ability to keep reflecting on their preconceptions and changes in their behaviour or of study participants and recognise how this could impact on the interpretation of their study findings.^(240, 241)

As a novice researcher, I realised that part of working on my PhD thesis research involved a profound understanding of my daily activities which influenced my research project. Therefore, reflecting on my experiences and interactions as an international PhD researcher was important for my research. From the beginning of my PhD program, I maintained a research journal to reflect my thoughts during my entire research journey. Notably, prior to my PhD studies, the topic of PA was not of interest to me as I had a different topic in mind. However, when I came to Australia and was exposed to new lifestyles, I was amazed as to how many people were self-aware about their health and fitness. I noticed many people from different age groups during the morning or after work hours undertaking PA such as running or walking. This all influenced and motivated me to choose to study PA especially among the YESW, because I wanted to explore how social norms, culture and the environment could influence people health behaviour. I thus need to acknowledge that, due to this early experience I felt that it was important to focus on this topic.

My study abroad experience has been an eye-opener to many things that I had taken for granted. For example, the physical environment where I study here in Adelaide such as the river bank, road connectivity and walkability all have impacted my understanding of the environmental influence on people's lifestyle.

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Reflexivity through reading the literature and discussions with my supervisors helped me to choose my study design. I found that most PA research in Saudi Arabia were quantitative and few have included women. Therefore, I decided to conduct interviews and focus groups to understand the real world and experience of the YESW.

Prior to conducting my data collection, I maintained reflexivity through searching the relevant literature and holding several discussions with colleagues. To enhance my interviewing skills and techniques, I read several texts to understand a moderator's involvement ⁽²⁴²⁻²⁴⁵⁾. Moreover, I engaged in discussion with colleagues at the discipline's Qualitative Methods Research Group and practised a focus group discussion session before heading to Saudi Arabia to conduct my study. Through this discussion, I had feedback which helped to improve my approach as a facilitator.

Prior to my PhD, I was working as a lecturer at the same Saudi university where I later conducted interviews and focus groups. For this reason, I was aware that I could have influenced participants particularly those majoring in community health where I used to work. Therefore, I explained at the beginning of both interviews and focus groups that although I was a lecturer, I had no influence over the participants' academic records. I also explained my role as a researcher and reassured them that their participation and responses were strictly confidential.

Previous teaching experience and involvement with students made me feel comfortable and confident in conducting face to face interview and focus groups. In addition, I was familiar with the environment and was welcomed and supported by faculty members and staff to conduct my study. The university provided me access to a conference room where I

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could lock the door, ensuring full privacy for participants. All these factors assisted me to feel comfortable during data collection, interviews and focus groups.

During data collection, I carefully thought about my interviewing style before starting each interview and focus group. I was committed to collecting representative data. For this reason, I knew that it was crucial to use good interview techniques. After the first interview, I listened to the audio recording and wrote extra notes in my research diary to help me to probe participants for further detail during the next interview. This helped me improve my interviewing technique and lead me to listen more carefully to participants' responses. I also kept a research diary to help me during data interpretations and findings.

Through my process of reflexivity in my research, I appreciated that YESW participants voluntarily shared personal views about themselves to explain their responses of engagement in PA. This made me feel very privileged to be able to interview them about their experiences and perceptions.

My study in Australia may have influenced my data analysis. For example, I felt challenged to explain the Saudi culture to my supervisors so they felt familiar with my participants' background. Yet, this made me more aware of my role as a researcher and let me step out of being an insider to see an outsider's view. I felt a tension between being part of the group that I was studying – being a YESW myself – while having to withdraw at times to isolate my feelings from those of the participants. However, continuous conversations with my supervisors enabled me to enhance my coding by balancing my emotions during my data analysis period. For this reason, their input and feedback have been beneficial in shaping and enhancing my final coding and themes. Therefore, all the points mentioned above strengthened my independent thinking and views about my

research study. Additionally, the ability to interact with and discuss my research topic with my supervisors had an empowering influence on shaping my research project.

4.10 Chapter summary

In this chapter, I have outlined the methods used for my multi-phased studies that were conducted for this thesis. I have described the rationale for the use of a mixed methods approach and theoretical perspective that were used to guide the methods, analysis and interpretation of the results. The ethical considerations taken into account were also described. The specific steps employed for recruitment, data collection and analysing the data for each phase 1 and 2 were also presented. In addition, I outlined how findings from the qualitative and quantitative phases were integrated, and briefly explained approaches necessary for the last phase of my study - the policy analysis. Finally, I also described the transferability and generalisation of findings and documented my own process of reflexivity. The following 5 chapters (Chapter 5-10) will present results from the face to face interviews, focus groups and surveys with YESW, starting with the demographics and characteristics of research participants in Chapter 5.

5 Characteristics of study participants

In this chapter, the overall characteristics of qualitative and quantitative study participants of my research are described in three sections: Section 5.1 describes qualitative study participants in terms of their demographic characteristics and the physical activities that they currently engage in most often; Section 5.2 describes the quantitative study participants in terms of their demographic characteristics, health profile and physical activity profile as well as the nature of missing data in survey responses; and Section 5.3 provides a comparison between qualitative and quantitative study participants.

5.1 Qualitative study participants

A total of 19 face-to-face interviews and 3 focus group discussions (each group composed of 6 to 7 participants) were conducted with YESW aged 18-25 years old. The demographic data presented in Table 5.1 indicate that the majority of interview and focus group participants were aged between 18 to 21 years, were single with no children, in their 2nd year of university, and from the College of Applied Medical Sciences. A very small percentage of participants (5% in each cohort) was married and had children and only one was divorced. The only notable difference between the interviewees and focus group participants was that none of the interviewees were studying Nursing, whereas a quarter of the focus group participants were.

When asked about parental education, most participants reported that their fathers had attained “university or college or equivalent” qualifications, and around half reported this

Characteristics of study participants

level of education for their mothers. When examining focus group participants alone, more than a third reported “Intermediate school or under” as the highest level of education completed by their mothers. With regard to occupations held by their parents, the majority of interview and focus group participants (63% in both groups) reported that their mothers were not employed outside the home and 27% reported that their mothers held government positions (including doctors, nurses, teachers, and other government positions). Unlike the participants’ mothers, a small percentage of fathers were reported as being ‘self-employed’ (16% in each of the groups) with the remaining fathers holding government positions (including doctors, engineers, teachers, and other government positions). Of all the fathers, only one was reported as working in the legal profession. As might be expected, these data correspond directly to the level of education reported for fathers. Finally, the majority of participants indicated that their family owns and resides in a villa with a substantially higher percentage of interview respondents (84%) and focus group participants (68%) indicating this as their residence. The remaining participants in each group indicated that their family resides in a rented villa or apartment.

Characteristics of study participants

Table 5.1: Demographic characteristics of interview and focus group participants

Variables	Interview participants (N=19)		Focus group participants (N=19)	
	<i>n</i>	%	<i>n</i>	%
<i>Age</i>				
18-21	16	84	12	63
22-25	3	16	7	37
Total	19	100	19	100
<i>College's name</i>				
Applied Medical Sciences	13	68	14	74
Dentistry	3	16	0	0
Medicine	2	11	0	0
Nursing	0	0	5	26
Pharmacy	1	5	0	0
Total	19	100	19	100
<i>Year of study</i>				
2 nd year	11	58	7	37
3 rd year	5	26	5	26
4 th year	3	16	7	37
Total	19	100	19	100
<i>Marital status</i>				
Single	18	95	17	90
Married	1	5	1	5
Divorced	0	0	1	5
Total	19	100	19	100
<i>Children</i>				
No	19	100	17	90
One	0	0	1	5
Two	0	0	1	5
Total	19	100	19	100
<i>Mother's occupation</i>				
Housewife	12	63	12	63
Teacher	1	5	4	21
Physician	3	16	0	0
Nurse	0	0	1	5
Government job	3	16	2	11
Total	19	100	19	100
<i>Father's occupation</i>				
Government job	12	63	13	69
Self employed	3	16	3	16
Physician	3	16	0	0
Teacher	0	0	1	5
Engineer	1	5	1	5
Lawyer	0	0	1	5
Total	19	100	19	100
<i>Mother's highest level of education</i>				
Intermediate school or under	4	21	7	37
Secondary school	5	26	3	16
University or college or equivalent	10	53	9	47
Total	19	100	19	100

Characteristics of study participants

	Interview participants (N=19)		Focus group participants (N=19)	
<i>Father's highest level of education</i>				
Intermediate school or under	3	16	3	16
Secondary school	3	16	4	21
University or college or equivalent	13	68	12	63
Total	19	100	19	100
<i>Residence Type</i>				
Villa rental	2	11	4	21
Villa owned	16	84	13	68
Apartment rental	1	5	2	11
Apartment owned	0	0	0	0
Total	19	100	19	100

Characteristics of study participants

In addition to providing accounts of their demographic characteristics, qualitative study participants were also asked to identify examples of PA that they engaged in. One activity that emerged as prevalent among qualitative study participants was walking. Walking was described as the favourite PA whether it was done for exercise or as part of a routine daily activity. In addition, some interview and focus group participants stated dancing (such as Zumba and/or local Arabic dancing) as a type of PA they were engaging in. Aerobics and yoga were also reported as a current activities that YESW engaged in, but they were not as *common* as walking and dancing.

5.2 Quantitative study participants

5.2.1 Demographic information

A total of 192 YESW aged 18-25 years old completed the survey. The self-reported demographic data (Table 5.2) illustrates that the majority of participants were single (70%), living with 5-9 other household members (54%), aged between 22 to 25 years (46%), in their 4th or 5th year university (27% and 25% respectively), and from the College of Medicine (39%). The majority of participants indicated that their parents' highest attained educational level was "university or college or equivalent", with 43% of mothers and 55% of fathers achieving this level. Approximately the same percentage of mothers and fathers were indicated as having 'secondary' and 'intermediate school or under' levels of education, in declining order of frequency.

Characteristics of study participants

Table 5.2: Demographic characteristics of survey participants

Variables	Survey participants (N=192)	
	<i>n</i>	%
<i>Age</i>		
18-21	52	27
22-25	88	46
Missing	52	27
Total	192	100
<i>College's name</i>		
Applied Medical Sciences	51	27
Dentistry	20	10
Medicine	74	39
Nursing	5	3
Pharmacy	21	11
Missing	21	11
Total	192	100
<i>Year of study</i>		
1 st year	3	2
2 nd year	11	6
3 rd year	29	15
4 th year	51	27
5 th year	48	25
6 th year	19	10
7 th year	20	10
Missing	11	6
Total	192	100
<i>Marital status</i>		
Single	135	70
Married	4	2
Missing	53	28
Total	192	100
<i>Household members</i>		
4 & less	19	10
5 to 9	104	54
10 and more%	16	8
Missing	53	28
Total	192	100
<i>Mother's highest level of education</i>		
Intermediate school or under	23	12
Secondary school	33	17
University or college or equivalent	83	43
Missing	53	28
Total	192	100
<i>Father's highest level of education</i>		
Intermediate school or under	18	9
Secondary school	17	16
University or college or equivalent	105	55
Missing	52	27
Total	192	100

5.2.2 Health profile

As discussed in Chapter 4, after the qualitative study was conducted, findings were used to inform the selection of questions for the quantitative study which aimed to further explore risk factors that may be associated with engagement in physical activity behaviour. In particular, this meant including questions on self-reported weight and height, presence of chronic disease, and tobacco use, as shown in Table 5.3. Overall, of the 192 survey participants, half (49%) reported a BMI within the normal range calculated from self-reported weight (kg)/height (m²) using the international BMI cut-off points for adults by WHO (Table 5.3).⁽²²⁸⁾ Only 6% reported a lower than normal BMI and only a small percentage reported overweight or obese (7% and 9% respectively) BMIs, see Table 5.3. The vast majority (85%) indicated that they had no known chronic diseases but 11% of the study participants disclosed that they did. The vast majority of survey participants (70%) declared themselves as non-smokers and only 3% indicated that they smoke. Of the 192 participants, 27% chose not to respond to this question.

Table 5.3: Health profile of survey participants

Survey participants (N=192)		
Variables	<i>n</i>	%
<i>BMI calculated from self-reported weight (kg)/height (m2)</i>		
Underweight (Below 18.5)	12	6
Normal (18.5-24.9)	94	49
Overweight (25.0-29.9)	18	9
Obese (30.0 and above)	14	7
Missing	54	28
Total	192	100
<i>Chronic disease</i>		
No	163	85
Yes	21	11
Missing	8	4
Total	192	100
<i>Tobacco use</i>		
No	134	70
Yes sometimes	6	3
Missing	52	27
Total	192	100

5.2.3 Physical activity profile

In this section the prevalence and type of physical activity among survey participants is explained. In addition, the nature of missing data in survey responses is also described.

Prevalence of physical activity

Examining survey participants' engagement in physical activity per week (Table 5.4), reveals that the majority of participants (79%) reported that they participated but at different intensities and durations. Only a small percentage (22%) engaged regularly for periods of 2.5 hours or more per week. At the other extreme, 19% reported not engaging in physical activity at all.

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Table 5.4: PA engagement among YESW

PA engagement per week	Survey participants (N=192)	
	<i>n</i>	<i>n%</i>
<i>Approximate time spent engaging in physical activity weekly</i>		
No, I don't participate in PA	37	19
Yes, I do participate but not every week and only occasionally	68	35
Yes, for less than two hours	42	22
Yes, for two and a half hours or more	42	22
Missing	3	2
Total	192	100

To understand the pattern of the self-reported physical activity among YESW, the IPAQ scoring system⁽²²²⁾ was used to group participants into three categories (meets recommendations, insufficiently active, and inactive), and then their PA intensity level was determined as either high, moderate or light, as illustrated in Table 5.5. Accordingly, among the 192 YESW who responded to the survey, 12 (6%) met the recommendations, 143 (75%) were insufficiently active, and 37 (19%) were inactive. Moreover, the majority of those who reported participating in physical activity were more likely to be engaging in light-intensity activities (which make no noticeable changes in breathing pattern) than in moderate-intensity activities and/or vigorous-intensity activities.

In addition, there were only small differences found in self-reported demographic characteristics of the survey respondents for groups with different PA levels (meets recommendations, insufficient active, and inactive) see Appendix K. The only exceptions can be seen in Table 5.6 where a higher level of education for YESW mothers and fathers is seen for YESW who met the recommendations, followed by YESW who were insufficiently active and YESW who were inactive. In addition and interestingly, YESW

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were more likely to smoke tobacco (see Table 5.6) if they met the recommendations and/or were insufficiently active, relative to those who were inactive.

Table 5.5: Pattern of PA among YESW

PA level and intensity per week	Survey participants (N=192)	
	<i>n</i>	<i>n%</i>
Meets recommendations (moderate PA for at least 30 minutes five times per week or vigorous PA for at least 20 minutes three times a week) <i>High*</i>	12	6
<i>Moderate*</i>	2	17
	10	83
Insufficiently active (not meeting recommendations for either moderate or vigorous activities) <i>Light*</i>	143	75
	143	75
Inactive (no moderate or vigorous PA)	37	19

*Light-intensity is the same as Insufficiently active;

*Moderate-intensity refers to moderate or vigorous PA equal to 600 MET-minutes/week, or three days of vigorous PA per week for 20 minutes (480 MET-minutes/week);

*High-intensity refers to PA at a minimum of 1500 MET-minutes/week of vigorous PA or a minimum of 3000 MET-minutes/week of any PA intensity over seven days.⁽²²⁾

Table 5.6: Selected frequency of survey participants' characteristics versus their pattern of PA

Variables	Meets recommendations	Insufficiently active	Inactive
	(N=12)	(N=143)	(N=37)
	<i>n (n%)</i>	<i>n (n%)</i>	<i>n (n%)</i>
<i>Mother's highest level of education</i>			
Intermediate school or under	1 (8)	19 (13)	3 (8)
Secondary school	1 (8)	26 (18)	6 (16)
University or college or equivalent	9 (75)	61 (43)	13 (35)
Missing	1 (8)	37 (26)	15 (41)
<i>Father's highest level of education</i>			
Intermediate school or under	2 (17)	13 (9)	3 (8)
Secondary school	0 (0)	16 (11)	1 (3)
University or college or equivalent	9 (75)	78 (55)	18 (49)
Missing	1 (8)	36 (25)	15 (41)
<i>Tobacco use</i>			
No	8 (67)	104 (73)	22 (59)
Yes	3 (25)	3 (2)	0 (0)
Missing	1 (8)	36 (25)	15 (41)

Types of Physical activity

The vast majority of survey participants reported walking as the most frequent current physical activity that they engaged in and this also emerged as particularly prevalent among the qualitative study participants. Walking indoors on a treadmill appeared to be far less popular with only 13% engaging in this activity. Engagement in running or jogging was the second most popular activity while engaging in swimming was the least frequently engaged in activity (4%), which may reflect the lack of facilities for women-only swimming pools and the geographical location of Riyadh city with no beaches (Table 5.7).

Table 5.7: Frequency distribution of type of PA that YESW are currently participating in

Survey participants (N=192)		
PA Type	n	%
Walking	100	52
Walking Indoor (Treadmill)	25	13
Running, jogging	40	21
Dancing (e.g. Zumba)	34	18
Yoga	36	19
Aerobics	26	14
Swimming	8	4
Other	27	14
None	34	13

Note: More than one answer could be provided to this question so the total is greater than 192.

The nature of missing data in survey responses

In Chapter 4, I explained how I managed the missing data and indicated that there were some differences between participants who partially answered the quantitative survey versus those who completed all survey questions and that this might have an implication on the interpretation of quantitative survey findings. In this section, I describe the nature of

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the missing data by comparing some key characteristics of survey respondents who completed all survey questions with others who completed at least one (but not all) survey questions.

In Table 5.8 it can be seen that regardless of how many questions were completed, participants were more likely to be aged between (22-25 years), in their 4th or 5th year of study and from the College of Medicine. Interestingly, however around a third of respondents who completed at least one survey question reported that they did not participate in PA compared with only 7% of respondents who completed all survey questions. Furthermore, higher levels of education were reported for YESW mothers and fathers (in general) for YESW who completed all survey questions compared with YESW who completed at least one survey question (Table 5.8). Additionally, those who completed all survey questions were more likely to meet PA recommendations level (13% vs 1%) and less likely to be inactive (7% vs 29%). In general this means that participants who completed at least one survey question were less likely to be physically active than those who completed all survey questions and thus survey responses might be more likely to capture the practices and views of YESW who are (in general) more physically active and this may have implications for the findings that I will describe where relevant in the following chapters (6, 7, 8 and 9).

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Table 5.8: Key characteristics of survey respondents included in analysis

Variables	Completed all survey questions	Completed at least one survey question (but not all)
	(N=86)	(N=106)
	<i>n (n%)</i>	<i>n (n%)</i>
Age		
18-21	31 (36)	21(20)
22-25	55 (64)	33 (31)
Missing	0 (0)	52 (49)
College's Name		
Applied Medical Sciences	27 (31)	24 (23)
Dentistry	9 (11)	11 (10)
Medicine	38 (44)	36 (34)
Nursing	4 (5)	1 (1)
Pharmacy	8 (9)	13 (12)
Missing	0 (0)	21 (20)
Year of study		
1 st year	3 (4)	0 (0)
2 nd year	6 (7)	5 (5)
3 rd year	12 (14)	17 (16)
4 th year	25 (29)	26 (25)
5 th year	22 (26)	26 (25)
6 th year	9 (10)	10 (9)
7 th year	9 (10)	11 (10)
Missing	0 (0)	11 (10)
Mother's highest level of education		
Intermediate school or under	15 (17)	8 (8)
Secondary school	24 (28)	9 (8)
University or college or equivalent	47 (55)	36 (34)
Missing	0 (0)	53 (50)
Father's highest level of education		
Intermediate school or under	13 (15)	5 (5)
Secondary school	11 (13)	6 (6)
University or college or equivalent	62 (72)	43 (41)
Missing	0 (0)	52 (49)
Approximate time spent engaging in physical activity weekly		
No, I don't participate in PA	6 (7)	31(29)
Yes, I do participate but not every week and only occasionally	30 (35)	38 (36)
Yes, for less than two hours	23 (27)	19 (18)
Yes, for two and a half hours or more	27 (31)	15 (14)
Missing	0 (0)	3 (3)
Pattern of PA		
Meets recommendations	11 (13)	1 (1)
Insufficiently active	69 (80)	74 (70)
Inactive	6 (7)	31 (29)

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As mentioned in Chapter 4, Cronbach's alpha was calculated for questions relating to policy, social environment, physical environment, and individual factors, with the following results (Table 5.9). The below Cronbach's alpha was calculated by Suzanne Edwards a statistician who works at Adelaide Health Technology Assessment (AHTA), School of Public Health, The University of Adelaide.

Table 5.9. Cronbach's Alpha for SEM factors

SEM Factors	Cronbach's Alpha (Standardized)
Policy	0.449
Social Environment	0.624
Physical Environment	0.355
Individual	0.750

Referring to the guide stated previously in Table 4.6 (Chapter 4), questions relating to policy and those relating to physical environment both had unacceptable internal consistency ($0.5 > \alpha$). This is likely due to both the low numbers of items (i.e. only 7 questions for policy) and the intended disparate nature of those questions where participants would not necessarily be expected to answer in a similar way to all of them. For questions relating to social environment factors Cronbach's alpha indicated questionable internal consistency. This low internal consistency could be because again, they were questions of disparate nature that focused on rather different social and cultural norms which could evoke different responses from participants. At the individual level, Cronbach's alpha indicated acceptable internal consistency which was to be expected given that questions were focused on knowledge, self-beliefs,

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value and attitude of the individual and thus would be likely to evoke a similar response from participants.

5.3 A comparison between qualitative and quantitative study participants

The qualitative and quantitative study participants were similar (on average) in respect to demographic characteristics such as: marital status (single), and highest educational level for parents (despite previously mentioned differences within quantitative study participants). Differences existed in age and area of study with the vast majority of the qualitative study participants being younger (18-21 years) and from two colleges: Applied Medical Sciences and Nursing. The quantitative study participants were generally older in age (22-25 years) and were more likely to be majoring in Medicine. Moreover, it appeared that in general, qualitative study participants were less physically active than quantitative study participants. These differences may be explained, as I have previously discussed in Chapter 4, by the fact that the qualitative study participants were recruited with the help of faculty members who were working in the College of Applied Medical Science. In addition, given that most research invitations to YESW are typically of a quantitative nature, an invitation to participate in a qualitative study seemed to attract younger participants who did not necessarily have a personal interest in PA.

These differences in the key characteristics (age, study major and PA levels) for the qualitative and quantitative study participants are also important to keep in mind when I describe the findings in the following chapters (6, 7, 8 and 9), especially when discrepancies exist between the qualitative and quantitative study findings.

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In summary, in this chapter I have outlined the demographic characteristics of qualitative and quantitative study participants which include the health and physical activity profile of survey participants. I have also described the potential nature of the missing data and outlined a comparison between qualitative and quantitative study participants. Chapter 6 presents the results from the qualitative and quantitative research study conducted with 19 individual interviews and 3 focus groups (n=19 study participants in total) and 192 survey participants.

6 Individual Factors Influencing Engagement in Physical Activity

6.1 Introduction to the results [chapters 6 to 9]

Chapters 6 to 9 present the findings on YESW's views and perceptions on PA. I describe and analyse the factors that shape engagement in PA among YESW, including the facilitators and barriers to engagement in PA. In Chapter 3, I described the social ecological model (SEM) as a framework for my research; hence, in line with this framework, I have grouped my findings into the following four chapters examining the different levels as follows:

1. **Chapter 6 Individual level:** beliefs and perceptions, knowledge and skills about PA and a healthy diet, time and commitment, and emotions.
2. **Chapter 7 Social environment level:** social support networks, and cultural and social norms
3. **Chapter 8 Physical environment level:** built environment, and natural environment
4. **Chapter 9 Policy level:** opportunity to engage in PA, policies in schools and universities, health clubs (gyms), transportation, and PA promoting interventions.

The themes and sub-themes are summarised in Table 6.1. These chapters provide qualitative and survey findings for each level. Although the findings are grouped as discrete themes, many participants' responses were multi-faceted and some of the factors

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interrelated. Therefore they could be located under more than one of the four levels. Hence, although I will be describing each theme principally in only one place, I will note where findings relate to more than one level. I will also provide more detailed explanations of the interaction between findings in Chapter 11. As noted in Chapter 4, missing data is prevalent in survey responses and cannot be assumed “missing at random”.⁽²⁴⁶⁾ Understanding the nature of these missing data may have implications for comparing and contrasting the findings for the quantitative and qualitative research and I will discuss this in interpreting my findings.

Table 6.1: Factors affecting YESW engagement in regular physical activity

Individual level (Chapter 6)	Social environment level (Chapter 7)	Physical environment level (Chapter 8)	Policy level (Chapter 9)
Beliefs and perceptions about PA knowledge and skills (i) about PA (ii) about healthy diet	Social networks (i) influence of family and friends (ii) social media and PA	Built environment (i) conditions of neighbourhoods and streets (ii) physical activity facilities for women	Opportunity to engage in PA
Time and commitment	Cultural and social norms (i) national dress code for women (ii) women walking in public (iii) effect of marital status and pregnancy on cultural norms	Natural environment	Schools and universities Health clubs/gyms Transportation
Emotions and PA (i) embarrassment (ii) fear (iii) happiness			PA promoting interventions

6.2 Introduction to Chapter 6

In the previous chapter, I explained and discussed the demographics and characteristics of research participants in 19 face-to-face interviews, 3 focus group discussion comprising 6 to 7 participants, and survey participants (n=192). In this chapter, I describe the

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individually-oriented reasons that participants gave for both wishing to engage in PA and the barriers to PA for them.

The main findings about individual level factors are presented in four themes (Table 6.1). I begin by exploring the YESW's beliefs and perceptions about PA. YESW articulated a good understanding of the meaning of PA and indicated some general benefits of PA. In addition, I describe findings related to individual knowledge about PA and a healthy diet and participants' views about their PA skills. Research participants were knowledgeable about the benefits of PA and what constitutes a healthy diet, but some participants had inadequate knowledge about how to plan and prepare one's own healthy meals. Moreover, I describe how time constraints and a lack of commitment to engage in PA regularly interfered with YESW's engagement in PA. In addition, I report that research participants found it difficult to engage in PA because of emotions such as embarrassment, fear of injuries, pain, and becoming bulky, and present findings for those who found it easy to engage because of feelings of happiness emotions after their engagement in PA. The most frequent themes that emerged at this level were around *beliefs and perceptions, knowledge and skills, time and commitment*. However, another theme such as *emotion and PA* was also important but not as frequently mentioned by YESW.

6.3 Beliefs and perceptions about physical activity

Since the aim of this research was to describe the factors that shape the engagement of PA among YESW, it is essential firstly to understand how YESW perceive PA. Hence, this section commences with YESW's perceptions of the meaning of PA. As previously described in Chapter 2, the definition of *physical activity* is “any bodily movement

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produced by skeletal muscles that result in energy expenditure”⁽³¹⁾ *Exercise* is considered a subcategory of physical activity and refers to planned, structured, and repetitive bodily movement done to improve or stay physically fit.⁽³¹⁾

Overall, comments made by the YESW at the interviews and focus groups clearly indicated that they perceived the meaning of “physical activity” in much the same way as the formal definition of the concept, even if not always as technical. The majority of participants defined “physical activity” as any bodily movement which reduces sitting time. They included housework and daily activities such as taking the stairs and walking as examples of PA;

“Well, physical activity means anything that lets the body move, whether sports or just regular walking.” (Interview, Participant 1)

“It is anything... you know, any activity that needs us to exert effort. For example, whether any sports or even not necessarily sport also even in household chores such as washing, going up and down... this is considered physical activity, so it is anybody movement.” (Interview, Participant 12)

“Physical activity is being active. It is not necessarily exercising; it is just being active. You are not sedentary, you are not sitting all day watching TV, for example. Physical activity means you are up and down, you go upstairs, you walk around, you don't ask people to get you things, you just go and move; you just get moving throughout the day.” (Interview, Participant 4)

“I define physical activity as any movement the body makes that is produced by the bone and muscular organs together meaning they all work together and they produce a movement.” (FG 1)

“It is the activities that you do during the day ... and requires effort from me like housework, tidying up my room and cleaning...all this, of course, is physical activity.” (FG 2)

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Even though most participants revealed an understanding of the meaning of “physical activity” that fitted with formal definitions, a few participants defined “physical activity” as “exercise” and they indicated that they did not believe that everyday activities such as walking from place to place and/or housework were PA;

“Moving the body from time to time, not simply walking from room to room, or I think physical activity [requires that the] heartbeats must be faster and that you burn something [i.e. calories].” (Interview, Participant 3)

“Physical activity ...[is] a sport, not a walking movement. So, it should be a sport, sport that it is a real physical activity for the body as a whole.” (Interview, Participant 15)

“Well, physical activity is to burn the stored energy out, so then this helps get rid of harmful substances in the body such as fats and sugars.” (Interview, Participant 13)

Despite the different perceptions of the meaning of PA that were provided by YESW, they all appeared knowledgeable about the health benefits of PA and some participants highlighted the health benefit of walking half an hour daily. Participants also referred to broader health benefits associated with engaging in PA such as preventing chronic diseases such as diabetes and obesity, improving cardiorespiratory fitness, improving circulation, maintaining body weight, and improving mental health and general wellbeing;

“Physical activity is very important... it is important for the heart, important for the mental health, important for the body’s health, important for blood pressure, important for diabetes, important for everything.” (Interview, Participant 18)

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“It’s very important to be physically active. For example, I read and I know that walking half an hour daily is very good even good for blood pressure and things like that.” (Interview, Participant 6)

“Physical activity is very beneficial at least half an hour of walking a day, it will be good firstly for the heart health, second, for the bones and joints and these things; you know, it is good we move a lot so we can prevent obesity and other chronic diseases.” (Interview, Participant 8)

Some interviewees also recognised the positive effect that repeated incidental activity can have on their health with one participant providing the following account;

“I notice it in my running from here to the university bus... my breathing used to get short, so after a period of time running to the bus my breathing was regular and I became fitter.” (Interview, Participant 9)

Generally, participants displayed a good understanding of the meaning of PA. Only a few considered that only ‘exercise’ qualified as PA. Despite this, the participants indicated an awareness of the general benefits of PA.

6.4 Knowledge and skills

The sub-themes under the theme ‘knowledge and skills’ were *knowledge about physical activity* and *knowledge about healthy diet among YESW*. These sub-themes included knowledge about the benefit of PA and what constitutes a healthy diet, skills and ability to plan one’s own exercise program, and also to plan and prepare one’s own nutritional meals as describe below.

6.4.1 Knowledge about physical activity

Most of the interview/focus group and survey participants were aware of the benefits of PA but there was variation in their perception of their skills and ability to plan their own

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exercise program. Most survey participants (75%) (Table 6.2) said that they were knowledgeable about the benefits of PA but only 45% thought they knew how to plan their own PA program. In addition, half of the survey participants agreed that they had the necessary skills to engage in PA, a small proportion were neutral, and 10% of survey respondents indicated a lack of such skills.

Table 6.2: Knowledge and skills about physical activity

Survey Question	Agree	Neutral	Disagree	Missing	Grand Total
I've knowledge about the benefits of PA	143 (75%)	4 (2%)	0 (0%)	45 (23%)	192 (100%)
I know how to plan my own physical activity program	87 (45%)	33 (17%)	27 (14%)	45 (23%)	192 (100.00%)
I've necessary skills to engage in PA	96 (50%)	30 (16%)	20 (10%)	46 (24%)	192 (100%)

Conversely, in the interview and focus group sessions, participants indicated that, although they were knowledgeable about the benefits of PA, they still did not engage in it regularly. In other words, it appears that simply being aware of the benefits of PA is not enough to prompt engagement;

“We know what the benefits of physical activity are but still don't do it (laughter) like cardiologists who smoke.” (FG2)

“Knowing the benefits of physical activity is not enough to make a person active, however, having a will make a person engage in physical activity.” (FG3)

“As a female, I didn't know about the benefits of physical activity until I came to university and studied it.” (Interview, Participant 5)

While the lack of skilled female fitness trainers, as highlighted by the participants, is not an individual factor per se, it was felt to impact not only on YESW's ability to engage in PA if they lacked the skills to participate on their own but also on their motivation;

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“What hinders some women from engaging in physical activity is that there is a lack of female trainers.” (FG3)

“I like group fitness classes with instructors because I can’t do exercise by myself. Also, I feel more motivated to do it with the group but there are very few gyms that have trainers; most of them only have machines.” (Interview, Participant 10)

Other participants indicated that being fit is very important to them personally in order to be successful and capable in their career in healthcare. They mentioned that their job requires them to be on their feet most of the day and, in some cases, lift patients, both of which were factors motivating them to engage in regular physical activity. Their desire to execute their professional duties by being physically fit seemed to outweigh considerations of the protections that PA provides for them personally;

“We as nursing students are required to be fit for our job. The patient depends on us in everything, 24 hours a day we are on our feet, so we need to be fit, this is very important.” (FG1)

“My speciality is physiotherapy and sometimes for my job I need to lift the patient... Sometimes the patient is paralysed so I do (exercise) for her/him and this all requires me to be strong. My body is very small and in the beginning, I was not fit at all and I always asked for help when I needed to lift a patient in certain positions. So, I decided to lift weights to strengthen my body. Now, after training I am able to lift the patient by myself with my small body so it doesn’t matter if you are big or small; what matters is your fitness to do your job properly” (Interview, Participant 9)

In addition to being better able to execute routine professional duties, some YESW viewed their involvement in PA as a means of benefitting their patients. In other words, some participants saw the need to be a good role model for their patients who needed to engage in PA to recover from injuries. The personal benefits arising from weight loss also

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motivated some participants to continue to engage in PA and improve dietary habits to model this for their patients;

“We ask the patient to hold light weights and go up and down for 10 times and I myself cannot do it 3 times. So this motivated me to raise my fitness level and gain strength to be a role model for my patients.”

(Interview, Participant 2)

“I used to be overweight and very unfit and got tired from a short distance walk then after I started my course in clinical nutrition my life changed, and I lost weight by eating healthily and exercising regularly. It is life transforming and I want to help my patients but I can't without helping myself first and being a role model for them.” (Interview,

Participant 8)

In summary, YESW seemed to be knowledgeable about the benefits of PA; however, knowledge alone was not enough to motivate them to engage in regular PA. The availability of professional female trainers in addition to working in health related occupations seemed to motivate YESW who already knew about the benefits and importance of engaging in regular PA.

6.4.2 Knowledge and skills about a healthy diet

Most research participants believed they were knowledgeable about what constitutes a healthy diet, but knowledge of how to plan and prepare one’s own healthy meals was not as common for all research participants.

Around 63% of the survey participants, as shown in Table 6.3, indicated that they were knowledgeable about what constitutes a healthy diet but only half said that they were able to plan and prepare nutritional meals for themselves, with 17% acknowledging that they lack these skills.

Table 6.3: Knowledge and skills about a healthy diet

Survey Question	Agree	Neutral	Disagree	Missing	Grand Total
I am knowledgeable about what constitutes a healthy diet	120 (63%)	14 (7%)	13 (7%)	45 (23%)	192 (100%)
I know how to plan and prepare my own nutritional meals	98 (51%)	17 (9%)	32 (17%)	45 (23%)	192 (100%)

This quantitative result is also consistent with interview and focus group responses. For instance, a participant explained the importance she attached to the food she prepares and consumes in her weight loss attempts, which is evidence of her knowledge of the role a healthy diet plays;

“Cooking and preparing my own food so I know what I am eating affects my weight loss, because being physically active alone is not enough to lose weight.” (FG1)

Different perceptions among family members’ relating to dietary needs and health were also apparent in some participants’ responses. For example, a focus group participant mentioned her attempt to lose weight was hampered by her mother’s perceptions about dietary intake and body image;

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“My mother always forces me to eat more and sometimes swears at me to eat more and tells me what to eat. She always says health is in the red cheeks. She thinks that I need to gain weight but actually I am overweight and I need to lose weight.” (FG1)

The overall lack of awareness among the general population about healthy food and the detrimental effects of consuming too many fatty foods without engaging in PA was noted as being one of the reasons leading to obesity amongst young people;

“Young people must be aware of the types of food they eat! We eat (fat fat fat), and we eat in the most fattening ways without any physical activity. That’s why you see more and more [who are] obese.”
(Interview, Participant 1)

6.5 Time and commitment

Time constraints and commitment to practice PA seem to affect the engagement of YESW in regular PA. Around 42% of survey respondents reported time constraints in relation to incorporating physical activity into their daily lives. These perceptions of time constraints may contribute to participants’ inability to commit to regular PA with over half of the respondents agreeing that this was not possible (Table 6.4).

Table 6.4: Time and commitment

Survey Question	Agree	Neutral	Disagree	Missing	Grand Total
I don’t have enough time to participate in regular PA	80 (42%)	32 (17%)	35 (18%)	45 (23%)	192 (100%)
I can’t commit to regular PA	100 (52%)	16 (8%)	31 (16%)	45 (24%)	192 (100%)

A lack of time resulting from university students’ busy schedule was seen as a barrier to engaging in PA in both the interviews and focus groups. While studying at university was recognised by many research participants as consuming much of their time, there was also

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some recognition of the fact that people do not always use their time efficiently and find it difficult to make time for PA if they are not committed to engaging in PA;

“Time is the biggest barrier, with a heavy study load I can’t find time to practice physical activity” (Interview, Participant 14)

“I like to see people walking it entuses me to go walking. I feel that studying is more important than to go for a walk.” (FG2)

The interview participants recognised that a reluctance to commit to regular PA leads to a general disengagement from PA. Another factor that interview and focus group participants believed was a barrier to women engaging in PA was the desire to find time for other activities, such as time needed for family obligations, or for socialising with friends;

“I feel this is the biggest problem in being physically active in general, that there must be commitment and some people can’t commit.” (Interview, Participant 5)

“I like to watch a television series a lot mostly, so if I find free time I prefer to sit and watch rather than exercise or work out...so I watch series and sometimes I go out with my girlfriends that is almost what I do in my free time.” (Interview, Participant 14)

There was also evidence that, despite recognition of the benefits of PA, spare time that is available is not always used toward engaging in PA with participants citing ‘laziness’ and a lack of energy as barriers. It is important to note that the word *laziness* in Arabic has a different meaning than in English. *Laziness* mentioned by some participants means that they want to relax and do not want to do anything so it’s almost like a lack of motivation to do anything;

“Laziness; it is the first thing that comes to mind when I think about exercise.” (Interview, Participant 10)

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“I know that walking half an hour daily is very good even for blood pressure and things like that, but sometimes I feel lazy to go walking.”

(Interview, Participant 13)

Conversely, there was a recognition that, despite limited time when PA is a considered a priority by a person, people will find the time to engage;

“Honestly, a person usually wastes many hours a day. In other words, one keeps saying I am extremely busy, nobody is free, one must dedicate time for certain things.” (Interview, Participant 1)

“The principle is the will so if you want, you will do it, you will find time to engage in physical activity.” (Interview, Participant 6)

Time constraints and a lack of commitment to engage in PA regularly interfered with YESW participating in PA. However, these two factors did not necessarily coexist; while the lack of time may hamper commitment to engage in PA, lack of commitment is a result of other reasons in many instances.

6.6 Emotions and physical activity

Participants reported mixed emotions when engaging in PA. They could be categorised into two groups and sub-themes with respect to the feelings about engaging in PA: those who found it difficult to engage in PA because of emotions such as embarrassment, fear of injuries, pain, and becoming bulky, and those who found it easy to engage because of feelings of happiness after their engagement in PA. Below are additional descriptions of these sub-themes.

6.6.1 Embarrassment

There were differences in views between survey participants and interview and focus group participants when it came to reactions to engaging in PA in public. Some of these differences might be explained by the fact that the survey participants who completed the entire survey were much more active (for more detail, see section ‘the nature of the missing data’ in Chapter 5).

Over half the survey participants (Table 6.5) stated that they were not hindered by feelings of embarrassment when engaging in outdoor PA in front of other people (e.g. fast walking or running). Of the 116 respondents who indicated that they did not feel embarrassed engaging in outdoor PA, 25% were engaging in two and a half hours of PA weekly and 17% reported not engaging in PA at all.

Table 6.5: Embarrassment with engaging in outdoor PA

Survey Question	Agree	Neutral	Disagree	Missing	Grand Total
I feel embarrassed to engage in outdoor PA in front of people (e.g. fast walking or running)	25 (13%)	15 (8%)	116 (60%)	36 (19%)	192 (100%)
I feel embarrassed to sweat at the gym in front of people	26 (14%)	31 (16%)	102 (53%)	33 (17%)	192 (100%)

The findings in relation to the survey participants (Table 6.5), however, contradict the findings from the interviews and focus groups where respondents saw public PA in the form of fast walking or running as embarrassing. For instance, running or walking at a fast pace in public were seen to attract negative attention from onlookers and result in criticisms about the character of the female;

“If I run all people will watch me and all people will point at me, no I won’t run.” (Interview, Participants 11)

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“It is very embarrassing to walk fast in public places; people would think that I am a woman with no manners and I feel strange running in front of everyone.” (FG3)

The impact of exercising in front of people not engaged in exercise was also mentioned as a barrier when the configuration of the available campus gym was discussed (this issue is also addressed in Chapter 8 in the context of physical environment). Despite the availability of some equipment on campus (e.g. stationary bike and treadmill) due to its placement in the hall used by anyone in the building, one interviewee mentioned that she would feel embarrassed to sweat in front of other students. She did clarify, however, that a more private gym space would not arouse the same concerns in her:

“I feel embarrassed to exercise in front of people... I sweat and so....but if there is a gym and everyone is exercising I wouldn't feel embarrassed to sweat.” (Interview, Participants 2)

6.6.2 Fear of injuries, pain, and bulkiness

There were divergent views between the survey participants and the interview and focus group respondents in relation to the impact of fear of injuries, pain, and developing muscles by engaging in PA. The interviews and focus group participants provided clarification and insight into specific attitudes and beliefs held by participants.

The vast majority of survey respondents (Table 6.6) did not fear suffering injuries or experiencing pain as a result of engagement in PA. Furthermore, most respondents did not fear developing muscles, which is sometimes linked to looking less feminine.

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Table 6.6: Injuries, pain, bulking up and happiness

Survey Question	Agree	Neutral	Disagree	Missing	Grand Total
I'm afraid of getting hurt or injured during practicing PA	10 (5%)	11 (6%)	126 (66%)	45 (23%)	192 (100.00%)
I'm afraid of pain through practicing PA	14 (7%)	16 (9%)	117 (61%)	45 (23%)	192 (100%)
I fear participating in regular PA will make me look muscular like a man	6 (3%)	5 (3%)	136 (71%)	45 (23%)	192 (100%)
I feel happy after participating in PA	131 (68%)	12 (6%)	3 (2%)	46 (24%)	192 (100%)

Unlike the survey respondents, the interviews and focus groups, participants mentioned fear of injury, bulkiness, and pain as barriers to engaging in PA. For example, a focus group participant explained that lifting weights will lead to injury;

“Lifting weights is not good for the spinal cord and might damage the back especially for women. And, this kind of exercise is for men because women always have back problems.” (FG3)

Experiencing pain and fatigue as a result of PA was seen as a barrier to continued engagement in PA in the interviews conducted. There were misconceptions regarding the effects of PA, which for some participants were seen as being detrimental to the body and mind and therefore interfering with study;

“What made me stop was the pain, I couldn't tolerate it.” (Interview, Participant 11)

“With university responsibilities and studying we feel fatigued and tired, and if we exercise we will increase tiredness more, physically and mentally.” (FG1)

Some participants stated that engaging in certain forms of PA was inappropriate for women. For example, doing push-ups was seen as detrimental to a female's physique because they were believed to overdevelop the shoulder muscles;

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“Some exercise is not good for a girl for instance (push up), she gets muscles in her shoulders it is not nice for a girl.” (Interview, Participant 15)

Others, however, recognised such views as being unfounded and lacking scientific evidence. For example, one participant mentioned that lifting weights and gaining muscle strength for women is very beneficial and does not lead to bulkiness and that weight training is recommended by doctors;

“People are not accepting the idea of women lifting weights. Although, there are even doctors from physiotherapy writing that (weights) are very good. Only men have hormone (testosterone) and women do not have this hormone high like men that makes them bulky, so women even if they do anything they won't be like them unless they took things like (steroids) so on the contrary, their health will be better.” (FG1)

6.6.3 Happiness

Despite the reservations voiced by some of the respondents in relation to pain, injuries, and overdevelopment of muscles, the majority of all research participants recognised both physical and mental health benefits flowing from PA. Many agreed that they feel happy after engaging in PA and attributed others' happy disposition to PA.

The majority of survey participants (68%) indicated that PA impacts positively on their disposition, with only a few disagreeing that PA results in them feeling happy (Table 5.9). Feeling happy after participating in PA was also mentioned as a motivator to engaging in PA in interviews and focus group discussions. These participants spoke of the benefits PA confers on themselves and others and recognised the general mental and physical health benefits arising from engagement in PA;

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“Engaging in physical activity is known to be good in lifting depression and stress, and releasing happy hormones. I feel different when I do exercise; I feel more energetic and happier.” (FG2)

“My sister always exercises, she is always happy and rarely becomes angry. I do not know maybe it is a result of her fitness; she is distinguished from us, she is always fit and physically active.” (Interview, Participant 1)

“I always feel great after exercise even if I was tired before; everything changes after, my mood, my energy, I love exercising.” (Interview, Participant 7)

“Physical activity has numerous benefits; I feel the most important benefit is for mental health not only for your physical health. When you start your day with a kind of physical activity you feel all your day changes, you become more awake and your psychic becomes much better and all laziness that is supposed to happen to you goes away.” (FG3)

Three kinds of emotions were associated with YESW’s engagement in regular PA: embarrassment, fear, and happiness. Such feelings were either related to misconceptions about effect of PA on body image and injuries or cultural views related to mixing with strange men.

6.7 Discussion

It is common for people to refer to PA as “exercise” or “sports”. Researchers have been keen to define the concept of PA and to clearly distinguish it from other related concepts.^(247,248) In this thesis, I have focused on the broader perspective of the meaning of physical activity as any activity that will enhance and benefits the health which is related to the concept of health enhancing physical activity (HEPA) described in Chapter 2. During

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the interviews and focus group discussions, most YESW defined PA as any bodily movement which reduces sitting time, showing a broad understanding of the kinds of incidental activities that contribute to being physically active. They included housework and daily activities such as climbing stairs and walking as examples of PA. The minority of participants defined PA as only “exercise” and this group excluded everyday activities such as walking from place to place and/or housework from PA. Caperchione et al (2011) found that women – irrespective of their cultural and linguistic backgrounds – tend to use the terms ‘physical activity’ and ‘exercise’ interchangeably without knowing the difference between them.⁽²⁴⁹⁾ Eyster et al (1998) showed the same phenomenon in her study on PA among an ethnic minority of women in America such as African American, Asian American/ Pacific Islander, Hispanic, and American Indian.⁽²⁵⁰⁾ These women reported higher rates of PA when provided with a standard definition of PA.⁽²⁵⁰⁾

This interchangeable use of terminologies is widely experienced among societies and reported in the literature.⁽²⁴⁸⁾ To address this issue, PA should be clearly defined when promoted to the wider population, especially for those populations that engage more in incidental PA rather than in structured PA. This would also apply to the young women in my study. Acquiring adequate knowledge and skills helps to maintain incidental daily PA, in addition to ensuring accurate self-reported PA data in surveys.

In both interviews and focus groups, the participants referred to broader health benefits associated with PA such as preventing chronic diseases (i.e. diabetes), improving cardiorespiratory fitness and circulation, maintaining body weight, and improving mental health and general wellbeing. The survey also showed that most participants (75%) were knowledgeable about the benefits of PA. Knowledge of the benefits of PA has also been

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reported in studies conducted in Gulf Cooperation Countries (GCC).^(251, 252) Although having information on PA does not necessarily lead to actual engagement in it^(253, 254), information remains a cornerstone for any intervention. A health promotion initiative is more likely to influence behaviour change if the target population is aware of basic concepts.⁽²⁵⁵⁾

In my study, participants spoke about their lack of knowledge and skills when it comes to preparing healthy meals, a barrier also reported by young women in western and Arab countries.^(256, 257) Musaiger et al (2013), reported that the main barriers to health eating among adolescents in Arab countries were lack of information on healthy eating, lack of motivation to eat healthy diets, and not having time to prepare or eat healthy foods due to school commitments. Promoting healthy eating and lifestyles were among the most common recommendations for adolescents' health in Arab countries.⁽²⁵⁸⁾ This highlights the need to intensify nutrition educational programmes, especially through mass media and schools to reach all family members.

The barriers to engagement in PA reported in this chapter - lack of time, feelings of embarrassment, and concern about pain and the impact of PA on one's appearance have also been reported in other studies conducted among Middle Eastern women.⁽²⁵⁹⁻²⁶²⁾ For example, lack of time was reported as a barrier to participate in PA among women with type 2 diabetes mellitus in the United Arab Emirates.⁽²⁵⁹⁾

Lack of time seemed to be linked to taking care of family, social gatherings, and heavy school workloads.^(259, 260) For instance, a qualitative study conducted on 21 Arab college students in America revealed that lack of time was related to factors such as family demands and school work as main barriers to PA.⁽²⁶¹⁾ Similarly, lack of motivation, fatigue and tiredness were barriers to participate in PA in GCC studies, especially among

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women.^(262, 263) Moreover, fear of pain and body image were reported as barriers to PA in some studies conducted among young women in both Saudi and GCC countries.^(259, 264, 265)

6.8 Chapter Summary

A range of individual level factors influence engagement in PA among YESW. I explained the YESW's beliefs and perceptions of the meaning of PA. The majority of participants were able to provide both an accurate definition of PA and a broad understanding of what kinds of incidental activity contribute to being physically active. In addition, the survey findings show that most participants recognised the benefits of PA. Moreover, the focus groups and interviews provided in-depth data on what the participants considered those benefits to be. They specifically mentioned being fit for work, benefitting their patients, and its positive impact on their mental health and wellbeing. However, there was some variation in the participants' perception of their skills and ability to plan their own exercise program. They described a number of barriers to participating in PA, including lack of time and commitment, feelings of embarrassment, and concern about pain and the impact of PA on one's appearance. In Chapters 7, 8, and 9 other factors that promote or deter engagement in PA will be discussed.

7 Social Environment Factors

7.1 Introduction

In this chapter, I will explore YESW's views about social environment factors that shape their engagement in PA. My chapter findings are classified in two major themes which describe how social environment factors impact on YESW's engagement in PA (refer to Table 6.1 for an outline). I will begin by discussing social networks, followed by culture and social norms. I will also describe the facilitators and barriers that participants identified to engaging in PA. I show that three social networks impact on YESW; family, friends and social media. Family and friends' support were seen as essential in facilitating YESW's engagement in PA. Likewise, social media was generally perceived by YESW as a positive motivating tool to engaging in PA. In addition, I describe that the research participants held a range of views in relation to cultural and social norms. In this chapter, all themes and sub-themes that emerged at this level were equally important, as none were given greater prominence and were frequently mentioned by YESW and discussed in no particular order.

7.2 Social networks

A social network of families and friends and/or online social media (i.e. Facebook, Twitter, and Instagram) were shown to have an impact on YESW's engagement in PA. The theme social networks encompassed two sub-themes i.e. '*influence of family and friends*', and '*social media and PA*'. Below are additional descriptions of these sub-themes.

7.2.1 Influence of family and friends

The way in which family support affects engagement in PA was assessed by three criteria namely: support for young women’s decision to participate in PA, support for regular involvement in PA, and other family members’ participation in PA. Table 7.1 indicates that the majority of participants felt supported by their families in their decision to be involved in PA. However, 44% of families were not involved in PA on a regular basis and only 14% of respondents’ families participated in PA with the respondents;

Table 7.1: Family support

Survey Question	Agree	Neutral	Disagree	Missing	Total
My family supports my decision to participate in PA	120 (63%)	35 (18%)	4 (2%)	33 (17%)	192 (100%)
My family practices PA regularly	26 (14%)	48 (25%)	85 (44%)	33 (17%)	192 (100%)
I participate in PA with my family	26 (14%)	34 (18%)	99 (52%)	33 (17%)	192 (100%)

Interviews and focus groups revealed that certain cultural and social norms affected their families’ support for YESW to engage in PA. This included concerns about how others would perceive these young women, the stigma attached to wearing gym attire, the perceived inappropriateness of engaging in PA and of leaving the home for non-essential tasks, and the perceived inappropriateness of being seen engaging in PA in public while unaccompanied;

“Some families are worried about their daughter’s reputation; they do not want anyone to see her in the health club wearing the (gym) outfit.” (FG2)

“People don’t really accept women walking in the street! Like my dad, for example, will tell me, (No, do not! Why? Why would you be the only woman walking in the street like this?).” (Interview, Participant 4)

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“If I do my physical activity outside home surely there should be support and approval of my family and they have a word for sure, but inside home not at all.” (Interview, Participant 2)

“I asked my Dad that I want to enrol in a club. He says, walk in our house garden, or walk on the roof.” (FG3)

On the other hand, the family was also seen by some as a support structure for participation in PA. Participants reported that family members could be a source of motivation especially when exercising together; several participants reported that they were encouraged to participate in PA with either their parents or siblings;

“My brothers are enrolled in a gym also sometimes (my) mum may walk in our neighbourhood walking path but I do exercise sometimes by myself, and my sisters sometimes may do dancing (Zumba) at home. When we go camping out with the family, there will be like competitions, things like running and so on.” (Interview, Participant 14)

“My family loves tennis. So, I always play with my dad and my sister plays with my mother.” (Interview, Participant 3)

“We have exercise equipment at home, and me and my sisters we work out together; we divide time between us to use them between the equipment, immediately after each other... sometimes when I am lazy to work out and I see them walking and I do feel guilty. So I say to myself you should get up walk do like them...this is something motivation watching them.” (Interview, Participant 5)

Family members, especially parents, affected their daughters' likelihood of participating in sports. As role models, active mothers inspired their daughters to stay fit or joined them in exercising. Fathers also played their role in supporting engagement in PA by paying for gym fees or providing needed equipment at home;

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“We have a few pieces of equipment at home but unfortunately we do not use it, but my mother very active when she gets up and does exercise then you find us all behind her, meaning (if) she walks we all go out walking behind her, but if she tells us to go and exercise we won’t go, she has to start.” (FG2)

“Mum very much likes the workout and it is very disappointed when I go with her for example to a group fitness class, she feels that I am older than her (laughing). I always say please mum don’t tell that I am your daughter he he (laughing). God bless her, she is way better than me. She is very encouraging for me to engage regularly in PA.” (Interview, Participant 7)

“My weight increased a lot a few years ago and my parents are worried about my health. So, now I started to lose weight and my father is encouraging me so much and he bought me equipment that I can use to train at home.” (FG1)

Like family members, friends also influenced YESW’s engagement [or not] in PA. For instance, working in health sectors and being surrounded by health-conscious friends tends to encourage YESW to make healthy choices;

“Me and all my sisters work in the health domain. My eldest sister studies dentistry so she and her girlfriends are all on (a diet)...all my girlfriends are on a (diet)... all of them. So, around me there are all healthy people, this thing affects me...but when I am with other girlfriends who are not on (a diet) and their food is (junk) and so on the contrary, when it is in front of me...it’s hard to stop myself. People around me affect my eating habits.” (Interview, Participant 1)

Over half of the survey participants (57%) felt supported by their friends in relation to participating in PA (Table 7.2), even if their friends did not all regularly participate in PA themselves. Only 39% of survey participants reported that their friends engage in PA

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regularly. However, a much smaller proportion of the survey participants (19%) actually engaged in PA with friends.

Table 7.2: Friends' support

Survey Question	Agree	Neutral	Disagree	Missing	Total
My friends support my decision to participate in PA	110 (57%)	33 (17%)	17 (9%)	32 (17%)	192 (100%)
My friends participate in PA regularly	74 (39%)	49 (26%)	37 (19%)	32 (17%)	192 (100%)
I participate in PA with my friends	37 (19%)	26 (14%)	96 (50%)	33 (17%)	192 (100%)

Companionship was a common motivator mentioned in interviews and focus group discussions. Exercising in groups or with a friend not only motivated young women to exercise but also encouraged them to sustain their efforts;

“Some of my girlfriends are enrolled in a health club and now most of them are in the same club. I believe that if one went to a club and took care of her health she would attract the rest of her friends.” (Interview, Participant 10)

“I like to exercise with someone. To be honest, if there is no one of my girlfriends with me I get bored and I do not exercise... I’ve no motivation to push myself. So, I discontinue quickly.” (FG1)

“My girlfriend and I are enrolled in the same gym and that’s why we feel enthusiastic, we encourage each other if one does not feel like it, the other encourages her.” (Interview, Participant 1)

Looking at broader social support, interviewees were asked about support from men and women for engaging in PA. Table 6.3 illustrates that the participants thought that Saudi women tend to encourage other women to engage in PA (29%) more so than Saudi men do (18%). An almost equal proportion of respondents (27%), however, felt that Saudi women

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are not supportive of women engaging in PA, which roughly corresponds to the proportion of respondents who identified Saudi men as unsupportive (29%).

Table 7.3: PA encouragement for women

Survey Question	Agree	Neutral	Disagree	Missing	Total
In general, Saudi women encourage other women to engage in PA	55 (29%)	52 (27%)	51 (27%)	34 (18%)	192 (100%)
In general, Saudi men encourage women to engage in PA	35 (18%)	66 (34%)	56 (29%)	35 (18%)	192 (100%)

Participants in the interviews and focus groups also commented that some men have a negative impression of women who walk for exercise, which is frustrating for women who like to walk outdoors;

“Some men think that if a woman walks in the street she needs to have a purpose. So, when I go walking for example to a convenient store or I go to the house of my neighbour I have a purpose that I am going to this place or this house and that’s it. However, if I am going to walk for exercise for a period of an hour or half an hour on walking path in the street this for some men I do not know how they see it, they think that the woman is just playing around so it’s easy for them to throw words on her... this is very annoying and discouraging to (YESW considering) going for a walk.” (Interview, Participant 18).

A view that PA was an activity that people engage in only when there was an evident need, such as to shed excess weight, was reflected in the responses of these participants. The broader health benefits for people of all weight ranges, including slim females, did not appear to be recognised. People in the community tend to consider that PA is needed only if one is overweight. Hence, people questions or appear dismissive of the benefits of engaging in PA;

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“Some big women at the gym were comparing me to themselves so they say you’re slim so why do you need to exercise? On the contrary, when I am, for example, among people who are fit they understand that even if you’re not overweight, being active is necessary not for your body look but for everything.” (Interview, Participants 9)

“Some people think that only overweight and obese people need to engage in physical activity.” (Interview, Participant 8)

“One of my girlfriends we go together to the same gym and she is very thin so she wants to build her strength and so. But, whenever someone sees her at the gym they say to her what are you doing here? Stay at your home you don’t need to come here (laughing)... So, they do not understand that one does not necessarily go to the gym to (just to) burn calories. So, everyone is only focusing on her and this is annoying her. So, this it is the society’s idea that the slim one does not need to do exercise and most people who enrol in gyms are (there) only to lose weight... So, they do not understand that exercise moves blood circulation; changes mood and strength and not only that one come to the gym to burn calories.” (FG1)

Family support for YESW was seen to be crucial. Some fathers provided access to PA facilities, and mothers encouraged their daughters by providing a role model or exercising with them but many others did not. The role of siblings and friends was also considered influential, and YESW tended to engage more in PA if their brothers or sisters did. In addition, enjoying companionship and wanting to meet the expectations of their friends were seen as essential in encouraging YESW to stay fit.

7.2.2 Social media and PA

Social media (such as Facebook, Twitter, and Instagram) seem an attractive tool to promote physical activity among YESW. About half of the participants agreed that social

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media (51%) and sports applications (46%) motivate them to participate in PA. In addition, watching celebrities' and athletes' social media profiles and/or engaging in a fitness support group on social media were considered as motivators by 45% and 41% of participants respectively (Table 7.4).

Table 7.4: Social media and PA

Survey Question	Agree	Neutral	Disagree	Missing	Total
Using social media such as twitter, Instagram, YouTube etc. motivates me to participate in physical activity	98 (51%)	30 (16%)	19 (10%)	45 (23%)	192 (100%)
Social media sports applications such as Nike plus etc. challenges are very motivating for my fitness practice	88 (46%)	37 (19%)	22 (11%)	45 (23%)	192 (100%)
Engaging in a fitness support group on social media is very effective at increasing my motivation to practice in PA	79 (41%)	51 (27%)	16 (8%)	46 (24%)	192 (100%)
Watching celebrities and athletes' social media profiles motivates me to be physically active	85 (44%)	39 (20%)	22 (12%)	46 (24%)	192 (100%)

Similarly, participants in interviews and focus group discussions elaborated that social media acts as an interactive platform of information, fitness applications, and access to support groups;

“Social Media for me is what changed my idea about physical activity. There are many blogs that talk about exercises and healthy lifestyle. I started from there and I did not know a thing so I started downloading videos then I started to do my exercise at home and this is what motivates me. Also, they even have something called (support group) which they help you a lot daily with your exercise and food as well.” (FG1)

“My sister and I we use (Nike Running application) so we can record our running activities and also do challenges with our friends.” (Interview, Participant 6)

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“I wish when I get older I will be like (Jennifer Lopez) beautiful (laughing). Her age is in the fifties and she looks as if she is in her thirties....she gives us the motive to be fit...I name it positive pressure possibly to have some celebrity you look up to (laughing).” (FG3)

There were, however, some diverging views about social media, with a few participants commenting negatively about social media that it is being used as a tool for marketing rather than advocating for PA;

“I feel that the social media has this side of showing engaging in physical activity as a fashion...so, people do marketing for sports outfits, shoes and equipment. And, try to copy celebrities’ workouts. It’s like promoting a body image and I don’t like this.” (Interview, Participant 19)

Overall, however, social media was perceived as a motivator to engaging in PA whether acting as an information source, a tool to measure and evaluate progress, or a platform connecting people sharing interests in the health and fitness world.

7.3 Cultural and social norms

Interviews and focus group discussion revealed a range of views about the effect of cultural and religious norms on PA. Some believed that religion did not support being physically active while others had opposing opinions;

“Maybe some people look at it from a religious point of view, you are women and your place is at home, you don’t move, you do not do anything. So when I go running I will be violating traditions and religion.” (Interview, participant 11)

“Religion has nothing to do with being physically active.” (FG1)

Others noted that special religious occasions, such as the month of Ramadan, provided an opportunity for young women to walk freely in the street even late at night. Participants

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also referred to the holy cities of Makkah and Al-Madinah which accepted women walking freely without a male companion;

“Ramadan is the only month with no problems. (If) we walk at night and during the day; nobody says anything even if we walk until 3 am, especially when we go to the tahajud prayer at midnight.” (FG2)

“Makkah has an atmosphere, a different feel about it. The atmosphere itself is different. It is full of people moving all time. There are many women walking back and forth alone.” (Interview, participant 7)

The effect of religion on PA seem to be determined by how religious rules were interpreted; some believe that religion recommends taking care of one’s health and thus promotes PA, while others believe it may prevent women from engaging in physical activities for unclear religious considerations. Participants also raised three issues which seem to be affected by cultural beliefs, namely: women’s dress code, women walking alone in public places, and advantages of marital status, as described in the following sections.

7.3.1 National dress code for women

This section considers how cultural and religious norms, which includes females’ expected attire, the Abaya,ⁱⁱ interfere with YESW’s ability to engage in PA. Table 7.5 shows that around half the participants believed they could not jog or walk briskly when wearing an Abaya because it limited their movements. However, close to a fifth of respondents (22%) did not consider the national dress for women an impediment to engaging in PA. Around

ⁱⁱ Women in Saudi Arabia are required to wear an Abaya (a black traditional body and head cover) in public.

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79% of survey respondents indicated that it was very important to wear a comfortable outfit while exercising.

Table 7.5: National dress

Survey Question	Agree	Neutral	Disagree	Missing	Total
I cannot jog or walk briskly when I am wearing an Abaya because it interferes with brisk movements	92 (48%)	23 (12%)	43 (22%)	34 (18%)	192 (100%)
It is very important to wear a comfortable outfit while exercising	151 (79%)	4 (2%)	4 (2%)	33 (17%)	192 (100%)

Wearing an Abaya was also mentioned by many participants in the interviews and focus group discussions, with these participants also expressing the view that it was difficult for them to take a brisk walk or jog. A belief that attire detracted from the pleasure of engaging in exercise is articulated in the quotation below;

“As a female wearing an Abaya and a Niqabⁱⁱⁱ, there are certain rules for me walking in the street in front of men.” (Interview, participant 2)

“I will not feel comfortable if the Abaya opens and my outfit beneath shows. I will spend an hour covering myself and getting myself together to jog; instead of it being a pleasure, it becomes something stressful.” (Interview, participant 15)

7.3.2 Women walking in public

The respondents stated that they believe the community considers it inappropriate for females to walk in public unaccompanied by a male family member. Fear of harassment and gaining a bad reputation were the main reasons reported for people preventing females in their family from going out unaccompanied. In this study, only 40% of survey

ⁱⁱⁱ Niqab is a full face-veil worn by some Muslim women in public, which covers the face except the eyes.

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participants felt they could walk without a male companion, while 26% did not feel they could and 17% reported a neutral response. Fear of harassment from men (bad language, whistling etc.) prevented women from walking in public places including parks and shopping malls. Survey respondents reported ‘fear of harassment’ as a barrier to engaging in PA (46%) (Table 7.6). Generally, it appears that respondents felt more at ease walking in other public places (38%) than in the street (46%).

Table 7.6: Walking on footpaths in streets and fear of harassment

Survey Question	Agree	Neutral	Disagree	Missing	Total
I cannot walk alone without a male accompanying me on footpaths in streets	49 (26%)	33 (17%)	77 (40%)	33 (17%)	192 (100%)
I avoid walking in the street because I fear harassment from men (bad words, whistling etc..)	88 (46%)	31 (16%)	36 (19%)	37 (19%)	192 (100%)
I avoid walking in public because I fear harassment from men (bad words, whistling etc..)	35 (18%)	48 (25%)	72 (38%)	37 (19%)	192 (100%)

Focus group discussion participants and interviewees also reported not being able to walk without a family male companion as a barrier to engaging in PA. Some of these participants stated that their families believed it was culturally inappropriate for a woman to walk alone on the streets and worried about others’ reactions if their daughters were seen walking alone in public;

“Our traditions dictate that if a girl wants to go out walking, a man [brother/father/ husband/ son/ relative] should accompany her.” (FG1)

“Society views a girl out walking alone as inappropriate. For example, they would ask how come she is walking by herself? Where is her family? She might be in trouble! Unfortunately, I feel we are a little backwards in this matter.” (Interview, Participant 12)

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However, the concept of females walking unaccompanied seemed to be acceptable, for some fathers at least, when they were not in Saudi Arabia. For instance, some fathers allowed their daughters to walk freely when visiting other countries;

“I feel society dictates. When we travel abroad, my father allows me to go out walking alone. However, he is not confident in Saudi Arabia.”
(FG2)

As mentioned previously, fear of harassment was also stated in some interviews and focus groups as a barrier to engaging in PA, the nature of which related not only to unsolicited comments and jeering but also the risk of being stalked. Some members of society were reported as blaming the girl for harassment and accusing her of provoking it by walking alone;

“Male youth assume a woman is inviting them to harass her when she walks by herself on the streets. Even if she is obviously exercising, they throw flirtatious comments or laugh at her and sometimes they follow her in their car.” (FG3)

“If the girl walks in the street conserving herself no one approaches her, I do not anticipate that anyone comes to harasses her immediately unless she was welcoming (it).” (Interview, Participant 13)

A broader perspective was taken by some of the interviewees in relation to cultural and social norms, which shape a society’s outlook on women and their rights to free movement. Given the restrictions on Saudi women, men tend to move and thus exercise more than women. It was also felt by some participants that social acceptance of females both engaging in PA and travelling alone would lag behind developments in infrastructure which aim to increase people’s participation in PA;

“I feel that it will take a long time for people to change their daily life even if they make walking paths or even the idea of buses, I don’t feel

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that the society would accept that a woman can take the bus alone as well, for example not like women outside Saudi!! So, also this issue would take years for change to happen!” (Interview, Participant 1)

7.3.3 Effect of marital status and pregnancy on cultural norms

The respondents stated that most people in Saudi society view women walking in the street as behaving in a culturally inappropriate manner. However, marital status and age (middle age) appear to help relax these restrictions;

“My parents won’t let me go and walk alone on the walking path because I am still single. But, if I get married it is normal to do anything and I can go walk by myself. However, now if I want to walk, there must be someone from my family I walk with even on our neighbourhood walkingpath. No [woman] walks alone, there must be someone with her.” (Interview, Participant 3)

Similarly, the participants believed that pregnant women are exempt from this ‘ban’ on women walking or exercising alone; they are even encouraged to walk in public especially in the last trimester to ensure a smooth childbirth;

“A pregnant woman if she walks in the street people respect her more because she has an excuse to walk, her excuse is medical...but for a single woman her walk has no excuse.” (FG1)

“Not all women will be harassed, I see an old woman and pregnant woman won’t receive harassment like a young girl, it differs.” (Interview, Participant 12)

“The idea that society looks at the pregnant woman who walks in the street differently than if they saw a girl walking... maybe they gave her an excuse because it is for medical reasons (laughter).” (FG1)

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Despite this broad social acceptance and encouragement for pregnant women to walk during the third trimester of their pregnancy, in the interviews and focus groups, participants mentioned that pregnancy was a barrier to some forms of PA;

“Most pregnant women do not engage in physical activity during the first months of their pregnancy; it could be because of people who tell them not to move during your first trimester, but then people encourage them to walk for exercise during the third trimester of their pregnancy.”(Interview, Participant 13)

Survey participants were also asked to provide views on such issues to ascertain whether these views about pregnant women and PA were held more broadly. Table 7.7 shows that the majority of survey participants (71%) agreed that it is important for pregnant women to be physically active. Furthermore, 73% also agreed that participating in PA during pregnancy will benefit the health of both the mother and baby. Although 4% of survey participants were neutral on this issue none of the participants expressed disagreement.

Table 7.7: Pregnancy and physical activity

Survey Question	Agree	Neutral	Disagree	Missing	Total
It is important for pregnant woman to be physically active while they are pregnant	137 (71%)	7 (4%)	1 (0.5%)	47 (24.5%)	192 (100%)
Participating in PA during pregnancy will benefit the health of both the mother and baby	140 (73%)	7 (4%)	0 (0%)	45 (23%)	192 (100%)

Marriage and marital status appear to influence PA participation from another perspective as well; the participants revealed that body image was a concern for many young women, especially before marriage, and this motivated them to lose weight and engage in PA.

Achieving a healthy weight range was often seen as a means to a social end, namely getting married. Some participants mentioned that the motivation among young women to maintain a healthy weight through engaging in PA is no more there once they get married

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with many admitting that married women sometimes gain weight as there is no underlying appreciation of the role of fitness in being healthy;

“Honestly, no one wants to marry a fat woman. Therefore, unfortunately, most obese girls these days have a difficult time to get married. So, their parents and especially the mother will try to do what she can to see her daughter in a good shape so people will come and ask for her hand.” (FG2)

However, it was also noted that being thin and appealing was a wife’s duty to ensure that her husband feels attracted to her and her [unhealthy] weight did not promote infidelity;

“There are some girls they start to lose weight to get married or if they got engaged because they will be newly married and they want to attract their husband and their husband’s family. So, they will start to exercise and follow a diet to lose weight but then after marriage, they stop because they are already married (laughing). This happens a lot here because most of these girls only care about other people’s view about their body and how to be accepted by society but they don’t care about how they think about themselves.” (FG1)

“Of course it is an important thing that one marries and wants to fill her husband’s eye so that he doesn’t look to another. So, she has to be beautiful and her body is nice, so when he cheats on her he has no excuse. But, if her shape was not nice, it might create problems between them, so it’s very important for a woman to be in shape.” (FG1)

Overall the cultural and social norms based on religion’s interpretation lead people to prevent women from engaging in PA or walking alone, except in Ramadan and in the two Holy cities. Men harassing women walking alone as a form of PA is a major factor mentioned by several participants. Some families believe it is not culturally appropriate for young women to walk alone in public to exercise, unless they are married and pregnant.

7.4 Discussion

My findings indicate that several social environment factors influence participating in physical activity among YESW, and I grouped these factors in two themes - the social network and cultural and social norms. Other Middle Eastern studies^(251, 262, 266, 267) have reported that ‘supportive social systems’ act as facilitators to PA. For instance, Qatari women with heart diseases were encouraged to engage in healthier lifestyles when either informally supported by family - especially husbands and daughters - and girlfriends or benefiting from formally support by health care providers and or official entities.⁽²⁶⁷⁾ Other western studies have shown that engagement of parents in PA and parental attitudes toward body shape, perceived peers’ attitudes toward body shape, affect the engagement of youth (males and females) in PA.⁽²⁶⁸⁻²⁷⁰⁾ However, not all of these factors may apply in the Middle Eastern culture. More research is needed on factors that influence engaging in PA in the Middle Eastern countries.⁽²⁵⁸⁾

Cultural norms and expectations regarding women’s movement outside the house were also viewed as barriers to PA among YESW. It is common for men to accompany their female family members when going out in several Muslim countries, which limits their opportunities to engage in PA. Furthermore, the traditional Abayas that women put on in public prevent them from participating in most types of PA activities.⁽²⁷¹⁾ Similar findings were reported in Iran, where women are mandated by law to wear full-body covering while in public as in Saudi. This restricted the women’s choice of leisure activities including engaging in outdoor sport activities.⁽²⁷²⁾ Some YESW indicated that families do not allow their girls to walk outdoors alone for fear of harassment, gaining a bad reputation and safety reasons. Some of these factors have also been reported in other studies in the GCC.^(258, 273) For instance, 67% of women in Bahrain reported sex discrimination when

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talking about available sports facilities for women. Moreover, around quarter of women thought that negative attitudes in the community toward physically active women discourages them from engaging in PA.⁽²⁷³⁾

Body image, associated with body weight, seem to be often influenced by cultural and social factors.⁽²⁷⁴⁾ In my thesis, YESW said that body image was a concern for many young women, especially before marriage, and this motivated them to lose weight and engage in PA. Other studies in Middle Eastern countries^(275, 276) have also found similar attitudes to body image to those reported in this chapter. Saudi women who desired to have a “thinner” body image tend to exercise more⁽²⁶⁴⁾, which is consistent with other research findings.⁽²⁷⁷⁾

²⁷⁸⁾ Men contribute to shaping women’s attitudes toward body size and thus their likelihood to engage in PA – a fact to consider in future related studies in both Saudi Arabia and the Middle East in general.

7.5 Chapter summary

The two major themes in this chapter described how the social environment such as family, friends, social media, and society (cultural and social norms) have facilitated or hindered YESW’s engagement in PA. Parents’ beliefs played a primary role in influencing YESW’s engagement in PA. In addition, the role of friends in contributing to YESW’s engagement in PA was regularly acknowledged. Social media was also perceived as an attractive tool to promote YESW’s engagement in PA. Furthermore, a broader perspective was taken by YESW in relation to cultural and social norms, which shape a society’s outlook on women and their rights to free movement. For example, some YESW noted a lack of opportunity for women to engage in PA. In addition, prominently mentioned was the fact that it is not

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culturally appropriate for women to walk in the street to exercise unless accompanied by male family members. On the other hand, YESW revealed that body image was a concern for many young women, especially before marriage, and this motivated them to lose weight and engage in PA.

8 Physical Environment Factors

8.1 Introduction

Chapter 8 describes the physical environment factors that influenced YESW's engagement in PA. In Chapter 3, I described the physical environment (e.g. built and natural environment) in Saudi Arabia. In this chapter, I will explore how that environment impacted on YESW's engagement in PA. I present my findings through three main themes (refer to Table 6.1 for an outline of the main themes and sub-themes). I will show how these three themes in this chapter are related to fundamental aspects of the Saudi Arabian physical environment. In addition, I will show that the research participants held a range of views about the physical environment and engagement in PA for YESW. They recognised how the physical environment both challenged and facilitated their engagement in PA. The barriers to engagement in PA included aspects of the built environment, (for example, road infrastructure, safety, lack of PA facilities for women, lack of transportation), and of the natural environment (for example, the weather). Despite these challenges, the participants identified a range of factors that facilitate YESW's engagement in PA, including improvements to the built environment on campus. The participants also offered solutions to overcoming the Saudi climatic conditions for engagement in outdoor PA.

8.2 Built environment

The interview and focus group participants reported many factors linked the built environment and their engagement in PA. These factors can be divided into two subthemes: *conditions of neighbourhoods and streets*, and *physical activity facilities for women*. The participants indicated having access to walkable and safe neighbourhoods, recreational facilities, and women-only health clubs, were important for engagement in PA.

8.2.1 Conditions of neighbourhoods and streets

In the survey, four items were included to assess how the built environment affected engaging in PA: infrastructure, clear instructions for pedestrians and for traffic, and safety. Table 8.1 shows that around half of the survey participants found it difficult to walk in their neighbourhood due to a lack of road infrastructure such as footpaths, traffic signs and lights (47%). Moreover, just over half the participants reported the lack of clear signs for pedestrians as a barrier to walking outdoors (51%). Forty-four percent did not view traffic congestion as a barrier to PA whereas 22% considered it a barrier. Over half the survey respondents felt it was safe to walk alone on footpaths in their neighbourhoods (54%).

Table 8.1: Built environment (infrastructure, instructions for pedestrian, traffic, and safety)

Survey Question	Agree	Neutral	Disagree	Missing	Total
It is difficult to walk where I live because there is lack of infrastructure e.g. footpaths, signs for pedestrians and lights	89 (47%)	18 (9%)	48 (25%)	37 (19%)	192 (100%)
It is difficult to walk where I live because there are no clear instructions for pedestrian rights	97 (51%)	22 (11%)	36 (19%)	37 (19%)	192 (100%)
It is difficult to walk where I live because of things like traffic congestion	43 (22%)	28 (15%)	84 (44%)	37 (19%)	192 (100%)
It is safe to walk alone on footpaths in streets where I live	103 (54%)	26 (14%)	26 (14%)	37 (19%)	192 (100%)

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Several interview and focus group participants also reported a lack of footpaths and clear instructions on pedestrians' rights as barriers;

“There are no footpaths for pedestrians. It is either you are walking on a mound of sand, the highway, or on the road.” (Interview, Participant 1)

“In our neighbourhood, there are no footpaths, there is no place to walk; honestly, even if you go from one house to another, there is no place to walk, you must walk on the street.” (Interview, Participant 10)

“In western countries, streets and traffic signs are already set up, the traffic signs, the stop sign for pedestrians is clear to you. Here, either you do not see it at all or very few on some streets, however, there are no signs, only footpaths for pedestrians. Honestly, I don't feel that streets are equipped for one to walk or feel enthusiastic about walking. It is really hard to cross a street! Forget the idea, it is even impossible, families do not take the risk of letting their children cross the street, they don't consider this issue even if to a nearby place.” (Interview, Participant 1)

Safety was viewed from two different perspectives by interview and focus group participants: (1) feeling safe from a stranger's attack, and (2) physical safety from reckless drivers. With respect to the first view, some participants believed it was unsafe to walk around the neighbourhood, especially at night when no one is around.

“I feel scared to walk in my neighbourhood especially at night, it is dark and you really don't find people walking.” (Interview, Participant 19)

“I can only walk to places that are short distance near to my house.” (FG3)

“It is dangerous to pass by people's houses while walking... I do not trust that I walk like this in the street alone.” (Interview, Participant 2)

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In the second view, some participants mentioned that heavy traffic in their neighbourhoods together with reckless drivers posed a risk to pedestrians;

“In my neighbourhood, we have heavy traffic; it is crazy and we don’t have footpaths so it is hard to walk or even cross the road because it is possible a car will hit you.” (Interview, Participants 7)

“Reckless driving is very prevalent here; seriously, if you walk you cannot guarantee that no one will come and crash into you.” (FG1)

Moreover, some participants believe it is not safe for pedestrians to use streets because people lack a “culture of walking”, meaning they do not respect the rights of a pedestrian to walk in streets safely;

“We do not have the culture of walking... it is all cars... there is no one using the horns before turning or something like this, this is dangerous.” (Interview, Participant 2)

“I feel we don’t have the walking culture originally by nature as a society even when there are close places sometimes like a pharmacy which is convenient to walk to but oh no [we are required to] take the car so I feel that it doesn’t matter whether there were footpaths because most people dependent on cars.” (Interview, Participant 7)

These findings regarding safety issues from the qualitative interviews and focus groups were not consistent with the quantitative survey participants’ views, where over half of the latter thought it was safe to walk alone in their neighbourhoods. Some of these differences might be explained by the fact that the survey participants who completed the entire survey were likely to be more active than the qualitative participants, as described in Chapter 5 and thus possibly less likely to consider barriers for PA. Individuals that are more active are also more likely to be more autonomous and have greater confidence than other people

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who feel they have less control over their life, which again may explain why they were more likely to report that it was safe to walk alone in their neighbourhoods.

In addition, the majority of those who completed all survey questions also indicated a high level of education level for their parents compared with who completed at least one survey question. Therefore, this might be an indicator that survey participants were more likely to live in better neighbourhoods which are safer to walk in, with less traffic.

A lack of places appropriate for women to walk was also mentioned as a barrier by some participants with malls being the only available places;

“Our problem is that we can’t go out for a stroll, where to go? We go to the mall we walk a little then we go to the restaurant and we eat, sit and come back (laughing) it undoes all we did, so we do not have places other than malls and restaurants, this is our only chance for a stroll in Riyadh.” (FG2)

There was general agreement about the lack of suitable recreation facilities and spaces to encourage PA. However, some participants did recognise the efforts of the city council to improve the infrastructure in some neighbourhoods by establishing small parks and footpaths for residents. Such spaces were recognised as important to increase motivation to engage in PA for these participants but also for other women and children;

“We have an excellent park beside the house which has every 500 meters a sign showing you that you walked 500 meters...yeah very good and it even has children’s play equipment like slides in the middle and is very secure... I see that there is progress from the city council but little awareness.” (Interview, Participant 5)

“Basically the city lacks many things; for example, if you go to every neighbourhood you won’t find a library there, you do not find a readers’ club you do not find many things; basic services are missing. Places like

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amusement parks and some places for sports entertainment like bungee jumping these are nice things and entertaining at the same time for the whole family. Also, if [the] city council can provide basketball courts in neighbourhoods for women and children it will be great because I have many girlfriends who like to play basketball but cannot play except in someone's house that has a stand to play.” (FG2)

Several participants described the factors that increased engagement in walking outdoors. They commented on the availability of infrastructure (i.e. width of the walking paths) to accommodate many people, having well-lit pathways which encourage safe walking, the aesthetic appearance (i.e. plants and flowers) and clean environment (i.e. availability of bins), in addition to facilities such as toilets which enable people to engage in activities for longer periods of time. The participants thought that these features could increase the “walking culture” and encourage people of all ages and both sexes to engage in PA. A more pleasant walking environment would also attract people away from the malls with their many eateries which tended to link walking to increased consumption of food;

“When the biggest walking path of the city finished, at first nobody was walking, but now even in the early morning till midnight sometimes when I am passing by I see people walking on it. So, I think it just a matter of time because when people have the intention then they see other people walking this will encourage them to join walking.” (FG1)

“I think most people feel more appetite to walk on biggest walking paths because they have nice plants, good lighting, the walking path is very wide open place makes one feel that she/he is walking in an open and public place, not small and in the middle of the neighbourhood and a tree here and a tree there in the middle of the walking path.” (Interview, Participant 10)

“Last weekend for a first time, myself and my girlfriends went walking on the city biggest walking path. It was so beautiful with many flowers

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around and clean with access to toilets. You know the flowers play a role too especially for us the girls so you know we take pictures and I don't know what (laughing). Also, I believe if there were people littering garbage and so on the ground that no one will come and there will be no flowers. So, keeping these places clean and colourful will open appetite for others to walk there. We also saw people who are seriously walking to exercise especially middle age men so even if they are not enrolled in the gym, they walk and jog. In addition, we found some women walking fast to exercise too. So, I think these public places are very good to be used especially for people who can't afford to pay a gym membership.”
(Interview, Participant 7)

In summary, participants reported a range of barriers related to the built environment that influenced their engagement in outdoor PA. These barriers included a lack of footpaths, no clear instructions on pedestrians' rights, and lack of recreational facilities for women. Despite these barriers participants highlighted the efforts of the city council in establishing small parks and footpaths for residents in some neighbourhoods. They also described factors that could increase participation in walking including the width of the walking paths, plants, flowers, and bins for clean environment. Therefore, it is important to take into account issues related to safety and aesthetics when establishing a neighbourhood or improving a new one.

8.2.2 Physical activity facilities for women

As explained in Chapter 7, cultural barriers restrict women from freely engaging in PA outdoors; these included the dress code, harassment, and safety concerns. Moreover, extreme weather, especially in summer, adds to the burden for women walking outdoors even if accompanied by family (more detail about the effect of weather in PA is provided

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in the next section). Women only health clubs (gyms) provide an important alternative for women in Saudi Arabia who wish to engage in PA.

Survey participants (Table 8.2) reported a lack of facilities in their neighbourhoods (42%) and only 29% thought that available facilities were easy to access. When asked about the availability of facilities and their accessibility on a university campus, 59% said such services were unavailable. However, access to showers and changing rooms on campus did not seem necessary to discourage engagement in PA for 38% respondents.

Table 8.2: PA facilities for women

Survey Question	Agree	Neutral	Disagree	Missing	Total
Where I live, there are women-only facilities to practice PA (e.g. health clubs)	50 (26%)	24 (13%)	80 (42%)	38 (20%)	192 (100%)
Where I live, there are facilities to practice PA that are easy to access	56 (29%)	28 (15%)	70 (36%)	38 (20%)	192 (100%)
On campus, there are available facilities to practice PA that are easy to access (e.g. health clubs, or walking path)	18 (9%)	24 (13%)	113 (59%)	37 (19%)	192 (100%)
For me to be able to participate in PA on campus, it is necessary to have easy access to showers and changing rooms on campus	42 (22%)	37 (19%)	73 (38%)	40 (21%)	192 (100%)

Findings from the interviews and focus groups were partially consistent with the survey results. Several participants mentioned the limited availability and accessibility of women's only health clubs and emphasised the importance of proximity, affordable membership fees, and availability of qualified professional trainers, as well as the negative impact of short opening hours, typical of such facilities, and overcrowding in facilities that do exist. Moreover, there were also concerns about the quality of the programs offered, specifically in relation to the limited availability of group fitness classes;

“If the women’s health club is far away, one will be lazy to go. So, when I considered enrolling at the club I searched for one close to our house; sometimes I overlook the privileges in another club only because it is far

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away; so the issue of having it close is important so you can go anytime.”
(Interview, Participant 14)

“We have few women’s health clubs here in the city, and most of them, unfortunately, are very crowded. For example, I go after work around 6 pm and most of the time I do not find a place to train; all equipment is always full. Also, I like group fitness classes because they motivate you but unfortunately they have very limited classes during the day and I can’t make them. In addition, they’ve only got 2 trainers and they were not certified so they basically had no experience to train and I don’t know how they run these classes. So, I don’t know why I am paying 1600 SR per month and I am not benefiting from my membership.” (Interview, Participant 16)

“Honestly, I used to go to a women’s health club which was very near my house, but it didn’t encourage me much because it has no group fitness classes. Also, it closes at 8 pm. So, that why I didn’t renew my membership” (Interview, Participant 10)

Other participants were satisfied with the women only clubs and felt motivated there.

“I used to do my exercise at home sometime. But now, I like to go to the women’s health club the place itself there encourages you more to exercise. In addition, I see new people and I feel encouraged.”
(Interview, Participant 3)

With respect to health facilities on the university campus, some participants reported difficulty accessing them despite their availability. They argued that the equipment was limited, inconveniently placed, sometimes difficult to use and people felt that they were on display;

“I feel embarrassed to use the cycle in front of all people because the equipment is in the lobby near the gate in front of everyone” (Interview, participant 15)

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“We have enough time but the problem is that some of the sport equipment is located in the lobby in front of people and some girls are shy so very few girls use it.” (FG3)

Participants suggested improvements to PA services on campus such as integrating showers and lockers, in addition to providing a variety of different sports, especially group fitness classes, rather than just treadmills and strengthening equipment;

“I wish there are dedicated rooms for physical activity at universities with a place for lockers and showers.” (Interview, Participant 4)

“First of all, we need to have a special room or area in the university only to exercise. Also, group fitness classes will be a good idea, other than just having the equipment and so to use, and possible maybe to have a swimming pool will be very nice too.” (Interview, Participant 15)

“If we have a health club on campus it should include a variety of equipment and some classes for flexibility. Also, it would be nice if we could have room for tennis and squash” (Interview, Participant 8)

One student studying medicine also suggested providing access to women only PA facilities for female workers in their workplaces;

“I am very busy and sometimes I do have in-calls which require me to sleep in the hospital. So, I spend most of my time at the hospital and thus have to miss my workout routine. Therefore, I wish if the hospital provides a small room with some fitness equipment for female workers so I can do my workout during my break.” (Interview, Participant 4)

Despite these barriers, YESW appreciated the positive changes taking place. They admired the new university campus and felt that the facilities have also had a secondary positive effect by increasing PA. The sheer size of the campus has resulted in longer walking distances thus increasing incidental activity and the beautiful surrounds prompt students to incorporate dedicated time for walking before classes;

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“With our new building my psychological state is different, I feel more motivated to study, and sometimes me and my friends go walking to other colleges and this is also something good because when we were at our old building, there was no place to walk inside. Now because we’ve moved to a new university building, I come early in the morning an hour before the lecture and walk, it is a shadowed place and open and the weather is not bad and paths are very good for walking. So, I always walk here” (Interview, Participant 10)

“Now at the new university, the paths between colleges became way long, it works well for one to walk” (Interview, Participant 6)

“The most important thing is raising the fitness. We see for example now we’ve moved to the new university and because it’s a huge building if one goes up the stairs or something she gets tired, and truly I see people get very tired if they walk to the gate. So, most important thing is to build fitness” (FG1)

The fact that proximity of such facilities is not a mere convenience but is of material importance given the transportation issues that Saudi women face which will be explored in policy factors (Chapter 9).

8.3 Natural environment

There were differences in views between survey participants and interview and focus group participants when it came to weather and its impact on engaging in outdoors PA. On the one hand, findings from the interview and focus groups suggested that outdoor physical activity was hampered by the harsh climatic conditions. Participants commented on adverse conditions in the summer, winter and dust storms but also offered solutions to overcoming this barrier, including walking indoors or avoiding periods with high

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temperature. They also suggested combining walking with other pleasurable activities such as window shopping;

“It is so hot and so windy with so much dust. You do not want to walk in your black Abaya in the sun.” (Interview, Participant 4)

“For me, if the weather is dusty I have to stay home, I can’t even go anyway.” (Interview, Participant 7)

“Parks are available but people don’t go out because the hot weather doesn’t help. For example, there is a garden close to our house but I see it always empty and no one goes out although it is a new garden and everything is there; a playground for children and walking path around but the weather doesn’t help.” (FG3)

“In the winter when the weather becomes very cold, I stop walking on the walking path.” (Interview, Participant 6)

“During summer, I walk at night always or in the early morning so the weather is moderate but at night it is usually cooler and good for walking.” (FG1)

“My sister and I walk in Malls especially in the summer time because they are cooler and they’ve mostly clean toilets. We also enjoy window shopping (laughing).” (Interview, Participant 9)

On the other hand, only 29% of survey respondents agreed that the weather decreased their opportunity to do PA outdoors, with 41% of survey respondents disagreeing with this statement (Table 8.3).

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Table 8.3: Weather conditions

Survey Question	Agree	Neutral	Disagree	Missing	Total
In general, the weather in the city decreases my opportunities for practicing PA outdoors most of the year	55 (29%)	22 (11%)	78 (41%)	37 (19%)	192 (100%)

This finding contradicts findings from the interviews and focus groups where respondents stated that the weather did affect their involvement in outdoor PA and decreased their opportunities to engage in outdoor physical activities such as walking. Some of these differences might be explained by the fact that the survey participants who completed the entire survey were more likely to be active and possibly autonomous (see Section 8.2.1) and thus less likely to look for barriers to their physical activity. Supporting this position, the majority of survey participants reported engaging in walking (see Chapter 5). In addition, survey participants reported that gym membership fees were not a barrier; therefore for those with a membership, weather would not present a barrier for them (see Chapter 9).

8.4 Discussion

My findings indicated that there are a number of factors related to the physical environment that influence participating in PA among YESW. Several participants spoke about the inadequate built environment for PA such as lack of road infrastructure (e.g. footpaths, signs for pedestrians, signals and lights), traffic and safety. In addition, around half of the survey participants found it difficult to walk in their neighbourhood due to a lack of road infrastructure. My study revealed that the presence of certain features for

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footpaths seem to encourage YESW to walk more often; these included but are not limited to: maintaining an appealing appearance in addition to waste and toilet services.

Addressing barriers related to the built environment requires an interdisciplinary team intervening at multiple levels.⁽⁶⁰⁾ Typically, city planners, architects, and healthcare professionals need to be involved.⁽²⁷⁹⁾ For instance, architects can use recommendations from health professionals and incorporate them in their designs to come up with plans that promote PA.⁽²⁸⁰⁻²⁸³⁾

GCC countries share many barriers related to the physical environment especially the ‘weather’ and ‘lack of exercise facilities’.^(18, 259, 262, 267) The rather hot climate in the area makes it hard to exercise outdoors for most of the year, leading to heavy dependence on cars for transportation.⁽²⁶⁶⁾ One study found that people in Kuwait (83.8%) said that excessive dependence on cars affected their engagement in PA.⁽²⁸⁴⁾ Other factors, including lack of proper footpaths and an adequate transportation network, also contribute to high dependence on cars.⁽²⁸⁵⁾ Moreover, it is not easy for all women to find affordable exercise facilities, especially if searching for women only gyms or outdoor spaces⁽²⁸⁶⁾. For instance, a study conducted in Emirates showed that women reported feeling unsafe when walking around in the city without a companion.⁽²⁶²⁾ One strategy to address this it to provide air conditioned buildings such as malls to promote walking in a safe and appealing environment, such as the mall-walking programs for seniors in North America.⁽²⁸⁷⁾ Such programs should work well in Arabic cultures especially that all family members can walk together in malls.

8.5 Chapter summary

In this chapter I have examined YESW's views on the physical environment factors that influenced their participation in PA. Several participants spoke about the lack of road infrastructure. They also discussed the limited availability of and accessibility to women only facilities for PA, both in university settings and in the city in general. Most participants also talked about lack of access to women's only health clubs. Finally, several participants mentioned the hot dusty summers as a barrier to being physically active. The participants also suggested solutions for the built and natural environment to overcome these barriers.

9 Policy Factors

9.1 Introduction

In Chapters 6, 7, and 8, I described the research participants' views on YESW's engagement in PA across the three of the four spheres of influence as described in the social ecological model of physical activity (individual, social, and physical environment). In this chapter, I explore participants' views of policy factors. My findings can be grouped in five themes: opportunities to engage in PA; PA policies in schools and universities; licensing issues and enrolment fees of women only health clubs/gyms; transportation options for women; and possible policy interventions to increase engagement in PA by YESW. These findings reflect the absence of PA policies in Saudi Arabia.

9.2 Opportunity to engage in PA

The absence of a PA policy for women has resulted in limited opportunities for women to engage in PA in Saudi society, as reported by 63% of participants (Table 9.1). Only a small percentage of survey respondents did not hold this view (13%). Similarly, 69% of respondents thought that Saudi men's opportunities to engage in PA were unrestricted, with a mere 8% of respondents viewing Saudi men's opportunities to engage in PA as limited.

Table 9.1: Opportunities for women in Saudi society to practice PA

Survey Question	Agree	Neutral	Disagree	Missing	Total
There are limited opportunities for women in Saudi society to practice PA	120 (63%)	13 (7%)	25 (13%)	34 (18%)	192 (100%)
There are limited opportunities for men in Saudi society to practice PA	8 (4%)	17 (9%)	133 (69%)	34 (18%)	192 (100%)

Women in Saudi have limited opportunity to engage in PA throughout their lives; this starts with no PA in schools and extends to adulthood with little access to appropriate PA facilities.

9.3 PA in schools and universities

School and universities as education settings can facilitate and support learning and engagement in PA, through both curriculum and facilities. The absence of physical education curriculum in females' public schools and universities was reported as a barrier to engaging in PA by most participants. Focus group participants reported a range of reasons for this absence. In addition, some of interviews and focus groups participants noted that there were differences between the females' public and private schools and universities. These discussions showed clear disparities which lead to inequality in PA engagement between men and women.

In general, the public sector education systems in Saudi Arabia does not offer physical education for females students. A lack of physical education classes and curriculum in the school and tertiary education systems was reported as being a barrier by 56% of survey participants with only 13% suggesting that this was not a barrier (Table 9.2).

Table 9.2: Physical education

Survey Question	Agree	Neutral	Disagree	Missing	Total
Lack of physical education classes/ curriculum in public (schools and universities) education system is one of the barriers for Saudi women to participate in regular physical activity	107 (56%)	15 (8%)	25 (13%)	45 (23%)	192 (100%)

The interviews and focus group discussions supported the view that the absence of physical education classes in females’ public schools and universities is a barrier to engaging in PA. The participants offered two reasons for the absences of physical education classes. First, they thought that finding the infrastructure and human resources, such as facilities and female instructors, required to incorporate such classes in the public-school curriculum was likely to be difficult. Second, some participants considered that society did not want physical education for women because it could contribute to female emancipation;

“Female public schools have no places to practice physical activity because I feel they do not have the budget for this, they need equipment and big space like fields; also they must bring female PE teachers and it’s hard to find them.” (FG1)

“In boys’ school, they have physical education classes but not giving the girls importance. Their reason is that the society does not want the girls to study sports. They do not want girls to wear pants and go to sports from the morning. They think the sport will lead to liberating the girls. However, there was a talk these days I read in social media and [xxx] newspaper that finally the Shura Council approved teaching physical education in girls’ school. Now, I think the society will agree” (FG1)

Few participants mentioned that some private schools with expensive tuition fees offer PA programs and classes, however, this makes PA accessible to wealthier girls excluding most of Saudi girls. Participants also referred to the attitude of some teachers who appear to

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view core subjects such as maths and physics as being more important than PA and sacrifice PA classes, even where they are part of the curriculum, to catch up on core subjects;

“There is a curriculum on “Physical Education” taught only in boys’ schools and they have sports halls equipped for this purpose, whereas this curriculum is not taught in girls’ school at all (except for some private schools, where school fees are high)” (Interview, Participant 11)

“I was in a private school, [and there was] one sport (class) a week or (two classes) if the maths instructor didn’t take them or the physics [instructor], and it is two sports only, you either play basketball or football.” (FG 1)

“There are some private schools that have a soccer team for girls and that have monthly events and compete with each other and there has been more than one tournament, they have tournaments, so in stages, they increase the fields.” (Interview, Participant 4)

The lack of opportunities for Saudi women, and the result health inequity, was not seen to be limited to public schools but also extended to universities where males are provided with more activities and fewer administrative barriers;

“The university organised many outdoor trips for male students, for example, recreation activities, but they don’t provide the same opportunity for female students. I believe because for them it is a legal matter. So, male students don’t need, for example, to bring approval from guardians and get a letter with a signature to apply for these trips. However, female students cannot take any decision unless approved by a guardian, and this thing forms a barrier for the university to take any decisions about these kinds of activities.” (Interview, Participant 12)

9.4 Health clubs (gyms)

In this section, the terms women's only 'health clubs' and 'gyms' are used interchangeably as they are understood to be the same thing in Arabic. There were a cluster of barriers related to women's-only health clubs. Legislation that did not permit women's only health clubs played a significant role in women being unable to engage in PA. The participants also reported that female businesswomen faced challenges if they wanted to open female only health clubs. In addition, the participants mentioned the discrepancy between membership fees for women's and men's gyms. All of these barriers limit women's opportunities to engage in PA.

The difficulty in obtaining licences for women's only health clubs was seen to play a significant role in women being unable to engage in PA. It was noted, for example, that the government does not formally permit the establishment of women's health clubs and that all women's health clubs in the country function under a different occupation permits. In addition, there also appear to be institutional challenges for female businesswomen to access funds to operate female only health clubs, as explained by a participant in a focus group;

“My sister is applying for a bank loan to open a women's health club . She has been told there is no such thing as a women's health club in Saudi; it's illegal. You either put it under a health domain or they will not accept your application. So, she decided to put it under physiotherapy for women and kids. Now it has been a year for her and the bank is still giving reasons to stop the loan going ahead.” (FG1)

“All women's health clubs are opened under permits for physiotherapy, children centre or hair salon.” (FG3)

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Some participants found hope in the launch of a governmental community centre for senior people and hoped to have one for female youth eventually;

“There is a woman only community centre, which is considered governmental with subsidised memberships rate. [It is] well located in the middle of the city and it has a big swimming pool, some other fitness studios in addition to the biggest running track for women only in the country. Also, they offer food coaching and other free open educational lectures for the members, for example about nutrition or time management or other topics. It is really a holistic community centre. It is excellent, very tidy, but unfortunately, it is dedicated to older people only. I wish the government could open places like this for young women and youth as well.” (FG2)

There was a range of views about the cost of gym membership. A few participants mentioned the expensive membership fees to enrol in women only gyms. Just over half of the survey participants agreed that the fees of women’s only health clubs are affordable for most female youth (Table 9.3 a). Despite this, only a small proportion of the survey participants indicated that they were current members of a gym (10%), as shown in Table 9.3 (b), and around a third of participants agreed that during the past year they were unable to afford the fees for a gym outside of the university (Table 9.3 b). There was also a substantial number of respondents (28%) who simply did not wish to join even though they could afford the fees.

Table 9.3: Cost of women’s health club membership

Survey Question	Agree	Neutral	Disagree	Missing	Total
a. The fees of women’s only health clubs are affordable for most young women	98 (51%)	30 (16%)	27 (14%)	37 (19%)	192 (100%)
b. During the past year, I have considered joining a gym outside of the university but could not do so due to the high cost					
I agree with this statement					71 (37%)
I am already a member of a gym					20 (10%)
The cost is not a barrier for me, but I don’t want to join a gym					53 (28%)
Missing					48 (25%)
Total					192 (100%)

In the interviews and focus groups, several participants mentioned the expensive fees to enrol in women only gyms as a barrier to enrolling in PA facilities;

“I know a couple of my friends didn’t join the gym because it was overpriced, and, yeah, I think sometimes they overcharge.” (FG1).

“I can’t join the gym regularly because sometimes I can’t afford the price of the membership fee. It’s so expensive for me.” (Interview, Participant 16).

Furthermore, an interviewee drew attention to the fact that there is a discrepancy between membership fees for women’s and men’s gyms due to the number of gyms available for each sex. Another focus group participant considered the issue of pricing through a business lens and justified higher female gym fees due to less demand for the service;

“Women’s health clubs here are few and way overpriced. However, you find men’s health clubs on every corner.” (Interview, Participant 2)

“For example if I am a business owner and there is no turnout on the clubs, why would I open something that won’t bring in money for me... That’s why gyms are expensive.” (FG3)

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The impact of many women in the same family attending a gym was also considered a barrier. One interviewee explained that the high cost of enrolling in a gym becomes a burden on the family's budget if more than one woman in the family wants to enrol. In addition, inconvenient upfront payment methods add to the challenge. She elaborated:

“When, for example, I go to the gym with my sister and mother; each one pays six thousand [Riyals per year], it adds up to 18000 for one family. 18000 is so expensive plus the payment method is all in advance for either a 6 month or one-year membership so, for example, if the club fee was 2000 each, it could be okay.” (Interview, Participant 3)

Participants also noted that the discrepancy between male and female gym fees and restrictions on females' movement further promotes social inequity by discouraging both female gym membership and general engagement in PA;

“Health clubs for men are in every street but it's not the case for women's health clubs. Also, their subscriptions are cheaper; our subscriptions are very expensive compared to subscriptions of men's health clubs. For example, subscription prices in women's health clubs the cheapest is 1700 Riyals per month and this is the worst club compared to a famous men's health club for 700 Riyals per month... So, it's a very big difference. In addition, places are available for men in everywhere they can walk in the street, they even don't need to go to a club or something like this, we cannot do all these things...so many limitations (laughing).” (Interview, Participant 6)

9.5 Transportation

Several transportation-related barriers appeared to contribute to decreased PA for participants in this study. The lack of public transport, long distances due to lack of facilities and the ban on women driving discouraged YESW from participating.

Additionally, their desire to attend a gym sometimes was not seen to be as important as other household needs.

Riyadh is a big city and commuting from one point to another requires considerable driving. Women are not allowed to drive, and so they always need someone to drive them to get to health clubs. In addition to long distances across the city, heavy traffic makes these trips even longer. Reckless driving is another transport related issue which scares pedestrians so they refrain from walking on streets.

Table 9.4: Transportation

Survey Question	Agree	Neutral	Disagree	Missing	Total
There is available transportation for me to access facilities to practice in PA anywhere	132 (69%)	17 (9%)	5 (3%)	38 (20%)	192 (100%)

Despite these challenges, as shown in Table 9.4, 69% of survey participants reported that they had a means of transport at their disposal to access PA facilities at any location.

However, several participants in interviews and focus group discussions had different views about transportation for women in Saudi Arabia. They stated that public transport infrastructure is underdeveloped and so transportation relies to a large extent on private cars being used to get around;

“Unfortunately, we have a transportation crisis, the entire city depends on cars with no public transport available and it’s very hard sometime especially for women to find a car to go to places.” (FG2)

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In addition, it is common to share access to transportation with the family; however, this restricts women's freedom to go out. A focus group participant explained that their trip to and back from the gym imposed additional burdens either on the family driver, especially as these drivers may need to prioritise other household errands over trips to the gym;

“At home, we have a driver and a car for the family, but he is always busy. He has many things to do; he drops us off to school, does morning errands, and then brings us back at noon. He wants to rest too, so driving me in the afternoon at the time I want is additional tiredness for him, especially if he has other errands to complete.” (FG3)

One of the interview participants seemed to put others' needs before her own needs and so refrained from making additional demands on family members;

“My father drives us everywhere so sometimes I feel sorry for him to ask to take me to the gym.” (Interview, Participant 17)

“I depend on my brother to take me to places and bring me back, this is why it's hard for me to join a health club.” (Interview, Participant 10)

In addition to dependence on others to travel, one participant also mentioned that traffic congestion increased the total time required to get to locations and this discouraged her as she would spend a considerable amount of time simply travel to and from such facilities;

“In our neighbourhood, there is no women's only health club and it's very far from where I live; when there's no traffic I need an hour and a half but with heavy traffic two hours to reach the club, and this makes me feel less motivated and bored to go there.” (FG1)

9.6 Physical activity promoting interventions

At the end of the interviews and focus groups, I asked participants to suggest some interventions to increase the engagement of PA among YESW. Many participants suggested PA interventions in school and university settings and at the community level. I included their suggestions in the quantitative survey and asked participants to rank them in order of importance. The resulting top three interventions that were ranked as a first priority can be seen in Table 9.5. At the community level, half of the survey participants ranked “affordable women’s health clubs that are easy to access” as the first preference intervention, followed by “physical education course as an elective in female education system” and “extra curriculum activities and events for physical activity”. Two interventions “sports team and competition sports events in school and university settings” and “community events to increase awareness about physical activity” were ranked lower (27%).

In addition to this question, the participants could include additional interventions as open text. Some suggested various interventions; these suggestions covered all levels of the social ecological model. For instance, they suggested availability of high skilled female trainers at women’s health clubs (individual, social environment and policy level), the availability of obesity support groups for women (social support), access to transportation to get to physical activity facilities (policy level), and access to walking paths for women in neighbourhoods (physical environment and policy level).

Table 9.5: Frequency distribution for first preference interventions to increase the engaging in physical activity among YESW

Interventions*	Survey participants (N=192)	
	<i>n</i>	<i>n%</i>
<i>at the school and university settings</i>		
Physical education course as an elective in female education system (schools and universities)	65	34
Extra curriculum activities and events for physical activity such as marathon, cycling etc. in school and university settings	66	34
Sports team and competition sports events such as basketball in school and university settings	51	27
<i>at the community</i>		
Community events for physical activity that increase awareness	51	27
Affordable women's health clubs that are easy to access	95	50

* More than one answer could be provided to this question

Beyond these suggestions, several participants in the focus groups emphasised the role of the Ministry of Health in promoting PA among the general population. However, they stressed that health awareness campaigns appeared to focus on diet and weight management rather than on PA;

“Honestly the Ministry of Health has a role in promoting physical activity by implementing some health awareness campaigns in malls for the community. However, these campaigns mainly focus on obese or diabetic patients.” (FG1)

“The Ministry of Health seems to be concerned only about obesity. Last year, there were huge national obesity campaigns in some shopping malls which focused on diet and weight management, but unfortunately, health education about the benefits of physical activity was not highlighted.” (FG3)

9.7 Chapter summary

The findings reported in this chapter point to an urgent need for policies and regulations to facilitate engagement of YESW in PA. Research participants reported a lack of PA promoting policies in public schools and universities, policy, fiscal and funding policy and licensing difficulties related to establishing women's health clubs/gyms, lack of public transport and a ban on women driving.

To better understand and contextualise these policy factors, as highlighted by the findings of this research and as reported in this Chapter, I review the current PA policies in the next chapter.

10 Physical activity in Saudi Arabia: Policy review

10.1 Introduction

The preceding chapters (6 to 9) described findings from my interviews, focus groups and survey across the components of the socio-ecological model of PA. In Chapter 6 participants described their individually-oriented reasons for both wishing to engage in PA and the barriers to PA for them. In Chapter 7, I described how the social environment, including family, friends, social media, and cultural and social norms have facilitated or hindered YESW's engagement in PA. In Chapter 8, participants spoke about the climate and the inadequate built environment for physical activity, including the lack of road infrastructure (footpaths, signs for pedestrians, signals and lights), heavy traffic and safety issues. YESW also mentioned the limited availability of and accessibility to women-only facilities for physical activity in neighbourhoods, university settings, and in the city in general. In Chapter 9, participants raised concerns about the lack of policy in physical activity for women in general which they believed to be a significant hurdle in YESW engagement in PA.

In this chapter, I describe both policies and initiatives related to PA in Arabia Saudi for the whole population. I start by defining a PA policy and the elements of a successful PA policy. Next, I present an overview of the Saudi government structure including local government and legislative authority. Using the Health Enhancing Physical Activity (HEPA) Policy Audit Tool (PAT)⁽²⁸⁸⁾, I map all documents related to PA in Saudi Arabia

that I have been able to locate. My findings reveal an absence of PA policy, despite several PA initiatives conducted across the country. It appears that PA activities lack planning and coordination across sectors, especially in the absence of adequate funding and political commitment. Importantly for this thesis, there are limited PA policy initiatives that target women.

10.2 Definition and requirement of a PA policy

A PA policy can be defined as:

“a formal statement that defines physical activity as a priority area, states specific population targets and provides a specific plan or framework for action. It describes the procedures of institutions in the government, non-government and private sector to promote physical activity in the population, and defines the accountabilities of the involved partners”.^(289, 290)

Policies regarding PA are important to address public health issues and, in particular, to address the increasing rates of non-communicable diseases (NCDs).⁽²⁹¹⁾ Governments at all levels can promote PA by initiating, coordinating and implementing public policies, in addition to providing access and better environments for everyone to engage in PA.

Targeting specific groups and providing appropriate environments are key elements in promoting “active living”.⁽²⁹²⁾ As described in Chapter 2, the *Ottawa Charter for Health Promotion* acknowledges that successful health promotion interventions require multiple strategies in multiple settings at all the levels of the *social ecological model* and involving multiple sectors. Therefore, to ensure positive benefit from health promotion, policies interventions must integrate multiple sectors beyond the health sector, including recreation, tourism, education, transportation, housing and urban planning.⁽⁷⁸⁾ Hence, policies that impact PA and health also include policies which promote PA indirectly in these sectors.

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Governments need to engage stakeholders in the process of public policy development.⁽²⁸⁹⁾

PA policy can encourage government sectors, regions or local authorities, stakeholders and private sectors to work on common objectives and strategies in an organized manner. This also fosters better use of resources and greater accountability.⁽²⁸⁹⁾

However, a PA policy statement or action plan alone is not sufficient for any change. A policy statement and an action plan can mobilise governmental and non-governmental sectors to implement a PA policy⁽²⁹³⁾, but proper implementation is needed to bring about change.

The WHO Regional Office for Europe has provided guidance on this by publishing seventeen elements necessary to develop and implement a national PA policy (Table 10.1).^(289, 290, 294-297)

Table 10.1: The 17 elements identified as important for a successful national approach to PA promotion

1. Consultative approach in development ⁽²⁹⁵⁻²⁹⁷⁾

“Thorough stakeholder analysis and needs assessment is used to determine and drive appropriate consultations at an early stage and during the policy development process; it engages grassroots practitioners as well as strategic policymakers, and defines their organisational linkages and relevance to the PA agenda”;⁽²⁹⁰⁾

2. Evidence based ⁽²⁹⁵⁻²⁹⁷⁾

“Policy-relevant syntheses of epidemiological and other relevant evidence (e.g. trends, priority populations, activity preferences, evaluation findings) disseminated in formats accessible by the target audiences”;⁽²⁹⁰⁾

3. Integration across other sectors and policies ⁽²⁹⁵⁻²⁹⁷⁾

“A clear ‘stand-alone’/single issue PA policy statement is developed accompanied by several related strands of PA policy embedded within other related agendas (e.g. in the fields of health, nutrition and obesity, education, transport, urban planning, greenhouse energy management) to achieve synergistic policy impacts”;⁽²⁹⁰⁾

4. National recommendations on PAPA levels ⁽²⁹⁵⁻²⁹⁷⁾

“Dissemination of National guidelines for health enhancing PAPA that are developmentally and age-appropriate (e.g. children and adolescents, adults, older adults). It may also seek to define PA guidelines in relation to specific diseases and conditions (e.g. for the management/prevention of type 2 diabetes, or for the prevention of certain cancers and cardiovascular disease). These detailed ‘prescriptions’ lend themselves to individual communication and typically in the primary care setting; specific (e.g. Cancer, Heart, Diabetes) non-government organisations can play a useful role in leading the production of this guidance”;⁽²⁹⁰⁾

5. National goals and targets ⁽²⁹⁵⁻²⁹⁷⁾

Identify specific and measurable targets within national policy which incorporate a goal of lifelong participation and advocating regular moderate-intensity PA as well as vigorous exercise;⁽²⁹⁴⁾

6. Implementation plan with a specified timeframe for implementation ⁽²⁹⁵⁻²⁹⁷⁾

“Roles and responsibilities of agencies involved in policy implementation are well clarified (e.g. lead agency, supporting agency, consulting agency) and there is common understanding of an agreement on how ‘successful implementation’ is to be defined and measured (e.g. ‘smart’ performance indicators incorporating measurable targets, achievement criteria, timeframes)”;⁽²⁹⁰⁾

7. Multiple strategies ⁽²⁹⁵⁻²⁹⁷⁾

“Progression of policy through coalitions and partnerships (e.g. across government sectors, non-government agencies as well as the private sector); a comprehensive approach using multiple strategies (individual-oriented behaviour change, environmental focused interventions, mass media campaigns) at multiple levels (local, state, national level) and targeting multiple population groups (e.g. children, adolescents, women, older adults, disabled people, indigenous people)”;⁽²⁹⁰⁾

8. Evaluation ⁽²⁹⁵⁻²⁹⁷⁾

“There is a specific plan to evaluate the implementation (process), impact (short term results) and outcomes (longer term results) of the policy; the evaluation is ideally conducted independently of government and of the policy ‘owners’”,⁽²⁹⁰⁾

9. Surveillance or health monitoring systems ⁽²⁹⁵⁻²⁹⁷⁾

“National systematic surveillance of population levels of PA; information about which organisations are responsible for monitoring, or how this is coordinated”,⁽²⁸⁹⁾

10. Political commitment ⁽²⁹⁵⁻²⁹⁷⁾

“Political commitment from government (e.g. from the Prime Minister, King, ministers and/or high ranking officers within ministries of health, education and/or sports) is crucial, as it may facilitate physical activity promotion on the political agenda, particularly if the commitment is officially announced to the public”,⁽²⁹⁴⁾

11. On-going funding ⁽²⁹⁵⁻²⁹⁷⁾

“There is a national funding and budget allocation for implementing national policies and action plans”,⁽²⁹⁴⁾

12. Leadership and coordination ⁽²⁹⁵⁻²⁹⁷⁾

“Leadership is vital among key individuals involved in the implementation of a physical activity plan. Leadership may come from individuals within leading agencies (e.g. high ranking officers in ministries) as well as from local programme coordinators in the intervention settings, including community, workplace and schools”,⁽²⁹⁴⁾

13. Working in partnership ⁽²⁹⁵⁻²⁹⁷⁾

“Develop coalitions and partnerships within and between government, NGOs and the private sector; the state aims are to share funding for programs, to use existing resources more efficiently and to exchange information and knowledge”,⁽²⁸⁹⁾

14. Links between policy and practice ⁽²⁹⁵⁻²⁹⁷⁾

“National and state level organisations initiated and coordinated the PA policy and action plan, whereas local level and community-based organisations were the providers of the appropriate infrastructure; therefore, in some countries emphasis was given to action from local governments and agencies”,⁽²⁸⁹⁾

15. Communication strategy ⁽²⁹⁵⁻²⁹⁷⁾

“Clear identification and communication of the policy is achieved through marketing and by tailoring of communication styles to match a specific market segmentation (e.g. politicians, senior bureaucrats, researchers, community based practitioners, public)”,⁽²⁹⁰⁾

16. Identity (branding/logo/slogan) ⁽²⁹⁵⁻²⁹⁷⁾

There is started policy under a specific brand/slogan, providing an identity for the initiative;⁽²⁸⁹⁾

17. Network supporting professionals ⁽²⁹⁵⁻²⁹⁷⁾

“staff development of relevant skills, with the aim to establish a trained workforce on physical activity needs”;⁽²⁹⁴⁾

The Health Enhancing Physical Activity Policy Audit Tool (HEPA-PAT)

Based on the seventeen elements described above, the Health Enhancing PA (HEPA) policy audit tool (PAT) was developed by the WHO in 2014.⁽²⁸⁸⁾ The PAT is a set of 27 questions that assists researchers to map policies related to PA across multiple sectors within a country, including health, sport, education, transport, environment, and urban planning. This helps to assess the strengths and weaknesses of existing policies and to identify gaps and opportunities to address in future policies. Using PAT requires data from multiple sectors which also contributes to communication and collaboration among institutions and agencies promoting PA.

Several countries have already shown interest in or completed the HEPA PAT.^(288, 298) In 2014, a report published by the WHO Eastern Mediterranean Region used the PAT to review PA initiatives in twenty-two countries within the Middle East including Saudi Arabia.⁽²⁹⁹⁾ The WHO analysis found that Saudi Arabia has promoted PA in three areas: health, education and urban design. They documented that Saudi Arabia has a national program in diet and physical activity and physical education strategies in schools, which were aligned with international guidelines and recommendations to promote PA. In addition, they reported that Saudi Arabia conducted three surveys to systematically investigate lifestyle habits, including physical activity (the Arab Teen Lifestyle Survey in 2011, and the WHO STEPS surveillance twice, in 2013 and 2015). Moreover, they highlighted the implementation of Wadi-Hanifa as a good of example of urban design projects that have an impact on PA for the entire population.⁽²⁹⁹⁾

Although the PAT is very useful, it does not provide a detailed description of HEPA projects and related initiatives, so it is appropriate to complement it with further investigation for a more comprehensive picture of all ongoing HEPA activities in a country.⁽²⁸⁸⁾ This chapter provides an in depth case study and a broader review of all ongoing PA initiatives in Saudi Arabia.

The next section provides background information about the structure of the Saudi government and its legislative authorities, to better understand the context in which policymaking takes place.

10.3 An overview of the legislative system in Saudi Arabia

As mentioned in Chapter 2, all laws in Saudi Arabia originate from Islamic Sharia (the rules of the Islam religion).⁽⁸²⁾ In case of the absence of clear text in Sharia to regulate a matter, legislators search for guidance from within Sharia and then establish by-laws and rules within those guidance.⁽⁸³⁾ The regulatory authority exercises its function in accordance with Sharia principles. The overall authority for law making resides with the King, and while the Council of Ministers and Shura Council advice and propose legislation, by-laws are lawful only if they do not contradict Sharia. The king alone has the power to ratify, amend and repeal any legislation by Royal Order.^(83, 84) The Shura Council proposes bills which, when approved by a two-third majority, are presented to the King for ratification.⁽⁸¹⁾ The King may provide his initial approval and forward them to the Cabinet. If the Cabinet agrees with the draft prepared by the Shura, then it is sent back to the King for final approval and ratification. If needed, the Cabinet may direct the ministries concerned to draft secondary legislation called “implementing regulations”. The Cabinet will then issue a final approval.⁽³⁰⁰⁾ The new law is published in Umm Al Qura, which is

the Official Gazette.⁽³⁰⁰⁾ The implementation of legislation is completely done by the responsible ministry.⁽⁸⁴⁾

The following authorities are responsible for health, PA, sports and recreation as follows:

- *Ministry of Health (MOH)* is the main provider of healthcare in the country and responsible for promoting health and preventing diseases.⁽³⁰¹⁾ The MOH helps the Cabinet and Shura Council to draft laws related to both governmental and private health sectors.⁽³⁰²⁾ Supervising health research and academic training and monitoring and evaluating the performance of all health institutions are also the responsibility of the MOH.⁽³⁰²⁾
- *Ministry of Education (MOE)* manages and organises all educational activities in public and private schools and universities, including physical education.⁽³⁰³⁾
- *The Ministry of Municipal and Rural Affairs* is responsible for maintaining a sustainable and balanced urban development and environment for the public across Saudi.⁽³⁰⁴⁾
- *General Authority for Sports* is a governmental entity in charge of promoting sports to the public and managing all sports facilities (i.e. clubs and stadiums) in the country.⁽³⁰⁵⁾
- *The High Commission for the Development of AR Riyadh* oversees the urban planning and development of the capital city Riyadh.⁽³⁰⁶⁾

10.4 Methods for mapping PA policies in Saudi Arabia

Between April and September 2016, I identified, collected, and reviewed all available Saudi Arabian policy documents, strategies, guidelines, programs, activities and projects related to PA directly or indirectly. I started with a google search in Arabic and English using the keywords of “Saudi Arabia” and: “national PA policy”, “national PA action plan”, “PA guideline(s) and recommendations”. I also included the keywords “obesity prevention programs” because some of these programs aimed to promote PA as well. I also reviewed official websites of relevant Saudi ministries and sectors (i.e. Health, Education, Municipal and Rural Affairs, Transportation, General Authority for Sports, and High Commission for the Development of Arriyadh) as well as the Saudi Arabia’s 2030 vision website for any relevant documents. The website of the General Authority for Sports (formally named General Presidency for Youth Welfare) was under reconstruction during my data collection period and thus was excluded from my sample collection^{iv}. However, I found descriptive information in the Saudi Arabia’s 2030 website about some projects launched in 2016 under the General Presidency for Youth Welfare and I have included these in my analysis.

10.5 Data Analysis

Based on the PA policy definition described previously in this chapter, I included documents that contained PA even if only a small component and/or if the project had an impact on PA. I used the PAT as a data collection and analysis tool to map the policy

^{iv} I checked the website again (<http://www.gpyw.gov.sa/>) on 1st January 2017 when finalising my thesis, website is still under reconstruction.

documents. The PAT is structured into four sections: “(1) overview of the country and government structure; (2) policy and content; (3) policy implementation and (4) methods of completion and collaboration”^(288, 307) I began by familiarising myself with each PAT section. Then, I reread every policy document and categorised it under the relevant section of PAT. After mapping these policy documents, I searched for connections and themes and then conducted a content analysis for each PAT section. Next, I grouped my key findings into four categories: national programs and guidelines; health awareness campaigns, educational resources (conferences and website); and projects that may have an impact on promoting PA (see Table 10.2). It took me around two months to finish this process (August and September 2016) and I did several revisions until January 2017 to ensure all material was included. Full details of the PAT is attached in Appendix J.

10.6 Results

In total, I found 20 documents which I grouped under seven headings: health (n=13), education (n=2), sport (n=2), environment (n=6), urban design (n=7), transport (n=2), and tourism (n=4) (see Table 10.2). In this section, I present my key findings across the four areas I noted above: 1) national programs and guidelines; 2) health awareness campaigns, 3) educational resources (conferences and website); and 4) projects that may have an impact on promoting PA. A detail description of each area provided below.

Table 10.2: Saudi Policy related documents by sectors

Name of relevant PA initiatives	Areas						
	Health	Education	Sport	Urban design	Environment	Transport	Tourism
National programs and guidelines							
1. Saudi Arabia's Physical Education and Sport for All federation		✓	✓				
2. Diet and Physical Activity Program	✓						
3. Obesity Control Program	✓						
4. The Dietary Guidelines for Saudis (The Healthy Food Palm)	✓						
5. The National Transformation Program 2020	✓	✓	✓	✓			
Events and awareness campaigns							
6. 1 st Health Week of Obesity Control Program 2010	✓						
7. Awareness campaign on Balanced Nutrition and Physical Activity; "Your Health...Is Worth the World"	✓						
8. National Campaign against Overweight and Obesity 2012	✓						
9. Health Days 2013: World Physical Activity Day; "No Barriers to Physical Activity"	✓						
10. Health Days 2015: "World Heart Day"	✓						
11. Health Days 2015: "World Anti-Obesity Day"	✓						
Educational resources (conferences and website)							
12. Facts and guidelines on physical activity	✓						
13. The World Diabetes and Obesity in Gulf Countries, 2015	✓						
14. International Conference of Healthy Lifestyles and NCDs in the Arab World and the Middle East, 2012	✓						
Projects							
15. Wadi Hanifa, 2010				✓	✓		✓
16. Salam Park, 2004				✓	✓		✓
17. Wadi Namar (Valley of Namar), launched in 2012 and still ongoing				✓	✓		✓
18. Wadi Laban (Laban Valley), Launched in 2012 and still ongoing				✓	✓		✓
19. Riyadh Metro Project, Launched in 2013 and still ongoing				✓	✓	✓	
20. Riyadh Bus Project, Launched in 2013 and still ongoing				✓	✓	✓	

10.6.1 National programs and guidelines

There is no national policy exclusively for PA in Saudi Arabia. However, there are four national programs and one national guidelines related to PA: The Saudi Federation for Physical Education and Sport for All ⁽³⁰⁸⁾; Diet and PA Program ⁽³⁰⁹⁾; Obesity Control Program ⁽³¹⁰⁾; Dietary Guidelines for Saudis (The Healthy Food Palm) ⁽³¹¹⁾; and National Transformation Program 2020 ⁽³¹²⁾; as illustrated in Table 10.3. Below is a description of each national program and guidelines, with the amount of detail depending on what the program itself published or made available for the public.

Table 10.3: Missions and objectives of National Programs and guidelines

Program	Mission, goal, and objectives (if stated by the program)
1. The Saudi Federation for Physical Education and Sports for all ⁽³⁰⁸⁾	<p>Mission “Building healthy society and promoting PA for all age groups and people with disabilities”⁽³¹³⁾</p> <p>Objectives</p> <ol style="list-style-type: none"> 1. “Promoting PA among in schools; 2. Raising awareness about sports in communities; 3. Encouraging research related to PE in schools; 4. Coordinating with relevant authorities and participating in regional and international sports events”⁽³¹⁴⁾
2. Diet and PA Program ⁽³⁰⁹⁾	<p>Mission “Building a healthy community that can compete globally to promote health”⁽³¹⁵⁾</p> <p>Goal “Increasing PA by 20% and decreasing obesity by 10% in ten years”⁽³⁰⁹⁾</p>
3. Obesity Control Program ⁽³¹⁰⁾	<p>Mission “Promoting health of all age groups in SA by controlling obesity and offering healthcare services to obese people”⁽³¹⁶⁾</p> <p>Goal “Keep incidence rate of obesity unchanged till 2023”⁽³¹⁷⁾</p> <p>Objectives</p> <ol style="list-style-type: none"> 1. “Primary prevention of obesity by controlling its risk factors; 2. Secondary protection of obesity by early detection; 3. Improving quality of health services provided to obese people; 4. Enhancing research and evaluation; 5. Enabling obese people and their families to control obesity; 6. Promoting community partnerships to combat obesity”⁽³¹⁷⁾
4. Dietary Guidelines for Saudis (The Healthy Food Palm) ⁽³¹¹⁾	<p>Mission “Promoting awareness about the relationship between good health, nutrition and physical activities to improve the general wellbeing of individuals”⁽³¹¹⁾</p>
5. National Transformation Program 2020 ⁽³¹²⁾	<p>Mission “To help fulfil “Saudi Arabia’s Vision 2030” and to identify the challenges faced by government bodies in the economic and development sectors”⁽³¹²⁾</p>

1. The Saudi Federation for Physical Education and

Sports for all: A governmental program supervised by the MOE since 2014. It advocates for PA in schools through awareness campaigns, training teachers, engaging communities in PA through health education and training activities, and promoting multi-sectoral collaboration.⁽³¹⁴⁾



2. Diet and PA Program: Established by the MOH in 2006. The vision of this program

states: “to support and protect the health of citizens in the Kingdom by directing the march of development to enable an environment supporting sustainable work at the level of individuals, society and country”.⁽³¹⁸⁾ The program is for the entire population and focuses on five areas: primary prevention, training, studies and research, community partnerships, and strengthening means of surveillance, monitoring and evaluation. Activities include health education campaigns on healthy lifestyle and PA and national guidelines for healthy food and PA. The project has published several pamphlets, brochures, posters and flash films. To achieve its goal, the program outlines five strategies related to: applying the national dietary guidelines, providing supportive environments, supportive policies, supportive programs, and finally monitoring and supervision.⁽³¹⁹⁾ However, the program provides no details about the implementation of these five strategies, except for the first strategy (applying the national dietary guidelines); it stated that the strategy is based on the enforcement of an action plan for food and physical activity strategies, such as reducing the intake of sugar, fat, salt and increasing food labelling education.⁽³¹⁹⁾



3. Obesity Control Program: A national program

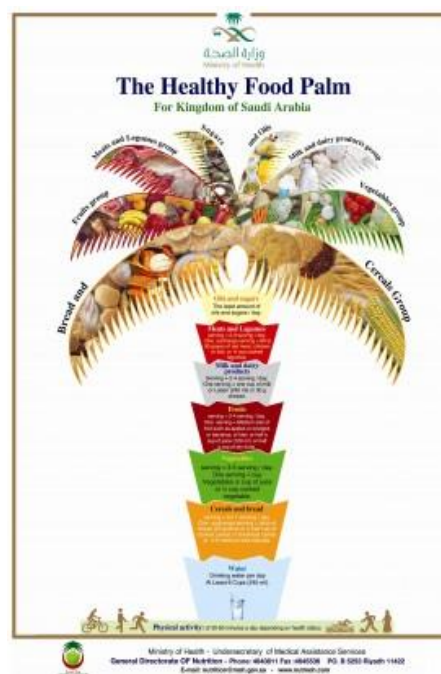
launched by the MOH in 2013. It targets the whole population with the aim of promoting health through obesity control and providing obese people with relevant services such as training, awareness campaigns, and sites



for early detection of obesity. Few activities are dedicated to achieve objectives related to primary prevention and evaluation.⁽³¹⁰⁾

4. Dietary Guidelines for Saudis (The Healthy

Food Palm): launched in 2012 by the MOH and promoting healthy choices for food consumption and engaging in PA to prevent NCDs related to diet and physical inactivity in the Saudi community. The dietary guidelines use the palm tree – a cultural Saudi symbol – to recommend healthy servings of different food groups.⁽³¹¹⁾ Like the US Department of Agriculture (USDA) Food Guide Pyramid (Dietary Guidelines for



Americans, 2010), the guidelines are simplified into colourful graphics to encourage the Saudi community to substitute unhealthy foods with healthier choices within the same group. A 32-page booklet has been published explaining the dietary guidelines and other dietary issues including dietary habits of Saudi, chronic disease-specific diets, serving sizes, and PA.⁽³¹¹⁾

The guidelines focus mainly on diet and nutrition, with only a small section providing general PA recommendations without indicating different age groups. The recommendations prescribe engaging in a moderate level of PA regularly, such as walking for 15 to 30 minutes, 3- 4 times/week. In addition, there are recommendations to reduce time spent in sedentary activities such as watching television or browsing the internet.⁽³¹¹⁾ The Healthy Food Palm can be used to improve dietary educational and awareness for all official authorities or agencies, health institutions and professionals, mass media, schools, and communities.⁽³¹¹⁾

5. National Transformation Program 2020: this program was launched in 2016 to support achieving the “Saudi Arabia’s Vision 2030”.⁽³¹²⁾ To accomplish this vision, the National Transformation Program worked on:



“Identifying strategic objectives and innovative targets for the year 2020;

Translating these objectives into initiatives and providing detailed implementation plans with feasibility studies;

Encouraging national collaboration to achieve common national goals”.⁽³¹²⁾

Every year, the program measures and monitors performance to identify initiatives and provides detailed plans for implementation. For instance, the program approved 543 initiatives in 2016 in different sectors to be implemented between 2016 and 2020. After reviewing all initiatives, I found a small number that promoted PA directly and indirectly.

For example:

- The youth welfare sector focused on providing better sport facilities, conducting awareness/communication campaigns, establishing sports groups in communities, licensing women sport halls, developing physical education

classes and training teachers, and implementing “active city” programmes/neighbourhood clubs. This is the only sector that allocated a budget for PA, with focus on youth only.⁽³¹²⁾

- Rural Affairs and the MOH have programs that impact PA indirectly, for example through national urban planning projects such as future Saudi cities program and national research centres for obesity.⁽³¹²⁾

10.6.2 Health awareness campaigns

The MOH launched six health awareness campaigns between 2010 and 2015, including the celebration of certain International Health Days.⁽³²⁰⁻³²⁵⁾ Five of these campaigns published key facts and information about their theme online.⁽³²⁰⁻³²⁴⁾ Most campaigns lasted for one day except for the “1st Health Week of Obesity Control Program; 2010”, which lasted for eight days and involved multiple sectors including the school health department, obesity research centre, Saudi food and drug authority, and universities.⁽³²⁰⁾

It was not clear from the websites whether these campaigns and health events had a vision, goals or objectives. Most campaigns and health events focused on risk factors of NCDs, including physical inactivity (see Table 10.4). Four of the six campaigns included PA in their programs^(321-323, 325) and only one of them was exclusively about PA on the occasion of the annual international day of PA in 2013 (*World PA Day; “No Barriers to PA”*).⁽³²²⁾

Most campaigns and health events focused on the general population. A small number focused on health professionals and decision makers or/and addressed specific diseases (e.g. diabetes; obesity; cardiovascular disease; hypertension and cholesterol) (see Table 10.4).

Table 10.4: Health promotion campaigns implemented by the MOH

Campaign/Event title	vision/goal and objectives	Activities	Has a PA focus	Target groups
1. 1 st Health Week of Obesity Control Program; 2010 ⁽³²⁰⁾	No vision/goal were included.	This event launched for a period of 8 days at Prince Sultan University Headquarter (PSU) in Riyadh. In addition, it was conducted in collaboration with Riyadh Municipality, School Health Department at the General Directorate of Education in Riyadh, Obesity Research Centre, Saudi Food and Drug Authority, PSU, and King Fahad Medical City. Moreover, it was accompanied by a one day-scientific program, which is accredited from the Saudi Commission for Health Specialties (SCHS). ⁽³²⁰⁾	No	<ul style="list-style-type: none"> • General population; • All health professionals⁽³²⁰⁾
2. Awareness campaign on Balanced Nutrition and PA; “Your Health...Is Worth the World”; 2011 ⁽³²⁵⁾	No vision/goal were included.	The webpage only included a link to references and commercial ads about types of dieting and losing weight. ⁽³²⁵⁾	Yes, but not described	General population ⁽³²⁵⁾
3. National Campaign against Overweight and Obesity; 2012 ⁽³²¹⁾	No vision/goal were included.	The program advocates for entrenching the culture of walking by the Minister of Health which they sent letters to princes of all regions to prepare tracks for walking in the public gardens. Also, they have provided information and facts about the following topic ⁽³²¹⁾ : <ul style="list-style-type: none"> • Healthy food choices guide (i.e. food plan, some basic rules of nutrition); • Guidelines of daily use which included many instructions such as: cooking in the kitchen, shopping for food, suggestions for healthy snacks and tips for eating out; • Low-Calorie Recipes; 	Yes	General population ⁽³²¹⁾

Campaign/Event title	vision/goal and objectives	Activities	Has a PA focus	Target groups
		<ul style="list-style-type: none"> • Plan for losing weight; • Body Mass Measurement; • Tape Measure; • Food Pyramid; • Food Calorie Table; • Weight Measurement Chart; and • Influence of Exercise on Health 		
<p>4. Health Days 2013: World PA Day; “No Barriers to PA”⁽³²²⁾</p>	<p>Aim: “To celebrate annually day for PA with the purpose of enhancing the concept of the PA, health benefits resulting from doing it regularly, and the harm ensuing from the physical stagnation”⁽³²²⁾</p> <p>General Objectives:</p> <ul style="list-style-type: none"> • “Obtaining the basic concepts related to the PA and health, and the necessary applied skills for the PA prescription in case of being ill or healthy; • Necessity of setting clear-cut policies developing engagement in enjoyable physical activities, and going on throughout one’s life; • Limiting the risks of getting injured with non- 	<p>There were information and facts on the PA as follows⁽³²²⁾:</p> <ul style="list-style-type: none"> • Prevalence of physical inactivity for male and female in SA; • Physical inactivity as a risk factors of non-communicable diseases; • Global recommendation level for PA for different age groups as: “exercising 30 minutes daily for, and 60 minutes daily for children and adolescents; • Recommendations type of PA such as: walking, riding bicycles, parking cars away from place of work, using stairs, and dancing 	<p>Yes</p>	<ul style="list-style-type: none"> • All those working in the health field; • Decision-makers in the health field; • Only for adults⁽³²²⁾

Campaign/Event title	vision/goal and objectives	Activities	Has a PA focus	Target groups
	<p>infectious diseases such as some cancer types like breast and colon cancer, diabetes, and heart and obesity diseases; through increasing the PA of the various age community groups for both genders;</p> <ul style="list-style-type: none"> • Turning the currently-dominant lifestyles in the Saudi community into more healthy lifestyles⁽³²²⁾ 			
<p>5. Health Days 2015: “World Heart Day”⁽³²³⁾</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • “Enhancing people’s heart health by reducing the risk factors associated with behaviours and lifestyles such as smoking, lack of activity and malnutrition; • Focusing on children and women with cardiovascular diseases, by conducting early examinations and providing them with necessary treatment; • Providing health awareness brochures on the risk factors of 	<p>There were information and facts about cardiovascular diseases as follows⁽³²³⁾:</p> <ul style="list-style-type: none"> • Definition of cardiovascular diseases; • Risk factors for cardiovascular disease; • Symptoms of a heart attack, strokes, and rheumatic heart disease; • Treatment and prevention of cardiovascular disease 	<p>Yes</p>	<ul style="list-style-type: none"> • General population; • People suffering from cardiovascular diseases; • People with chronic diseases, such as diabetes, high blood pressure (hypertension) & cholesterol; • Health workers; • Health decision makers⁽³²³⁾

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Campaign/Event title	vision/goal and objectives	Activities	Has a PA focus	Target groups
	<p>cardiovascular diseases;</p> <ul style="list-style-type: none"> • Developing health policies to reduce heart diseases such as banning tobacco-use; • Promoting healthy dietary habits; • Raising awareness on importance of exercising at least 30 minutes a day; • Providing appropriate and equipped places for exercises⁽³²³⁾ 			
<p>6. Health Days 2015: “World Anti-Obesity Day”⁽³²⁴⁾</p>	<p>Aim: “ raise awareness among community members about obesity harms and complications, including:</p> <ul style="list-style-type: none"> • Cardiovascular diseases (i.e. heart attacks and strokes); • Diabetes; • Musculoskeletal disorders especially osteoarthritis; • Some cancers (i.e. endometrial cancer, breast cancer, and colon cancer)”⁽³²⁴⁾ 	<p>There was information on key facts covered the following topics:</p> <ul style="list-style-type: none"> • Definition of obesity and its prevalence in the country and worldwide; • Body Mass Index (BMI) classifications; • Causes, complications, treatment methods and preventions of obesity⁽³²⁴⁾ 	<p>No</p>	<ul style="list-style-type: none"> • General population; • People with obesity and those vulnerable to obesity; • Medical professionals (physicians, nurses, nutritionists & pharmacists)⁽³²⁴⁾

10.6.3 Educational resources (conferences and website)

The MOH organized two conferences that addressed physical inactivity as a risk factor for NCDs.^(326, 327) Both conferences targeted health professionals and focused on controlling NCDs.

The World Diabetes and Obesity in Gulf Countries (2015) presented the latest scientific findings in the treatment of obesity and diabetes and elaborated on the role of the Gulf Cooperation Council (GCC) in controlling diabetes and obesity, including relevant scientific research and educational activities.⁽³²⁶⁾ This conference also emphasized the importance of healthy eating and PA in preventing and managing diabetes and obesity and published two brochures in Arabic about relevant topics including food labelling and healthy choices, PA recommendation for different age groups, benefits of regular exercise, and the harms of physical inactivity.⁽³²⁶⁾

The International Conference of Healthy Lifestyles and Non-Communicable Diseases in the Arab World and the Middle East (2012) was organized in collaboration with the WHO Regional Office for the Eastern Mediterranean and aimed to implement the United Nations General Assembly Political Declaration on Prevention and Control of Non-Communicable Diseases (NCDs) at the regional level.⁽³²⁷⁾ This conference yielded the “Riyadh Declaration”⁽³²⁸⁾ that focused on a core set of evidence-based ‘best-buy’ interventions for NCDs that are feasible, low-cost and this declaration issued ten recommendations to fight NCDs, two of which were related to PA:

- *“Schools must be recognized as a major venue for NCD prevention. Accreditation or rehabilitation of educational facilities for boys and girls should be based on the criteria of WHO ‘Health Promoting Schools.’ Physical education and access to*

healthy food items should be considered as priorities in the educational system, equal in importance to reading and writing.⁽³²⁸⁾

- *“Urban planning licenses of new residential developments have to include environments which promote walking or biking, social gathering, and safe space to allow PA for women, elderly persons and children.”*⁽³²⁸⁾ Full Declaration is attached in (Appendix L).

Building on the Ottawa Charter of Health Promotion previously described in Chapter 2, both recommendations aimed at creating supportive social and physical environments to provide people with accessible healthy choices, more specifically focused on the role of social environment (schools) and physical environment (urban design) in promoting PA.^(60, 328)

The MOH included on its website an educational blog on facts and guidelines related to PA with links to tips and guidelines for better health through walking and PA.⁽³²⁹⁾ There were also PA recommendations for different age groups, information about the benefits of regular exercise for different age groups, and some examples of appropriate exercise for pregnant women and people with cardiovascular disease, obesity, diabetes, and osteoarthritis.⁽³²⁹⁾

10.6.4 Projects that may have an impact on promoting PA

The High Commission for the Development of Arriyadh, in partnership with other ministries and interested residents, launched six urban developmental projects in Riyadh city.⁽³³⁰⁻³³⁵⁾ These projects aimed at maintaining the natural environment, creating recreational facilities, improving urban design, and developing the tourism and transport sectors (Table 10.5). Four projects⁽³³⁰⁻³³³⁾ aimed to improve the environment’s quality and restore the natural beauty while the other two^(334, 335) aimed to develop a public

transportation system in Riyadh city. None of these projects specifically targeted PA but they may have an impact to promote PA in and promote supportive environment for PA in Riyadh city.

Table 10.5: Projects developed by the High Commission for the Development of Arriyadh

Project name, year	Project aim/vision
1. Wadi Hanifa, 2010 ⁽³³⁰⁾	“To improve the land scape and restore the natural beauty of Wadi Hanifa, thus enhancing the environmental quality of the area, improving accessibility, and providing a huge public recreational space” ⁽³³⁰⁾
2. Salam Park, 2004 ⁽³³¹⁾	“To establish a family park with multiple environments where visitors can enjoy their time. Therefore, the park was furnished with green areas, utilities and playgrounds for children in addition to pedestrian walkways” ⁽³³¹⁾
3. Wadi Namar (Valley of Namar), Launched in 2012 and still ongoing ⁽³³²⁾	<p>“To improve the environment quality of the area. The first stage of Wadi Namar Environmental Rehabilitation Project covered the course of the valley from Wadi Namar Dam Lake until meeting Wadi Hanifah in Utaiqah District”⁽³³²⁾</p> <p>The project also included the following⁽³³²⁾:</p> <ul style="list-style-type: none"> - Roads and traffic facilities - Sidewalks and walkways - Lighting of roads and open spaces - Afforestation and irrigation - Lake and the permanent water channel
4. Wadi Laban (Laban Valley), Launched in 2012 and still ongoing ⁽³³³⁾	<p>“To improve the environment quality of the area by cleaning the valley bed and the basin of its dam, in addition to refining streams. Wadi Laban stretches from west to east until meeting with Wadi Hanifah at Al-Qurashiyah”⁽³³³⁾</p> <p>The project also included the following⁽³³³⁾:</p> <ul style="list-style-type: none"> - Roads and traffic facilities - Sidewalks and walkways - Lighting of roads and open spaces - Afforestation and irrigation - Rest area
5. Riyadh Metro Project, Launched in 2013 and still ongoing ⁽³³⁴⁾	<p>“The project will be of great benefit to Riyadh traffic, economy, society and environment. Moreover, it will provide the city with a giant public transport system to meet its existing and future needs”⁽³³⁴⁾</p> <p>“Environmental element: The stations will make use of solar cells technology to save about 20% of the power required for air-conditioning and lightening”⁽³³⁴⁾</p>

6. Riyadh Bus Project, Launched in 2013 and still ongoing ⁽³³⁵⁾	“Bus network will be the main feeder of the Riyadh metro network. It will also be the main mean of transportation within and among Riyadh districts” ⁽³³⁵⁾
	“ Environmental element: The buses are environment-friendly as they would run using ultra-low sulfur fuel that meet the EU Standards” ⁽³³⁵⁾

In summary, this review of PA activities between 2004 and 2016 provides evidence of PA initiatives in seven sectors – health, education, sport, environment, urban design, transport and tourism – with the majority from health and urban design. PA is promoted through national programs and guidelines, events and awareness campaigns, educational resources, and projects.

10.7 Discussion

In this discussion, I analyse my findings using the 17 elements described earlier as a framework to assess the status of PA policy. I include a particular focus on women at the end of the discussion.

As noted above, Saudi Arabia does not have a physical activity policy. Most PA initiatives in Saudi Arabia are promoted under the auspices of prevention and treatment of obesity. Only one health event and two programs actually specified PA as their priority area: the Saudi Federation for Physical Education and Sport for all, the National Transformation Program 2020, and the World’s Physical Activity Day 2013. However, taken together the range of PA initiatives presented above do address some of the 17 elements of a successful PA policy as outlined in the PAT see (Table 10.6).

Table 10.6: Saudi Arabia PA initiatives progress against the 17 elements of a successful PA policy

The 17 elements for Nation Policy	Progress		
	Fully	Partially	No
1. Consultative approach in development		✓	
2. Evidence based			✓
3. Integration across sectors and policies		✓	
4. National recommendations on PA levels	✓		
5. National goals and targets		✓	
6. Implementation plan with a specified timeframe			✓
7. Multiple strategies		✓	
8. Evaluation		✓	
9. Surveillance or health monitoring systems		✓	
10. Political commitment		✓	
11. On-going funding		✓	
12. Leadership and coordination		✓	
13. Working in partnership		✓	
14. Links between policy and practice		✓	
15. Communication strategy			✓
16. Identity (branding/logo/slogan)			✓
17. Network supporting professionals		✓	

Table 10.6 illustrates the progress of the PA initiatives against the 17 elements of a successful PA policy; one element was fully addressed, 12 elements were partially addressed, and four were not addressed at all. A description of progress is given below.

Full progress

Only one element “The national recommendation on PA levels” (element 4) was fully addressed through Health Days 2013: “World PA Day”, “No Barriers to PA” and the educational blog on PA facts and guidelines by age groups. For example, the educational

blog stated global PA recommendations levels for children, adolescents, adults, and elderly. It also provided examples of type of PA or/and appropriate exercise for pregnant women and people with specific NCDs.

Partial progress

Twelve elements were partially addressed as shown in Table 10.6. The first element “Consultative approach in development” was addressed to some extent through the National Transformation Program 2020 that measures and monitors performance annually to identify initiatives and provide detailed plans for implementation. In addition, the urban design projects displayed integration across other sectors and policies (element 3) as they involved several ministries, authorities, and city residents and documented partnerships in planning and implementation processes. Although these projects were intended primarily to improve traffic flow and support the economy, they have positive implications for PA as well through improving the environment and establishing recreational areas and paths for people to walk safely.

In addition, the Diet and PA Program provides some evidence of a national measurable target to increase PA within 10 years timeframe e.g. “Increasing PA by 20% and decreasing obesity by 10% in ten years” (element 5). Element 5 was also somewhat addressed by advocating and stating a general national guidelines for regular moderate-intensity PA in the Dietary Guidelines for Saudis (The Healthy Food Palm). However, these national programs and guidelines neither provided specific policy to promote PA nationally nor provided measurements for moderate intensity and vigorous PA.

Several multi-sectoral strategies involving PA initiatives were shared by the government, non-government and private sectors; however, the accountability of the partners was unclear (element 7). Furthermore, none of the PA activities published any data about formal evaluation, although the Diet and PA program has been publishing its achievements on its website since 2006. This was done by the agency but not independently (element 8).

For element 9, three surveys to systematically investigate lifestyle habits, including PA (the Arab Teen Lifestyle Survey in 2011, and the WHO STEPS surveillance in 2013 and 2015) were conducted. In addition, there was some political commitment and support to include physical education in public schools and universities despite the absence of a PA policy for the females' public education system (element 10). Funding was not available for most PA initiatives and only the national transformation program 2020 indicated budget allocation for implementing national youth PA initiatives (element 11).

The MOH often leads PA promotion mainly under the banner of the prevention of NCDs. However, there is a need to specify a formal entity (ministry or federation) which is responsible for leadership of developing and implementing a PA policy and coordinating with the public sectors and non-governmental organisations (element 12).

“Working in partnership” through collaboration among governmental ministries, non-government organizations and the private sector is the 13th element.^(288, 289, 295, 296) This element was only achieved by “1st Health Week of Obesity Control Program 2010” launched by the MOH in collaboration with local and national partners such as Riyadh Municipality, School Health Department, Obesity Research Center, Saudi Food and Drug Authority, PSU and King Fahad Medical City. Generally, PA initiatives in Saudi Arabia

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involve multiple sectors in preparation and implementation phases. However, such efforts are not adequately documented and thus cannot be proven.

The Saudi Federation for Physical Education and Sport for All demonstrated links between policy and practice, as well as provided appropriate infrastructures for it. However, it is implemented only in male public education system (element 14).

For element number 17, “network supporting professionals” there is a national research centre for obesity as indicated in the national transformation program 2020. In addition, the MOH organized two conferences on physical inactivity, with both conferences targeted at health professionals. However, simply holding two conferences is insufficient to support professional development and academic training in PA. In addition, there is a lack of academic and certification programs on physical education for women which has contributed to the lack of local female professional PA trainers for women.

No progress

I was unable to find any evidence related to any progress in relation to the following four elements in any PA initiatives (refer for Table 10.1 for more details of these elements)

Element 2: Evidence based

Element 6: Implementation plan with a specified timeframe for implementation

Element 15: Communication strategy

Element 16: Identity (branding/logo/slogan)

Initiatives targeted at women

Most of the PA initiatives described in this review are likely to have a positive impact on women generally, even that they were not targeted at women. However, the impact of these PA initiatives is likely to vary between men and women. For instance, the National Campaign against Overweight and Obesity advocates building a culture of walking. However, as I showed in Chapters 7 and 8, the participants in my studies indicated that walking for women is difficult because of social norms and cultural expectations, and the physical environment. Another example is the Saudi Federation for Physical Education and Sports, whose programs are only implemented in males' public schools with nothing in females' public schools yet. The only program and guideline that has targeted women is the National Transformation Program 2020 and the educational blog on PA facts and guidelines; however these initiatives also have limited information for women.

10.8 Chapter summary

In this chapter, I described both policies and initiatives related to PA in Arabia Saudi for the whole population. In summary, Saudi Arabia has partially addressed most of the 17 elements of the successful PA policy and made some achievements in PA policy. However, it is still in the early stages of building a successful national approach to PA.

The areas that showed the most progress for PA in the country (i.e. health and urban design projects) are those which seem to align with international agencies such as the WHO international guidelines and United Nation Habitat Programs for A Better Urban Future, and this may be why Saudi Arabia is progressing more in these areas for PA. As previously described in Chapter 3, Saudi Arabia has witnessed urban growth leading to rapid changes over the past forty years including economic and social development.⁽⁸⁸⁾ Planned

urbanization supports development; proximity of production factors and increased specialization lead to a more productive urban economy.⁽³³⁶⁾ For this, Saudi Arabia considers urban planning a pillar of socio-economic development beneficial to all sectors presently and in recent years.⁽³³⁷⁾ Saudi Arabia has managed to shift from an underdeveloped country to a middle-income one with a promising and sustainable future.⁽³³⁸⁾

Therefore, advancing toward PA policy development in Saudi Arabia would require increasing political support and advocacy for urban sustainable development to integrate PA in the strategical planning process of various ministries and public sectors as well as the private sector.

My findings indicated a clear need for more specific and measurable targets and policies that include actions specifically for women. I will address the implications of these findings for YESW, together with the findings from other Chapters (6 to 9), in my final chapter.

11 Discussion and conclusion

This thesis aimed to describe and analyse the factors that shape engagement of YESW in PA and the policy implications of these factors. In this final chapter, I interpret my findings and their public health policy implications using the five action areas of the Ottawa Charter for Health Promotion: building healthy public policy, creating supportive environments, strengthening community action, developing personal skills and reorienting health services. Thus, I start by summarizing chapters then I answer my research questions and discuss limitations of my study.

11.1 Summary of Chapters

In this section, I summarise the key insights from each chapter in this thesis. Chapter 1 introduced the thesis with my aim, objectives, research questions, and the structure of the thesis. In Chapter 2, I provided the definition of PA and related concepts applied in this thesis, and discussed a suitable theoretical framework for this research. In Chapter 3, I provided an overview of Saudi Arabia as my research context, the status of women in the country, Islam and PA was also described. I also presented a review of PA studies in Saudi Arabia and among YESW. Chapter 4 described the mixed methods I used in my study and documented my reflexivity.

Chapter 5 was the first of my findings chapters. In it, I described the demographic characteristics of my participants and provided a comparison between those in the qualitative and quantitative studies. In Chapters 6 to 9 I integrated the findings from the

Discussion and conclusion

qualitative and quantitative studies using the SEM as a framework. A more detailed discussion of the findings from these Chapters is set out below under the answers to the research questions posed in Chapter 1. Here I simply restate the broad content of these chapters. Chapter 6 described a range of individual level factors related to participants' beliefs, knowledge about and engagement in PA. In Chapter 7, I described factors in the social environment that impact on PA. I divided these into two themes – the social network, and cultural and social norms. In Chapter 8, I presented the factors related to the physical environment including infrastructure, traffic, safety, the climate and availability of women only facilities for PA. Chapter 9 showed how the lack of PA policies affects the engagement of YESW in PA. Finally, in Chapter 10, I undertook a policy review of all PA policies in Saudi Arabia using the Policy Audit Tool (PAT). I found that there is a clear need for more specific and measurable targets and for policies that include actions specifically for women.

11.2 Answers to research questions

In this section, I restate my research questions and provide responses to each, based on my findings.

1. How do YESW perceive the meaning of PA?
2. What are the patterns of PA among YESW?
3. What factors shape engagement of YESW in PA?
4. How do existing policies support or limit engagement of YESW in PA?
5. What can be done to promote PA engagement among YESW?

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My answers for questions 1 to 4 are drawn from my findings across chapters 5 to 10. In responding to question 5, I will use the Ottawa Charter as a framework for proposing recommendations.

1. How do YESW perceive the meaning of PA?

This summary provides the definition and benefits of PA as perceived by YESW. As previously described in Chapter 2, the definition of *physical activity* is “any bodily movement produced by skeletal muscles that result in energy expenditure.”⁽³¹⁾ In this thesis, I have focused on a broader perspective of the meaning of physical activity as any movement that benefits health. This is related to the concept of health enhancing physical activity (HEPA) described in Chapter 2.

During the interviews and focus group discussions, most YESW defined PA as any bodily movement which reduces sitting time, showing a broad understanding of the kinds of incidental activities that contribute to being physically active. They included housework and daily activities such as climbing stairs and walking as examples of PA. A minority of participants defined PA as only “exercise” and this group excluded everyday activities such as walking from place to place and/or housework from PA.

The participants were also aware of the broader health benefits associated with PA such as preventing chronic diseases (i.e. diabetes), improving cardiorespiratory fitness and circulation, maintaining body weight, and improving mental health and general wellbeing. Moreover, some specified that PA helps in being fit for work and would benefit patients. The survey also showed that most participants (75%) were knowledgeable about the benefits of PA. These findings are not surprising given that the participants were students

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in health sciences and are expected to encounter such information in their studies.

Knowledge of the benefits of PA has also been reported in other studies conducted in Gulf Cooperation Countries (GCC).^(251, 252)

2. *What are the patterns of PA among YESW?*

Based on my studies, it seems that YESW are likely to engage in light-intensity activities, which do not cause noticeable changes in breathing pattern, than in moderate-intensity and /or vigorous-intensity activities. This is similar to findings in other studies which have also reported that women in Saudi Arabia tend to participate in rather low to moderate PA.^(8, 13, 15) Only 6% of my survey participants met the WHO recommendations for adult PA of engaging in moderate physical activity for at least 30 minutes five times per week or vigorous activity for at least 20 minutes three times a week or an equivalent combination of moderate- and vigorous-intensity activity. Nineteen percent of the survey sample were inactive and 75% were insufficiently active. Although I did not formally ask about PA intensity levels in the interviews and focus groups, in general, these participants seemed to do relatively little PA. The extent of PA in my study appeared similar to that shown in other studies of PA among women in Saudi Arabia and GCC regions.^(13-15, 165, 339-342)

I also compared the demographic characteristics of survey respondents who were inactive, insufficiently active and active and found that, in general, they were like each other. The only difference was the parents' level of education. YESW who met the recommendations were more likely to have parents with a higher level of education. Low levels of education have also been associated with physical inactivity in other studies in Saudi Arabia^(14, 165), and other countries.⁽³⁴³⁻³⁴⁵⁾ In addition, and interestingly, YESW were more likely to smoke

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tobacco if they met the recommendations and/or were insufficiently active, relative to those who were inactive.

It was uncommon for participants in my survey to engage in PA with other people.

Although most of the survey participants reported that their families supporting PA, only 14% of respondents' families participated in PA with them. Around 19% of survey participants engaged in PA with friends compared to 50% who had no company. The interviews and focus groups participants reported family and friends support as facilitator factor to engage in PA. Some participants mentioned engaging in PA with family members such as mothers and siblings at home. Engaging with friends was also mentioned but not much as engaging with family members, especially mothers. These differences in engaging in PA with other people may be explained by the fact that the quantitative participants reported doing their PA in the gym and the qualitative participants appeared more likely to do their PA at home or walking in their neighbourhoods.

Survey, interview and focus group participants all reported walking as the most common form of PA they engaged in. The second most popular PA for survey participants was running or jogging while engaging in swimming was the least frequently engaged in activity. In addition, some interview and focus group participants stated dancing (such as Zumba and/or local Arabic dancing) as a type of PA they were engaging in. Aerobics and yoga were also reported as current activities that YESW engaged in, but they were not as *common* as walking and dancing. Like results of other research studies, walking was also reported the most type of PA Saudi women engaged in.^(15, 17)

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3. *What factors shape engagement of YESW in PA?*

The participants in this study identified a range of factors that shaped their engagement in physical activity. In chapters 6 to 9, I used the social ecological model as framework to present these findings:

- **Individual level:** beliefs, knowledge and skills about PA and a healthy diet, time and commitment, emotions (e.g. embarrassment, fear and happiness);
- **Social environment level:** social networks such as family and friends, social media, cultural and social norms (e.g. national dress code for women, women walking in public, effect marital status and pregnancy on cultural norms);
- **Physical environment level:** natural environment (e.g. effect of climate) and built environment (e.g. conditions of neighbourhoods and streets, PA facilities for women);
- **Policy level:** legislation impacting on PA (e.g. schools and universities, health clubs/gyms, transportation, PA interventions)

My findings indicate that a combination of factors impact on YESW's ability to engage in PA as described above. In Chapter 6, I describe the YESW's beliefs and perceptions about PA. YESW articulated a good understanding of the meaning of PA and indicated some general benefits of PA. In addition, I described findings related to individual knowledge about PA and a healthy diet and participants' views about their PA skills. The participants were knowledgeable about the benefits of PA and what constitutes a healthy diet, but knowledge of how to plan and prepare one's own healthy meals was not as common. In addition, the participants' perception of their skills and abilities to plan their own exercise program varied; they pinpointed several barriers to engaging in PA, including lack of time

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and commitment, feelings of embarrassment, and concerns about pain and impact of PA on one's appearance.

In Chapter 7, I presented the factors in the social environment that impact on YESW's PA in two themes- the social network and cultural and social norms. I showed that social networks for YESW came from three sources: family, friends and social media. In all survey, interviews and focus groups family and friends' support were seen to be essential in facilitating YESW's engagement in PA. Likewise, social media was generally perceived by YESW as a positive motivator for PA. The participants also held a range of views about the role of cultural and social norms in their PA, and these were not always consistent.

Some YESW participants believed that their religion encouraged them to take care of one's health and thus promotes PA, while others believed it may prevent women from engaging in PA. Similarly, some participants stated that they believe the community considers it inappropriate for females to walk in public unaccompanied by a male family member. In addition, YESW stated that fear of harassment and gaining a bad reputation were the main reasons reported for people preventing females in their family from going out unaccompanied. Fear of harassment was also reported as a barrier to engaging in PA by 46% of survey participants. On the other hand, some YESW also stated that it is culturally believed that pregnant women should walk a lot to smooth the process of delivery while other women are denied the opportunity to walk for health reasons. Finally, marriage and marital status appear to influence PA participation from another perspective as well; some focus groups participants revealed that body image was a concern for many young women, especially before marriage.

In Chapter 8, I presented the factors related to the physical environment. Several participants spoke about the inadequate built environment for PA such as lack of road

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infrastructure (e.g. footpaths, signs for pedestrians, signals and lights), traffic and safety. In addition, around half of the survey participants found it difficult to walk in their neighbourhood due to a lack of road infrastructure. Moreover, interviews and focus groups participants mentioned the limited availability of and accessibility to women only facilities for PA in neighbourhoods, university settings, and in the city in general. Survey participants also reported a lack of facilities in their neighbourhoods (42%) and only 29% thought that available facilities were easy to access. In addition, most interviews and focus groups participants also talked about the inaccessibility to women's only health clubs due to distance and lack of transportation, and their high cost and/or low quality. Furthermore, many participants mentioned the hot dusty summers as a barrier to being physically active, however, one respondent also noted that cold winter months may prevent some people from being active. Despite these challenges, participants suggested some solutions for the built and natural environment to overcome these barriers.

In Chapter 9, I showed that there is an urgent need for PA policies that promote supportive environments to increase engagement of YESW in PA. Research participants reported several barriers to engagement in PA including: lack of PA policies in public schools and universities; difficulties related to establishing women's health clubs/gyms e.g. (licencing problems, lack of funds, high membership fees); and lack of transportation e.g. (lack of public transport, ban on women driving). The participants suggested interventions in educational settings and community facilities that could increase YESW's engagement in PA. They also suggested promoting PA through health awareness campaigns by the MOH. The participants' views about the lack of policy enablers were borne out in my policy review in Chapter 10, in which my findings indicated a clear need for more specific and measurable targets and PA policies that include actions specifically for women.

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Some of the factors I have highlighted above are consistent with previous literature on young women engaging in PA either in the Middle Eastern context or in other parts of the world.^(260-262, 265, 267, 346-350) My study also highlights how gender plays an important role for YESW in their attempt to engage in PA.

To reach a better understanding of how these factors affect YESW's engagement in physical activity, it is necessary to consider the social and cultural context of Saudi society. Anthropologist and cross-cultural researcher, Edward Hall, (1976) has suggested that Arab people emphasize the group over the individual, creating a high collective cultural context. In this culture, social change is slower and social stability is higher than in Western countries.⁽³⁵¹⁾ In this context, an "individual" problem is rather a collective one.⁽³⁵¹⁾ Furthermore, in a collectivist society, the group is more important than the individual. The individual role is to maintain strong relationships within the group.⁽³⁵²⁻³⁵⁴⁾ Cooperation within a group is high; hence the individual's identity is defined by the group.⁽³⁵²⁻³⁵⁴⁾ In such collectivist societies, deep-rooted assumptions about men and women influence gender roles in many aspects of life: from appearance in public, to family responsibilities and participation in PA.⁽³⁵⁵⁾

Although Arab and Islamic countries are collectivist, collectivism is expressed in a variety of ways. Nationality, cultural expression, social conduct, ethnic factors and, sometimes, pre-Islamic practices all play a role in shaping the effects of Islam on women's lives.^(355, 356) Arab Muslim women are not a homogeneous group; they deal with religious demands differently depending on their culture.⁽³⁵⁵⁾

Saudi Arabia has adopted a conservative and fundamentalist form of Islam, clearly reflected in its society and the status of women.^(357, 358) Most Saudi Arabian families are

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traditional, with men having a public role as breadwinners.⁽³⁵⁵⁾ The women's sphere is the home.⁽³⁵⁵⁾ Saudi Arabian women are not permitted to travel or conduct basic affairs without written permission from their male guardian.⁽³⁵⁹⁾ In addition, Saudi women are required to wear an Abaya in public; most traditional women cover their faces.⁽³⁵⁹⁾

The Saudi culture described above provides the explanatory context for the findings in my study. My findings confirm that gender roles are a key determinant of PA for YESW, shaping their attitudes, financial freedom, access to physical resources, and freedom of movement⁽³⁶⁰⁾; (Figure 11.1). My participants were constrained by barriers that limited their movements and ability to engage in PA, including family consent, transport limitations, lack of access to facilities and physical education, in addition to the high cost of health centres. My study therefore highlights the need to address matters related to gender when developing strategies to enhance YESW's participation in PA.

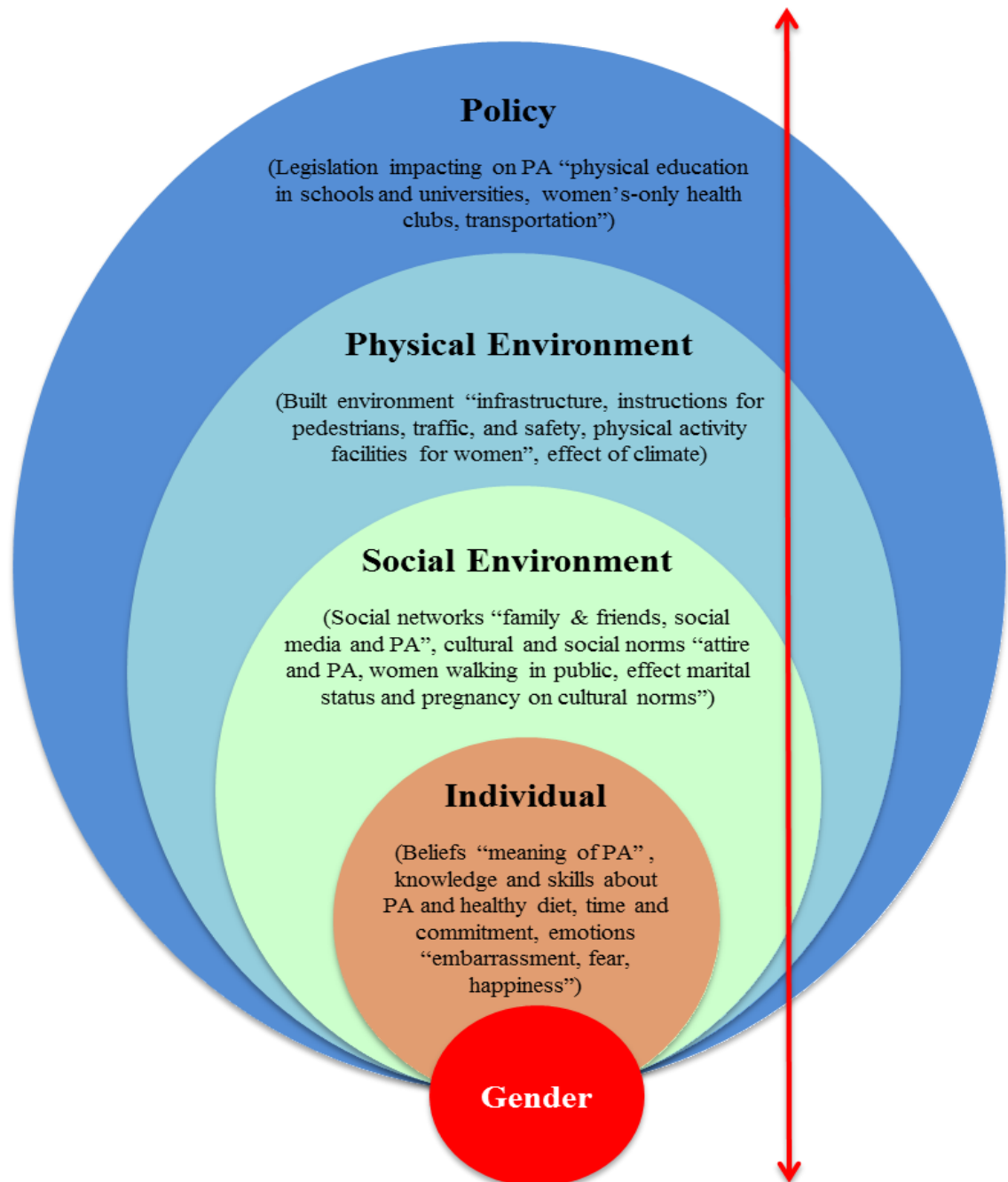


Figure 11.1: Gender as an integrating factor that shaped other social ecological factors that influence PA behaviour among YESW- Adapted from Stokols

Source: ⁽⁷⁶⁾

4. *How do existing policies support or limit engagement of YESW in PA?*

Creating a supportive policy environment helps increase engagement in PA.^(78, 361, 362) In Chapter 9, many participants believed that having a PA policy would help YESW engage in PA. Participants favoured, and could identify, policies that would promote supportive environments for PA and suggested solutions that might facilitate YESW's engagement in PA. For instance, they suggested developing policies to include physical education in female public schools and universities; policies for the built environment (neighbourhood walking paths, road infrastructure, instructions for pedestrians, traffic and safety); legislation to allow/encourage women's participation in health clubs (bank loans and licences, cost of health clubs' membership) and policies for public transport. Regardless of these suggestions, there is a lack of policy in PA for women in general which participants believed to be a significant hurdle in YESW engagement in PA.

As discussed in Chapter 10, establishing a supportive PA policy environment for women is at the very preliminary stages in Saudi Arabia. However, there are various ad hoc actions taking place including the following: (1) The Saudi Arabia's Physical Education and Sport for All Federation promotes physical education in male public schools only however is not promoted or implemented in public schools of females⁽³⁰⁸⁾; (2) The Saudi nutrition and PA guidelines promote 15 to 30 minutes of moderate-intensity physical activity 3 to 4 times a week for entire population⁽³¹¹⁾; (3) Most of the community-based initiatives by the Ministry of Health launched campaigns about obesity control, chronic disease prevention and some included promoting PA in general population but none was designed for women only^(310, 320, 322-325); (4) The MOH trained health workers to promote healthy behaviours including PA^(326, 327); (5) Recent initiatives to build footpaths and neighbourhood parks in most cities in

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Saudi Arabia⁽³¹²⁾; (6) Urban design and public transport projects in Riyadh city.⁽³³⁰⁻³³⁵⁾ These policies and initiatives are expected to have positive impact on promoting PA, however it is not clear how they will support YESW to engage in PA.

Following the rapid growth and urbanisation in Saudi Arabia^(88, 90), research suggested further planning to establish more active transportation means, which is expected to impact PA.⁽³⁶³⁻³⁶⁵⁾ Such plans should accommodate the cultural and environmental specificity of Saudi Arabia; for instance, creating recreational areas while maintaining privacy of families and women in specific (cultural) and overcoming the hot climate of the city (environment).^(365, 366) There is a need for further research to assess the impact of urban planning and transportation policies in Saudi Arabia especially on PA.

5. What can be done to promote PA among YESW?

Physically active children are more likely to stay active in their adulthood.^(367, 368)

Cardiovascular risk factors and lifestyle behaviours in children and adolescents may accompany them to adulthood.⁽³⁶⁹⁻³⁷²⁾ In this study, YESW indicated that, although they learned about PA and its benefits in universities while majoring in one of the medical and health fields, most did not engage in PA. They explained that their lack of engagement in PA occurred because they did not have an opportunity to receive and participate in physical education classes during their schooling. Several participants in the interviews and focus groups commented on the importance of targeting young people, especially in schools, to build a future generation of active adults and acquire physical literacy and positive attitudes towards PA.^(60, 373, 374) With 25% of the Saudi population in schools^(87, 92), schools offer a suitable setting for PA interventions for girls and their mothers.^(375, 376)

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A few interviewees and focus groups participants mentioned that there are walking paths and shaded open areas for PA on university campus, and they suggested holding health fairs and team sports during or after university hours. Considering the social and cultural factors described above, involving mothers when designing awareness campaigns for YESW would increase their effectiveness. These awareness campaigns could be launched through social media (Instagram and Twitters), university newsletters, radio and television channels, and local newspapers. Based on the findings of this thesis, I recommend PA promotion campaigns target girls and young women ⁽³⁷⁷⁻³⁷⁹⁾ and focus on addressing barriers (i.e., limited time, lack of social support) ^(8, 18, 165, 339, 341) including cultural ones. ^(18, 165, 286)

Formative research would help identify the most effective media and community-based strategies. ^(7, 19, 133, 380, 381)

As shown in this thesis, PA depends on supportive environments that enable people to adapt this healthy lifestyle. ⁽⁶⁰⁾ The physical environment impacts on PA ⁽³⁸²⁻³⁸⁵⁾ and its absence is a barrier to PA. ⁽³⁸⁶⁻³⁸⁸⁾ Supportive environments can be fostered in YESW's universities, neighbourhoods, and communities and may include:

Physical environment:

- Accessible facilities for PA at universities that offer privacy for female students to exercise with access to lockers and showers.
- Walking paths on university campus should be inviting with green shades and waterways.
- Ensure safety in walking paths in neighbourhoods through proper lighting, streets furniture, shaded areas, drinking water fountains and public toilets facilities.
- Affordable and accessible women only health facilities in every neighbourhood.

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- Parks and recreation facilities for women only, by providing certain days or hours for families only. This will help women feel more safe and comfortable and enjoy walking without wearing their Abaya or covering their faces.
- Large shopping centres and malls could be used for walking paths during hot summer days. These shopping centres could be open early in the morning before working hours to provide women to use the facilities for walking.

Social environment:

- Raising awareness of the benefits of PA and influence of family, especially mothers as role models, is important. Religious leaders can help advocate for such campaigns in Friday prayers in mosques when many men gather every week.
- Establishing women's groups for walking in neighbourhoods; this helps women feel safer when walking with other women and builds social support and increases the sense of community, which may help change prejudice against women walking in streets.
- Developing sport clubs for women to play football, basketball and tennis in universities. This would increase team work and create a competitive sport environment to empower young women and enhance their autonomy, decision making and leadership skills.
- Although most women in this study did not have children, providing childcare facilities in recreational facilities, would encourage women to use these facilities.

In addition, PA policy plays a significant role in providing opportunities, supporting, promoting and monitoring PA levels of populations.⁽³⁸⁹⁾ Policies promoting PA should

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involve multiple sectors.⁽⁶⁰⁾ As described in Chapter 10, Saudi Arabia does not have a PA policy, but does have a range of initiatives, particularly under the umbrella of the under prevention and treatment of obesity. Saudi Arabia can build on its intersectoral experiences to develop national policy for PA. Furthermore, it could consult with Kuwait in relation to their recent national PA policy.⁽³⁹⁰⁾ Kuwait and Saudi Arabia share some cultural and social norms as well as similar built and natural environments. Since Kuwait is the only country that has developed and implemented PA policy in the GCC regions, consulting and sharing experiences about their approaches to develop a national PA policy might help Saudi Arabia in this aspect.

Additionally, to develop a PA policy in Saudi Arabia the Saudi government needs to be held accountable for providing leadership, time-bound targets and comprehensive action with needed resources directed towards increasing levels of PA as a public health priority for the whole populations. This should focus on equal access to PA and opportunities for women. Moreover, the PA policy must be tailored to Saudi cultural needs. In this thesis, YESW faced several barriers at the individual, social, and environment levels. A PA policy in Saudi Arabia should take into consideration the facilitators and barriers that are likely to shape the engagement of women in regular PA.

Advocacy is an important strategy to increase PA levels in a population.⁽³⁹¹⁾ My findings in Chapters 6, 7, 8, 9 and 10 showed the need for more advocacy, especially among women. PA advocacy can be done amongst government sectors and ministries and non-government organisations.⁽³⁹¹⁾ These organisations can share responsibility to educate community decision-makers about the importance of increasing PA for health, social wellbeing, environmental and economic development as well as to advocate for more resources for PA programs.⁽³⁹¹⁾

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In Chapter 10, it was evident that the MOH plays a significant role in mobilising PA advocacy in the country. Despite its achievements, the MOH needs to strengthen and coordinate their PA advocacy efforts by following a systematic approach to advocate for PA as described in the current international advocacy movement for PA. The Global Advocacy for Physical Activity (GAPA) uses a framework for advocacy covering five core areas:

1. Disseminate PA information and evidence;
2. Advocate for the development, dissemination, and implementation of national PA policies, action plans, and guidelines;
3. Advocacy for PA within the NCD agenda and other related agenda at all and across all relevant sectors; and
4. Advocate for capacity building and the development of workforce training initiatives;
5. Advocate for establishing and strengthen regional networks and collaboration.⁽³⁸⁹⁾

The MOH can use the GAPA five areas of advocacy actions to directly target decision-makers and health professionals to develop and implement a PA policy in Saudi Arabia. For instance, the MOH can strengthen PA advocacy by creating Saudi e-networks for PA that provide bulletins and forums to exchange ideas for PA advocacy. They also can encourage researchers and academics in universities to apply for grants for PA research. The MOH can also mobilise resources within the Ministry such as those allocated for the Obesity Research Centre to increase the research focusing on women. In addition, they can arrange more conferences about physical inactivity and engage political leaders as keynote speakers.⁽³⁹¹⁾

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Media advocacy is another venue of PA advocacy that can be led by the MOH. A nationwide informational campaign about PA would trigger support from key decision-makers and communities and facilitate the implementation of national PA policy as suggested by the WHO and GAPA. Several studies have suggested that campaigns are the most cost-effective PA interventions ^(392, 393) A PA campaign should be launched nationally to raise awareness and promote behaviour change through informative research and persuasive messages. Such campaigns should be monitored and their impact be evaluated.⁽³⁹⁴⁾ Mass media channels and social marketing networks ^(395, 396) also help promote PA through guiding YESW to available facilities and resources especially in educational institutions, workplaces, and community facilities such as parks and woman only health clubs, in addition to portraying Saudi female role models such as the Saudi women athletes who participated in the Olympic Games.

Non-government organisations in Saudi Arabia such as the Zahara Breast Cancer Organisation and Saudi Heart Association could play an important role in leading a PA advocacy initiative for various age groups of women. For instance, Zahara Breast Cancer Organisation could implement a national educational campaign through mass media to advocate for 30 minutes moderate PA (such as walking) every day for health benefits specially to prevent breast cancer among women. Also, it could encourage women who have survived breast cancer to promote PA by establishing and running a walking club for women in their neighbourhoods. Creating these kinds of PA interventions will not only increase PA levels among women but also will empower them, increase their self-esteem and wellbeing as well as social integration in their communities. In similar way, the Saudi Heart Association could promote PA by working with females' public schools to provide a PA interventions programs.

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Equal access to PA facilities is a priority to be addressed in PA interventions.^(388, 397, 398)

Most YESW reported difficulties with access to PA facilities or programs. Therefore, it is important to develop programs and interventions to ensure opportunities are provided for women in the Saudi community. In addition to the recommendations above, other suggestions to provide easier access for women include:

- Consulting women in different age groups (adolescence, young and old women) to identify their needs when designing PA programs;
- Engaging different age groups of men to discuss their perspective in increasing opportunities for women in Saudi community. This could be done through using the mass media or in academic research. This will provide an open discussion and awareness among men about their role to advocate and provide PA opportunities for women in their community.

Partnership programs in PA have achieved significant change in communities.⁽³⁹⁹⁻⁴⁰¹⁾ A few partnerships and intersectoral collaborations already exist in Saudi Arabia as described in Chapter 10. However, there is room for further activity in this area. The MOH leads the management and treatment of chronic diseases; therefore it can collaborate with other sectors to promote active living as part of preventing chronic diseases.⁽⁴⁰²⁾ For instance, the MOH could establish a national coalition for promoting PA. This coalition would support interdependent partnerships and collaboration between public and private sectors to achieve common goals.⁽²⁸⁹⁾ It is possible for sectors such as health, urban design, and transport to share goals such as improved health, enhancing urban environment and

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decreasing road congestion as the same aim may work for them all (walking and public transport). Sharing common goals and aims among sectors will help facilitate PA in communities.

Several participants in my qualitative study suggested that there is a need for more community-based activities and opportunities for women to engage in PA. Community initiatives including partnership with non-government organisation (i.e. informal charitable networks, microenterprises and women's health clubs) will allow women to contribute to their communities. More research is needed to find ways to employ community initiatives to promote PA among YESW.

11.3 Recommendations

In this section, I draw on my findings above to present recommendations to promote PA among YESW, guided by the five actions areas of the Ottawa Charter of Health Promotion: developing personal skills; creating supportive environments; strengthening community action; reorienting health services; and building healthy public policy.⁽⁶⁴⁾

Recommendation 1

To provide physical education, access to information, mass media to develop personal skills to enable YESW to be physical active.

Recommendation 2

To provide YESW with supportive physical and social environment settings for participation in physical activity

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Recommendation 3

To develop national policy for PA

Recommendation 4

To increase advocacy for PA especially among young women

Recommendation 5

To ensure equitable access to physical activity opportunities for young women

Recommendation 6

To develop partnerships for action for PA

11.4 Limitations of the Study

There were some limitations to this study. First, due to time restraints and the large amount of data already collected, I was not able to include policy makers' perceptions about PA engagement among YESW. Instead, I replaced this with a review of published policy. Therefore, further research investigating the views of policy makers' is recommended.

Second, the findings of this research may not be representative of all YESW or of Saudi women in general. My research was limited to YESW living in Riyadh city; interviewing YESW from different cities might provide different insight and understanding about YESW's engagement in PA. Another limitation of my study was that participants were recruited from one university in Riyadh. Therefore, the sample represents only a small proportion of YESW. The recruitment method may have led to supportive responses; participants who were interested or engaged in physical active may have responded more

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to my study invitation (self-selection bias). YESW who were not interested in PA might have had different perspectives about the factors that influence their engagement in PA. My background as a Saudi young woman and teacher of public health courses at the same university might also have affected the research. However, I did not interview any of my previous students and have no relationship with the participants approached for an interview or focus group in this study.

11.5 Concluding remarks

This research contributes to understanding PA behaviour among women in Saudi Arabia and it offers the potential to guide the future direction for PA interventions and programs specifically for women. Overall, the findings show that gender is an important factor shaping PA behaviour for YESW. PA should be considered a public health priority especially for women. Now, with PA research and policy still in an early stage, more attention is needed to encourage multidisciplinary research and interventions to guide the development of national policies and programs for promoting PA among YESW.

Many challenges remain in promoting physical activity for YESW. Before designing any interventions for physical activity for Saudi women, it is essential to define the opportunities and actions and indicate which options may align with women's health agendas in Saudi society. The responsibility needs to be shared and all stakeholders, including major ministries in the Saudi government, need to actively collaborate to shape and regulate policies that are culturally sensitive and gender inclusive. This will serve the needs of women's health in the country more effectively and will have flow on effects for the rest of Saudi Arabian society.

Appendices

Appendix A. Physical activity studies in Saudi Arabia

The electronic databases PubMed, Google Scholar, and WHO/EMRO were used with the following combination of keywords (physical activity; physical inactivity; sedentary; active living; exercise; walking; screen time; Saudi Arabia; and Saudi women). The search was limited to studies published in the English language between 1990 and 2016. A total number of 58 studies were identified, see table below.

Table A.1: Physical activity studies in Saudi Arabia

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
Studies on males and females						
1.	Khalid, 1995 ⁽¹²⁾	Asir	Cross-sectional	905	Adolescents and adults	Aged (16-60)
2.	Taha & Bella, 1998 ⁽³⁰⁾	Eastern Province	Cross-sectional	227	Children	Mean age male (11.2) Mean age female (11.4)
3.	Al-Nozha et al., 2007 ⁽¹⁴⁾	National-cross regional	Cross-sectional	17,395	Adults	Aged (30-70)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
4.	Gawwad, 2008 ⁽⁸⁾	Riyadh	Cross-sectional	302	Adults	Aged (20-26)
5.	Al-Hazzaa, 2007 ⁽¹⁵⁾	Riyadh	Cross-sectional	1616	Adults	Aged (15-78)
6.	Al-Quaiz & Tayel, 2009 ⁽¹⁶⁾	Riyadh	Cross-sectional	450	Adolescents and adults	Aged (15-80)
7.	Al-Nuaim et al., 2012 ⁽²⁹⁾	Riyadh	Cross-sectional	1270	Children and adolescents	Aged (15-19)
8.	Amin, AlKhoudair, Al Harbi, & Al Ali, 2012 ⁽¹⁷⁾	Al-Hassa	Cross-sectional	2176	Adults	Aged (18-65)
9.	Al-Nakeeb et al., 2012 ⁽¹⁰⁾	Al-Hassa	Cross-sectional	2,290 (1,185 males; 1,105 females)	Children and adolescents	Aged (15-17)
10.	Al-Hazzaa et al., 2011 ⁽¹²⁶⁾	In three cities: Al-Khobar, Jeddah and Riyadh	Cross-sectional	2908 (1401 males; 1507 females)	Children and adolescents	Aged (14-19)
11.	Amin et al., 2011 ⁽¹⁸⁾	Al-Hassa	Cross-sectional	2176	Adults	Aged (18-64)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
12.	1. Al-Hamdan et al., 2012 ⁽¹⁹⁾ 2.	20 regions in Saudi Arabia	Cross-sectional	4758 (2332 male; 2426 females)	Adolescents and adults	Aged (15-64)
13.	3. El-Gilany & El-El-Masry, 2011 ⁽¹¹⁾	Saudi Arabia, Al-Hassa Egypt, Mansoura	Cross-sectional	616	Adults	Aged (17-25)
14.	Al Saif & Alsenany, 2015 ⁽¹²⁷⁾	Jeddah	Prospective	40	Adults	Aged (18-25)
15.	Alghadir, Gabr, Al-Eisa & Alghadir, 2016 ⁽¹²⁸⁾	Riyadh	Prospective	100 (47 males; 53 females)	Adults	Aged (30-60)
16.	Salman & Al-Rubeaan, 2009 ⁽¹²⁹⁾	Riyadh	Prospective	916 (488 male; 428 female)	Adults	Aged (20+)
17.	Al-Daghri et al., 2015 ⁽¹³⁰⁾	Riyadh	Cross-sectional	164 (77 men; 87 women)	Adults	Aged (30-75)
18.	Basulaiman et al., 2014 ⁽¹³¹⁾	National-cross regional	Cross-sectional	10,735	Adolescents and adults	Aged (15+)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
19.	Memish et al., 2014 ⁽¹³²⁾	National-cross regional	Cross-sectional	10,735 (51.1% women)	Adolescents and adults	Aged (15+)
20.	Moradi-Ladek et al, 2015 ⁽¹³³⁾	National-cross regional	Cross-sectional	10,735	Adolescents and adults	Aged (15+)
21.	Tuffaha et al, 2015 ⁽¹³⁴⁾	National-cross regional	Cross-sectional	10,735	Adolescents and adult	Aged (15+)
22.	Al-Hazzaa, Abahussain, Al-Sobayel, Qahwaji & Musaiger, 2012 ⁽¹³⁵⁾	In three cities: Al-Khobar, Jeddah and Riyadh	Cross-sectional	2906 (1400 males; 1506 females)	Children and adolescents	Aged (14-19)
23.	Al-Hazzaa, Musaiger, Abahussain, Al-Sobayel & Qahwaji, 2013 ⁽¹³⁶⁾	In three cities: Al-Khobar, Jeddah and Riyadh	Cross-sectional	2,868 (51.9% girls)	Children and adolescents	Aged (15-19)
24.	Alqahtani & Scott, 2015 ⁽¹³⁷⁾	Riyadh-rural areas	Cross-sectional	370 from	Children and adolescents	Aged (14-19)
25.	Allam, Taha, Al-Nozha & Sultan, 2012 ⁽¹³⁸⁾	Madinah	Cross-sectional	194	Adults	The mean age of participants (21.06)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
26.	Awadalla et al., 2014 ⁽¹³⁹⁾	Asir	Cross-sectional	1257 (426 males; 831 females)	Adults	Aged (17-25)
27.	Banday, Want, Alris, Alrayes & Alenzi, 2015 ⁽¹⁴⁰⁾	Sakaka and Dumat Al-Jandal	Cross-sectional	164 (males 86%; female 13%)	Adults	Aged (27-63)
28.	Al-Hazzaa et al., 2013 ⁽¹⁴¹⁾	Three major cities: Riyadh, Jeddah, and Al-Khobar	Cross-sectional	2,886	Children and adolescents	Aged (15-19)
29.	Al-Hazzaa et al., 2013 ⁽¹⁴²⁾	Saudi Arabia (Riyadh and Al-Khobar); and Britain (Birmingham and Coventry)	Cross-sectional	Total 1,648	Children and adolescents	Aged (14-18)
30.	Al-Hazzaa & Al-Rasheedi, 2007 ⁽¹⁴³⁾	Jeddah	Cross-sectional	224 (Boy represented 49% of the total sample)	Children and adolescents	Aged (3.4-6.4)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
31.	Farghaly, Ghazali, Al-Wabel, Sadek & Abbag, 2007 ⁽¹⁴⁴⁾	Abha	Cross-sectional	767 students (327 males; 440 females)	Children and adolescents	Aged (7-20)
32.	Mahfouz et al., 2011 ⁽¹⁴⁵⁾	Asir	Cross-sectional	1,869 (1,249 boys; and 620 girl)	Children and adolescents	Aged (11-19)
33.	Midhet & Sharaf, 2011 ⁽¹⁴⁶⁾	Al Qassim	Observational	Baseline (1,254) and follow-up (1,011)	Adults	Aged (20-70)
34.	Sharaf, 2011 ⁽¹⁴⁷⁾	Al Qassim	Retrospective	169 (68% female)	Adults	Aged (40-70)
35.	Al-Sobayel, Al-Hazaa, Abahussain, Qahwaji & Musaiger, 2015 ⁽¹⁴⁸⁾	Three major cities: Riyadh, Jeddah, and Al-Khobar	Cross-sectional	Total 2,888 (1,388 males; 1,500 females)	Adolescents	Aged (14-19)
36.	Al-Otaibi, 2013 ⁽¹⁴⁹⁾	Al-Ahsa	Cross-sectional	Total 242 (118 males and 124 females)	Adults	Aged (20-56)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
37.	Al-Hazzaa, Alahmadi, Al-Sobayel, Abahussain, Qahwaji, & Musaiger, 2014 ⁽¹⁵⁰⁾	Three major cities: Riyadh, Jeddah, and Al-Khobar	Cross-sectional	Total 2866 (48.3 male, 51.7% females)	Adolescents	Aged (15-19)
38.	Duncan et al., 2014 ⁽¹⁵¹⁾	Saudi Arabia (Riyadh and Al-Khobar); and Britain (Birmingham and Coventry)	Cross-sectional	Total 2,806	Adolescents	Aged (14-18)
Studies on males only						
39.	Al-Hazzaa, 1990 ⁽¹⁶⁹⁾	Riyadh	Cross-sectional	362	Adolescents and adults	Aged (17-30)
40.	Al-Helali, Abolfotouh & Ghanem, 2001 ⁽¹⁵²⁾	Jeddah	Cross-sectional	388	Adults	Aged (20-86)
41.	Al-Refaee & Al-Hazzaa, 2001 ⁽¹⁵³⁾	Riyadh	Cross-sectional	1333	Adults	Aged (19-68)
42.	Al-Rukban, 2003 ⁽¹⁵⁴⁾	Riyadh	Cross-sectional	895	Children, adolescents and adults	Aged (12-20)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
43.	Al-Shajri & Al-Almaei, 1998 ⁽¹⁷⁰⁾	Riyadh	Cross-sectional	98	Adults	Aged (26-60)
44.	Alghadir, Gabr & Aly, 2015 ⁽¹⁵⁵⁾	Riyadh	Prospective	16	Children, adolescents and adults	Aged (15-25)
45.	Al-Eisa, Alghadir, Gabr, Iqbal, 2016 ⁽¹⁵⁶⁾	Riyadh	Prospective	150	Adults	Aged (18-55)
46.	Mahfouz et al., 2008 ⁽¹⁵⁷⁾	Abha	Cross-sectional	2,696	Children and adolescents	Aged (11-19)
47.	Alsubaie & Omer, 2015 ⁽¹⁵⁸⁾	Riyadh	Cross-sectional	453	Adolescents and adults	Aged (15-20)
48.	Alkahtani, Elkilany, Al-Mohannadi & AlDuhIshy, 2015 ⁽¹⁵⁹⁾	Damma	Cross-sectional	67	Adults	Aged (18-22)
Studies on females only						

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
49.	Al-Eisa et al., 2012 ⁽¹³⁾	Riyadh	Cross-sectional	161	Adults	Aged (18-45)
50.	Al-Eisa, Buragadda & Rao Melam, 2014 ⁽¹⁶⁰⁾	Riyadh	Prospective	76	Adults	Aged (19-25)
51.	Ardawi , Rouzi & Qari, 2012 ⁽¹⁶¹⁾	Jeddah	Cross-sectional	1235	Adults	Aged (20-49)
52.	Rouzi, Al-Sibiani, Al-Senani & Radaddi, Ardawi, 2011 ⁽¹⁶²⁾	Jeddah	Prospective	707	Adults	Aged (50+)
53.	Almajwal, 2015 ⁽¹⁶³⁾	Riyadh	Cross-sectional	362	Adults	Aged younger than (40)
54.	Hegazy, Salama, Elgaml & Alzyat, 2015 ⁽¹⁶⁴⁾	Arar	Case-control	174	Adults	Aged (20-45)
55.	Khalaf et al., 2013 ⁽¹⁶⁵⁾	Asir	Cross-sectional	663	Adults	The mean age of participants (20.4)
56.	Koura et al., 2013 ⁽¹⁶⁶⁾	Dammam	Cross-sectional	370	Adults	The mean age of participants (19.9)
57.	Al-Eisa et al., 2016 ⁽¹⁶⁷⁾	Riyadh	Quasi-experimental	58	Adults	Aged (18-25)
58.	Musaiger & Zagzoog, 2013 ⁽¹⁶⁸⁾	Jeddah	Cross-sectional	512	Children and	Aged (12-19)

No.	Author(s), date	Region (city)	Sample design	Sample size	Population	Age
					adolescents	

Appendix B. Participant information sheet, interview



Physical activity among young educated
Saudi Women: a framework to research the
factors influencing health behaviours in the
Middle Eastern context

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Cover letter for Study 1: in-depth interview

Dear (student's name),

Thank you for your interest in receiving further information about our research study titled "*Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context*". This study is conducted by a group of researchers at Adelaide University in South Australia to explore how young educated Saudi women view physical activity and investigate the factors that may shape their engagement in regular physical activity. The attached information sheet elaborates on the study's details.

The study does not require you go out of your way. The PhD Candidate conducting this project would like to meet you on campus for a face-to-face in-depth interview at a convenient time for you.

Kindly note that participation in this research is voluntary, you may decide not to take part or withdraw at any time without any penalties.

We would be happy to answer any questions you might have. You can call the researcher "Mazna AlMarzooqi", PhD candidate, on 0545353968 from 9:00 am to 5:00 pm or email at:
mazna.almarzooqi@adelaide.edu.au

Sincerely,
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Participant Information Sheet Study 1: in-depth interviews

Study Title

Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context

Introduction

My name is Mazna Al Marzooqi; this study is my research project for the PhD degree I am pursuing at the School of Population Health, The University of Adelaide, South Australia. Several researchers are involved in this study from the University of Adelaide (Australia) and King Saud University. You can find the contact details of principal investigators and other team members at the end of this sheet.

I would like to invite you to participate in this study. Please take your time to read the following information carefully, and then decide whether you want to participate or not. I will be glad to answer any questions that you may have.

Background

Research on physical activity status among Saudi women – especially educated ones – is rather scarce. Given the rising numbers of women seeking higher education in Saudi Arabia, in addition to their essential role in raising awareness and promoting healthier practices in their communities, especially among future generations, further research is needed on this topic. Therefore, this study aims to explore the perceptions and views of young educated Saudi women on physical activity and investigate the factors that may facilitate or hinder their engagement in regular physical activity.

Why have you been selected to participate?

This study will recruit students from the five colleges of the School of Health Sciences at King Saud University: Medicine, Applied Medical Sciences, Pharmacy, Nursing and Dentistry. Participants should be females, Saudi nationals, aged (18-24 years old), and are currently registered as undergraduate students in one of the five above mentioned colleges.

Do you have to participate?

You can decide whether to participate or not. This information sheet provides a detailed description of the study to help you decide. Participation is completely voluntary. If you choose to take part in this study, we will ask you to sign an informed consent form.

What will happen to me if I participate?

You will be asked to participate in an in-depth interview that will take around 60-90 minutes.

Where and when will the in-depth interview take place?

In-depth Interviews will take place in a conference room within the college's premises at a convenient time for you. You do not need to prepare specific notes or documents; you just need to attend the session.



What are the possible disadvantages and risks of participation?

Participation in this study does not expose you to any kind of physical or psychological risks or harms.

What are the possible benefits of participation?

We cannot promise you any direct benefits; however, the information we get from this study will aid many health professional and policy makers in understanding the views of young educated Saudi women on physical activity and specify the factors that may shape their regular engagement in physical activity.

What if a problem occurs?

This study has received ethical approval from the Human Research Ethics Committee at the University of Adelaide (Australia), and the College of Applied Medical Sciences at King Saud University (Saudi Arabia). If at any time, you wish to discuss the ethical approval process or have a concern or complaint about anything related to this study, please contact the secretary of the committee at the University of Adelaide (Ms Sabine Schreiber) on +61 8 313 6028 or e-mail sabine.schreiber@adelaide.edu.au. Or, the director of research centre at the College of Applied Medical Sciences at King Saud University (Dr. Mohammed AlKhorayef) on 4693742

Members of the research team also welcome your questions and comments, kindly find their contact details at the end of this document.

Will my participation in this study stay confidential?

Access to all research data, including the interview recordings and transcripts will be limited to members of the research team. The data will be stored on a password protected computer in a lockable office. The University of Adelaide, is registered with the Australian Access Federation (AAF) that provides a framework and support infrastructure to facilitate trusted electronic communications and collaboration within and between universities and research institutions in Australia. The storage, access, processing and dissemination of personal information received during this research will be controlled by rigorous administrative and security procedures, designed to minimize the risk of respondents being identified from the information they provide, as summarized below:

IT Security and Data Storage

Your response forms and transcripts will be pseudonymised upon receipt. Personal information about the respondent (e.g. name, telephone number and email address) will be obtained and stored on a password-protected and encrypted spread-sheet in advance of the interview (e.g. when the time for the interview is arranged). The voice recordings will be labeled with a unique ID but may contain confidential information and will thus be stored in a pseudonymised form, in a password-protected and encrypted folder. In order to enhance the security of these files, the spread-sheet, voice files and transcriptions will be stored in separate password protected and encrypted folders. In addition, any hard copies data will be stored in locked cabinets, within a locked office, accessed only by the researcher.



What will happen to the results of the research study?

This research study will form part of my dissertation, the data will also be used to publish peer reviewed articles and conference papers. Whether in the dissertation or any publication, participants' identities will never be revealed.

Who is organising or sponsoring the research?

This research is supported by the College of Applied Medical Sciences, Department of Community Health Sciences, King Saud University, Riyadh, Saudi Arabia.

Further information and contact details:

Principal investigator: Professor Annette Braunack-Mayer on +61 8 31 33569, email: annette.braunackmayer@adelaide.edu.au

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معلومات الدراسة

الدراسة الاولى 1: المقالات المتحصنة

عنوان الدراسة

التشاطر البدني بين الشابات السعوديات المتعلقات: دراسة العوامل المؤثرة على السلوكيات الصحية في سياق الشرق الأوسط.

مقدمة

السلام عليكم ورحم الله وبركاته،

اسمي مزنة المرزوقي؛ أود أن أدعوك للمشاركة في هذه الدراسة والتي تمثل مشروع بحثي للحصول على درجة الدكتوراه من كلية الصحة السكانية، جامعة أديلايد، أستراليا. يشارك العديد من الباحثين في هذه الدراسة من جامعة أديلايد (أستراليا) وجامعة الملك سعود. يمكنك العثور على تفاصيل الاتصال للمشرف الرئيسي وأعضاء الفريق الآخرين في نهاية هذه الأستشارة.

هذه الورقة توضح هدف وخلفية الدراسة، كما ستشرح دورك فيها وحظك في الانسحاب في أي وقت. الرجاء أخذ الوقت الكافي لقراءة المعلومات التالية بعناية وأخذ القرار بالمشاركة في هذه الدراسة أو عدمها. ويسعدني الإجابة على أسئلتكم في أي وقت.

خلفية الدراسة

البحوث والدراسات حول حالة التشاطر البدني بين النساء السعوديات خاصتاً الشابات المتعلقات منهم نادرة إلى حد ما. بالنظر إلى الأعداد المتزايدة من النساء الذين يرغبون في التعليم العالي في المملكة العربية السعودية، بالإضافة إلى دورهم الأساسي في رفع مستوى الوعي وتشجيع الممارسات الصحية في مجتمعاتهم المحلية، وخاصة بين أجيال المستقبل، هناك حاجة إلى إجراء المزيد من البحوث حول هذا الموضوع. لذلك، تُهدف هذه الدراسة إلى استكشاف تصورات وآراء الشابات السعوديات المتعلقات حول ممارسة التشاطر البدني ودراسة العوامل التي قد تُسهل أو تُعيق مشاركتهم في التشاطر البدني بانتظام.

لماذا تم اختيارك للمشاركة؟

تقتصر المشاركة في هذه الدراسة على الطالبات السعوديات اللاتي تتراوح أعمارهن بين (18-24 سنة) المسجلات حالياً في احد الكليات الخمس (الصيدلة، الأسنان، العلوم الطبية التطبيقية، الطب البشري، والتمريض) التابعة للعلوم الصحية في جامعة الملك سعود.

هل عليك المشاركة؟

مشاركتك وأرائك في غاية الأهمية، ولكن لك كامل الحرية في اختيار المشاركة أو عدمها. سأصنف الدراسة وأراجع معك ورقة المعلومات هذه يمكنك أن تطرحي أي أسئلة أخرى تساعدك في اتخاذ قرار المشاركة. في حال موافقه على المشاركة، سأطلب منك التوقيع على صيغة الموافقة.



ماذا سيحدث لك في حال المشاركة؟

في حال الموافقة ، س يُطلب منك المشاركة في مقابلة متعمقة لمدة نصف ساعة. وسيتم تسجيل المحادثات خلال المقابلة مع بقاء السرية التامة للمعلومات.

أين ومتى ستجري الدراسة؟

سوف تجرى المقابلات في قاعة اجتماعات في كل كلية في وقت مناسب بالنسبة لك. لن تحتاج المشاركة لإعداد أي مذكرات أو وثائق محددة؛ حضور المقابلة في الوقت المتفق عليه هو المطلوب.

ما هي الأضرار والمخاطر المحتملة نتيجة المشاركة؟

لا تعرضك المشاركة في هذه الدراسة لأي نوع من المخاطر أو الأضرار.

ما هي الفوائد المحتملة للمشاركة؟

لا نستطيع أن نتأكد من أي فوائد مباشرة، ولكن المعلومات التي سوف نحصل عليها من هذه الدراسة ستساعد العديد من المهنيين الصحيين وصانعي السياسات في فهم وجهات نظر الشباب السعوديات المتخطات حول النشاط البدني وتحديد العوامل التي قد تبطئ موضوع ممارسة النشاط البدني بين هن.

ما الحل في حال حدوث مشكلة؟

هذه الدراسة قد منحة موافقة من لجنة أخلاقيات البحوث البشرية في جامعة ادلايد (أستراليا)، وكلية العلوم الطبية التطبيقية في جامعة الملك سعود (المملكة العربية السعودية). إذا كان لديك أي قلق حول أي جانب من جوانب هذه الدراسة أو تكوي، يرجى التواصل مع لجنة البحوث بجامعة ادلايد عبر البريد الإلكتروني hrec@adelaide.edu.au أو الاتصال بمركز البحوث في كلية العلوم الطبية التطبيقية في جامعة الملك سعود على 4693742.

ايضا، يرحب أعضاء فريق البحث بأي أسئلة أو التعليقات حول هذه الدراسة، تجدون تفاصيل الاتصال بهم في نهاية هذه الورقة.

هل ستبقى مشاركتي في الدراسة سرية؟

ستبقى كل المعلومات التي سيتم جمعها عن المشاركين خلال البحث في سرية تامة؛ سيتم تخزين البيانات (المقابلات المسجلة والنصوص المكتوبة والاستمارات) على جهاز كمبيوتر محمي بكلمة مرور في مكتب قابل للقفول. ومن الجدير بالذكر بأن جامعة ادلايد مسجلة مع الاتحاد الأسترالي (AAF) Australian Access Federation التي توفر البنية التحتية وإطار الدعم لتسهيل الاتصالات الإلكترونية الموثوق بها والتعاون داخل وبين الجامعات والمؤسسات البحثية في أستراليا. سوف يتم السيطرة على التخزين والوصول إلى المعلومات الشخصية التي وردت خلال هذا البحث بتطبيق إجراءات إدارية وأمنية صارمة، مصممة لتقليل مخاطر كشف هوية المشاركين بالدراسة وذلك على النحو الموضح أدناه :

أمن تكنولوجيا المعلومات و تخزين البيانات

سيتم تخزين المعلومات الشخصية عن المشاركة (مثل الاسم ورقم الهاتف وعنوان البريد الإلكتروني) على ملف إلكتروني مشفر محمي بكلمة مرور. و سيتم تسمية التسجيلات الصوتية بأسماء بديلة وسوف يتم حفظها في ملفات إلكترونية مشفرة محمية بكلمة مرور. من أجل تخزين أمن هذه الملفات والملفات الصوتية، سيتم تخزين أي بيانات و نسخ في خزائن مغلقة في داخل مكتب مغلق لا يستطيع الوصول إليها إلا من قبل الباحث.



ماذا سيحدث لنتائج الدراسة؟

هذه الدراسة البحثية ستكون رسالتى لتبيل درجة الدكتوراه، كما ستستخدم البيانات لنشر مقالات علمية أو المشاركة في مؤتمرات علمية. في جميع الأحوال، ستبقى هوية المشاركات مجهولة تماماً.

من ينظم أو يرفع هذه الدراسة؟

هذا البحث مدعوم من قبل كلية العلوم الطبية التطبيقية، قسم علوم صحة المجتمع، جامعة الملك سعود، الرياض، المملكة العربية السعودية.

لمزيد من المعلومات يرجى الاتصال ب:

المشرفة الرئيسية:

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Appendix C. Participant information sheet, focus group



Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context

DISCIPLINE OF PUBLIC HEALTH
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FACULTY OF HEALTH SCIENCES
THE UNIVERSITY OF ADELAIDE
SA 5005 Australia

School of Population Health
L11, Terrace Towers Building
178 North Terrace
Mail Drop DX 650 205
The University of Adelaide SA 5005
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CRICOS Provider Number 001228H

Cover letter for Study 1: Focus group discussions

Dear (student's name),

We were pleased that you recently expressed interest in receiving information about a research project conducted by Adelaide University researchers. The study, known as *Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context*, is explained more fully in the enclosed Information Sheet.

The study aims to find out how you and other young educated Saudi women view physical activity and investigate the factors that may shape engagement in regular physical activity among young educated Saudi women. It is very important to remember that there are no right or wrong views. We simply want to gain an in-depth understanding of how young educated Saudi women view physical activity.

The study does not require you go out of your way. The PhD Candidate conducting this project would like to meet you at campus, for a focus group discussion with 4-5 participants at a time convenient for you and other participants.

Participation in the research is voluntary and if you decide not to take part or to withdraw after agreeing to participate, this will not affect your studies.

We would be happy to answer any questions you might have. You can call Mazna AlMarzooqi (PhD candidate) on 0545353968 from 9:00 am to 5:00 pm or email: mazna.almarzooqi@adelaide.edu.au

Sincerely,

Prof Annette Braunack-Mayer

Head, School of Population Health
Level 11, Terrace Towers
178 North Terrace
UNIVERSITY OF ADELAIDE
Mail Drop DX 650 207
AUSTRALIA SA 5005
Ph : +61 8 8313 3569
e-mail: annette.braunackmayer@adelaide.edu.au



Participant Information Sheet Study 1: Focus group discussions

Study Title

Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context

Introduction

My name is Mazna Al Marzooqi; this study is my research project for the PhD degree I am pursuing at the School of Population Health, The University of Adelaide, South Australia. Several researchers are involved in this study from the University of Adelaide (Australia) and King Saud University. You can find the contact details of principal investigators and other team members at the end of this sheet.

I would like to invite you to participate in this study. Please take your time to read the following information carefully, and then decide whether you want to participate or not. I will be glad to answer any questions that you may have.

Background

Research on physical activity status among Saudi women – especially educated ones – is rather scarce. Given the rising numbers of women seeking higher education in Saudi Arabia, in addition to their essential role in raising awareness and promoting healthier practices in their communities, especially among future generations, further research is needed on this topic. Therefore, this study aims to explore the perceptions and views of young educated Saudi women on physical activity and investigate the factors that may facilitate or hinder their engagement in regular physical activity.

Why have you been selected to participate?

This study will recruit students from the five colleges of the School of Health Sciences at King Saud University: Medicine, Applied Medical Sciences, Pharmacy, Nursing and Dentistry. Participants should be females, Saudi nationals, aged (18-24 years old), and are currently registered as undergraduate students in one of the five above mentioned colleges.

Do you have to participate?

You can decide whether to participate or not. This information sheet provides a detailed description of the study to help you decide. Participation is completely voluntary. If you choose to take part in this study, we will ask you to sign an informed consent form.

What will happen to me if I participate?

You will be asked to participate in a focus group discussion that will take around 60-90 minutes.

Where will the focus group discussion take place?

Focus group discussions will take place at a convenient time for you and other 4-5 participants in a conference room within the college's premises. You do not need to prepare specific notes or documents; you just need to attend the session.

What are the possible disadvantages and risks of participation?



Participation in this study does not expose you to any kind of physical or psychological risks or harms.

What are the possible benefits of participation?

We cannot promise you any direct benefits; however, the information we get from this study will aid many health professional and policy makers in understanding the views of young educated Saudi women on physical activity and specify the factors that may shape their regular engagement in physical activity.

What if a problem occurs?

This study has received ethical approval from the Human Research Ethics Committee at the University of Adelaide (Australia), and the College of Applied Medical Sciences at King Saud University (Saudi Arabia). If at any time, you wish to discuss the ethical approval process or have a concern or complaint about anything related to this study, please contact the secretary of the committee at the University of Adelaide (Ms Sabine Schreiber) on +61 8 313 6028 or e-mail sabine.schreiber@adelaide.edu.au. Or, the director of research centre at the College of Applied Medical Sciences at King Saud University (Dr. Mohammed AlKhorayef) on 4693742.

Members of the research team also welcome your questions and comments, kindly find their contact details at the end of this document.

Will my participation in this study stay confidential?

Access to all research data, including the interview recordings and transcripts will be limited to members of the research team. The data will be stored on a password protected computer in a lockable office. The University of Adelaide, is registered with the Australian Access Federation (AAF) that provides a framework and support infrastructure to facilitate trusted electronic communications and collaboration within and between universities and research institutions in Australia. The storage, access, processing and dissemination of personal information received during this research will be controlled by rigorous administrative and security procedures, designed to minimize the risk of respondents being identified from the information they provide, as summarized below:

IT Security and Data Storage

Your response forms and transcripts will be pseudonymised upon receipt. Personal information about the respondent (e.g. name, telephone number and email address) will be obtained and stored on a password-protected and encrypted spread-sheet in advance of the interview (e.g. when the time for the interview is arranged). The voice recordings will be labeled with a unique ID but may contain confidential information and will thus be stored in a pseudonymised form, in a password-protected and encrypted folder. In order to enhance the security of these files, the spread-sheet, voice files and transcriptions will be stored in separate password protected and encrypted folders. In addition, any hard copies data will be stored in locked cabinets, within a locked office, accessed only by the researcher.



What will happen to the results of the

research study?

This research study will form part of my dissertation, the data will also be used to publish peer reviewed articles and conference papers. Whether in the dissertation or any publication, participants' identities will never be revealed.

Who is organising or sponsoring the research?

This research is supported by the College of Applied Medical Sciences, Department of Community Health Sciences, King Saud University, Riyadh, Saudi Arabia.

Further information and contact details:

Principal investigator: Professor Annette Braunack-Mayer on +61 8 31 33569, email: annette.braunackmayer@adelaide.edu.au

Research team

Vicki Xafis: Ph +61 8 8313 1378, email: vicki.xafis@adelaide.edu.au

Dr. Mohammad Afzal Mahmood: Ph +61 8 31 33586, email: afzal.mahmood@adelaide.edu.au

Dr. Amy Salter: Ph + 61 8 31 34619, email: amy.salter@adelaide.edu.au

Professor Ensaf Abdel Gawwad: Ph +20 111 7592119, email: ensafabdel1@hotmail.com

PhD candidate: Mazna AlMarzooqi on 0545353968

Email: mazna.almarzooqi@adelaide.edu.au

Appendix D. Interview protocol



In-depth interview Protocol

Qualitative Instrument: In-depth interview Protocol

Study Title

Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context

Interview #: _____

Date of interview: _____ Time of interview: _____

Introduction:

I want to thank you for taking the time to meet with me today. My name is Mazna AlMarzooqi and I would like to talk to you about physical activity. I am interested in exploring the factors that may shape young educated Saudi women's engagement in physical activity for a doctoral dissertation at the University of Adelaide-South Australia. This study is being conducted to explore your thoughts and views on physical activity.

The interview should take around an hour. I want to assure you that this interview is strictly confidential. This means that your interview responses will only be shared with research team members and we will ensure that any information we include in this study does not identify you as the respondent.

You have completed an Informed consent form outlining your rights as a research participant. I want to remind you that you may decide at any time not to participate or to withdraw from participating in this study. Contact persons are provided on the Informed Consent Form in case you have questions or concerns.

I am going to record this interview so I can transcribe it later and translate it into English.

Please feel free to discuss your views openly, I may ask for clarification to further understand your answer. Please remember all responses are confidential.

Are there any questions about what I have just explained?

If you have any questions, concerns or realize you have more to share, please feel free to email me at mazna.almazooqi@adelaide.edu.au or call me at 0565353986

Thank you for sharing your thoughts with me. Let's begin.



In-depth interview questions as follows:

A. Function 1: physical activity attitudes, preferences, perceptions and practices

- Tell me about your weekly routine?

Prompts:

– *Favorite activity*

- Tell me a little bit about if you have a favorite physical activity! Where do you do it? with whom? for how long? and how often?

– *Time*

- How and where do you spend your free time?

– *History (changes over time in physical activity)*

- Have you always been like this?
- If not, can you tell me about how that might have changed over time?

– *Transport*

- How do you get around? What kind of transport do you use to get around?

– *Weather*

What do you think about the weather in terms of physical activity? What is better? What is worse?

– *Access to facilities*

- Some people think that having good access to swimming pools or health clubs/gyms is important! Does this matter to you?

– *Frequency, duration, intensity, type of physical activity per week (e.g. walking, dancing, swimming, exercising at the gym ...ect)*

- We haven't talked about if you walk any where! Tell me about that!



- That sounds interesting! Thank you very much, It's seems to me that you are saying that you don't do a lot of walking! Can you tell me a little bit about the things that make it easy or difficult to you to walk?

– ***Built environment***

- What do you think about the things in our environment such as parks, footpaths? Could these things make it easier for people to walk and move? Can you think of anything more that would be good to have in our environment?

B. Function 2: knowledge and beliefs about physical activity

- You have talked about things that make it easier and more difficult for you to e.g. walk ...! What do you think it's like for other young Saudi educated women?
[facilitators & barriers]
- I'm now going to ask you about something different! We have been talking about what you do in terms of physical activity and what makes it easy or difficult for you? Now, I want to ask you what do you think about physical activity? Is it a good thing to do or not? **[knowledge content]**
- What other things do you think the university could do in terms of enabling more physical activity?
- Do you think being physically active is important to you?
- We have been talking about all of these things some of which has been about physical activity! Would you be able to tell me what you believe physical activity is?

Prompts:

– ***Family***

- Tell me something about your family! What kind of physical activity does your family do?

– ***Friends***

- What kind of physical activity do your friends do?

– ***University facilities***



- Tell me about the facilities and services for physical activity here in KSU! Would you use them? why? and why not?

At the end of the interview, demographical questions will be asked as follows:

- Age
 - How old are you? years
- College's Name
 - Which college you're studying in?
Dentistry Applied Medical Sciences Pharmacy Nursing Medicine
- Year level
 - class?
1st year 2nd year 3rd year 4th year 5th year
- Parental occupation
- Parental education level
- Type and location of residence
- Marital states
 - What is your marital status?
Never married *Go to the end* Currently married Separated Divorced Widowed
 - Do you have any children? Yes No
 - If Yes, How many children do you have? child(ren)

Closing

Thank you very much for participating in this interview. Thank you again for taking the time to participate in this study. Your feedback is greatly appreciated.



مقابلة متعمقة

عنوان الدراسة: النشاط البدني بين الشباب السعوديات المتعلقات: دراسة العوامل المؤثرة على السلوكيات الصحية في سياق الشرق الاوسط

تاريخ المقابلة:.....

مقابلة رقم:.....

مقدمة

السلام عليكم ورحمة الله وبركاته،

اسمي مزنة المرزوقي، أود أن أشركك على حضورك للمشاركة والمساهمة بوقتك في هذه الدراسة. اليوم، أود التحدث معك عن النشاط البدني؛ أنا مهتمة ببحث العوامل التي تبلور موضوع ممارسة النشاط البدني بين الشباب السعوديات المتعلقات كجزء من مشروع بحثي للحصول على درجة الدكتوراه من كلية الصحة السكانية، جامعة أديلايد، أستراليا.

هذه الدراسة استطلاعية لمعرفة أرائك و توجهاتك عن النشاط البدني وستستغرق المقابلة ساعة من وقتك. أود أن أؤكد لك بأن المعلومات التي ستدلي بها في المقابلة ستعامل بسرية تامة ولن يتم ولا يمكن الاطلاع عليها إلا من قبل الباحثة والباحثون المشاركون بهذه الدراسة كما أود التأكيد أيضاً بأنه من غير الممكن التعرف عليك شخصياً من خلال هذه المعلومات حيث لن يذكر اسمك وسيستعاض عنه باسم بديل في الدراسة.

لقد قمت بتعبئة إستمارة الموافقة على المشاركة بالبحث والتي حددت حقوقك عند المشاركة بالبحث: أود تذكيرك بأنه يمكنك الانسحاب من المشاركة في أي وقت أو عدم الإجابة على أي سؤال. الآن سوف أقوم بتسجيل المقابلة للاستماع إليها لاحقاً وترجمتها إلى اللغة الإنجليزية.

أرجو منك التحدث عن أرائك بحرية وشفافية مطلقة. من الممكن أن أستوقفك خلال المقابلة لاستيضاح أمر ما أو فهم وجهة نظرك بشكل أوضح. هل لديك أي سؤال تودين الاستفسار عنه بخصوص ما ذكرت؟ في حال يوجد لديك أي تساؤل أو قلق أو تودين إضافة معلومات إلى هذه المقابلة، أرجو منك أن لا تتردد بالتواصل معي هاتفياً على الرقم 0565353986 أو بواسطة البريد الإلكتروني التالي:

mazna.almarzooqi@adelaide.edu.au

شكراً على مشاركتك بأرائك وتطلعاتك معنا.

لنبدأ...



المحور الاول: توجهات عن النشاط البدني، خيارات، التصورات والممارسة

1. لنبدأ بالتحدث عن روتينك الأسبوعي؟

أسئلة مطلوية:

- **نشاطك المفضل:**
 - حديثي قليلاً عن نشاطك البدني المفضل. أين تقومين بممارسته؟ مع من؟ ولأي مدة؟ وكم مرة في الأسبوع؟
- **الوقت:**
 - كيف و أين تقضين أوقات فراغك؟
- **التاريخ (التغيرات الزمنية للنشاط البدني)**
 - هل كنت دائماً كذلك؟ إذا لا، هل تستطيعين اخباري عن كيف حدث هذا التغير؟
- **المواصلات:**
 - كيف تنتقلين؟ ماهو نوع المواصلات التي تستخدمينها للتنقل؟
- **الطقس:**
 - ماهو رأيك بخصوص النشاط البدني والطقس؟ ما هي الاشياء التي تحسن او تسيء من نشاطك البدني مع الطقس؟
- **الوصول الى المرافق:**
 - بعض الأشخاص يعتقدون بأنه من المهم وجود و توفر مرافق كالتوازي الصحية. هل هذا الأمر يشكل لديك أي أهمية؟
- **التكرار، المدة، قوة أو الشدة، نوع النشاط البدني بالاسبوع:**
 - لم نطرق للحديث عن ما إذا كنت تمارسين المشي. اخبريني عن ذلك.
 - هذا حديث ممتع! شكرًا جزيلاً، يبدو لي بأنك تقولين أنك لا تمارسين المشي بكثرة. هل تستطيعين اخباري قليلاً عن الاشياء التي تسهل أو تعيق ممارسة المشي بالنسبة لك؟
- **البيئة الميئية:**
 - ماذا تعتقدن عن الأماكن التي في بيئتنا مثل الحدائق، الأرصفة؟ هل هذه الأماكن تجعل الأشخاص يتحركون ويمشون أكثر؟ هل تستطيعين ذكر اي شيء جيد تودين وجوده في بيئتنا؟

المحور الثاني: المعرفة و الاعتقاد عن النشاط البدني

1. تحدثتي عن الأشياء التي تسهل أو تعيق ممارسة المشي لديك؟ ماذا تعتقدن هو الحال بالنسبة للشابات السعوديات المتعلمات؟
2. سوف أسألك عن شيء مختلف. تحدثنا عن ماهي الأشياء التي تساعد أو تعيق ممارستك للنشاط البدني. الآن، أود سؤالك ماذا تعتقدن عن النشاط البدني؟ هل هو شيء جيد للقيام به أو لا؟
3. ماهي الأشياء التي تعتقدن أن الجامعة تستطيع عملها لتمكين ممارسة النشاط البدني؟
4. هل تعتقدن انه من المهم بأن تكوني نشيطة بدنياً؟
5. تحدثنا عن أمور كثيرة ومنها النشاط البدني. هل تستطيعين اخباري ماهو باعتقادك النشاط البدني؟



اسئلة مطلوية:

- العائلة
 - حديثيني عن عائلتك، ماهو نوع النشاط البدني الذي تقوم به عائلتك؟
 -
- الإصغاء
 - ماهو نوع النشاط البدني الذي تقوم به صديقائك؟
- مرافق الجامعة
 - حديثيني عن المرافق والخدمات للممارسة للنشاط البدني المتوفرة هنا بجامعة الملك سعود؟

اسئلة ديمغرافية في آخر المقابلة:

- العمر
- اسم الكلية
- المرحلة الدراسية

- نوع عمل الوالدين
- الدرجة العلمية للوالدين
- نوع السكن
- الحالة الاجتماعية
- هل يوجد اطفال؟ نعم لا
- اذا كانت الاجابة نعم، كم عدد الاطفال؟.....

الخاتمة:

اشكرك جزيل الشكر على مشاركتك معنا وتشكرك مجدداً على وقتك و المشاركة بأرائك.

Appendix E. Focus group protocol

School of Population Health, Discipline of Public Health



Focus Group Protocol

Study Title: Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context

Focus group #: _____
Number of participants: _____
Date of focus group: __/__/2014

Start time: _____ End time: _____

Introduction:

My name is Mazna AlMarzooqi and I would like to thank you for joining me today in this discussion about Physical Activity among young educated Saudi women. As you know, this discussion is part of my PHD research at the University of Adelaide in Australia and aims to explore your thoughts and views on physical activity.

This focus group discussion should last between 60 and 90 minutes. You have already completed an informed consent form outlining your rights as a research participant. However, I want to reassure you that this discussion is strictly confidential; your responses will only be shared with research team members without revealing your identity. Also, you may decide not to take part or withdraw from participating in this study at any time. Please note that in case you decided to withdraw, your answers cannot be eliminated from the group discussion.

I will record this discussion using an audio recorder so I can transcribe it later and translate it into English. Please let me know now if you have any objections.

Please feel free to discuss your all your views and opinions about our subject today while in this room. If needed, I may ask you to clarify a point or elaborate further so I make sure I understand all the conversation well. Kindly remember that anything we discuss here is confidential and you should not share it with other people when you leave this room.

If you have any questions or concerns, you may ask me now or use the contact information provided on the study information sheet. If you realize you have more to share, please feel free to email me at mazna.almazooqi@adelaide.edu.au or call me on 0565353698.

Thank you for participating in this discussion. *Let's start.*

Focus group Guide

A. Function 1: physical activity attitudes, preferences, perceptions and practices

1. Tell me about the kinds of physical activity you engage in.
2. What motivates you to be physically active? What motivates you to avoid physical activity?
3. How about the factors that can facilitate your engagement in physical activity?
4. Tell me more about factors that hinder your engagement in physical activity.
5. So we've talked about physical activity but what do you think is actually considered to be 'physical activity'?

B. Function 2: knowledge and beliefs about physical activity

I'm now going to ask you about something different! We have been talking about what YESW do in terms of physical activity and what makes it easy or difficult for them. Now, I want to ask you what you think about physical activity! **[Knowledge content]**

- So is being physically active important to YESW? Why? Why not?

Prompts:

- Does physical activity impact on physical health?
- Does it impact on mental health? In other words: For example, can it help YESW feel happier or doesn't it make any difference at all? Can you please elaborate?
- Does physical activity help YESW think more clearly or does it make no difference?
Can you please elaborate?
- Can physical activity be harmful to YESW? If yes, in what way?

Transport

- How do young educated Saudi women get around? What kinds of transport do they use to get around?
- So do the modes of transport you've talked about also apply to you personally?

Access to facilities

1. Some people think that having good access to health clubs/gyms is important. What do you think?
2. Tell me about the facilities and services for physical activity here in KSU! Do students use them? why? and why not?
3. Do you think universities should promote physical activity? Why? How?
4. How about the availability of other facilities like parks and footpaths, do you think it affects the engagement of YESW in physical activity? How?

Family

Tell me something about Saudi families! Do they support physical activity or not? How? Why?

Friends

What about your friends? Are they physically active? Do they encourage (or discourage) you to engage in physical activity?

Climate

You mentioned (or did not mention) “the climate” as a factor that affects our engagement in physical activity; can you tell me more about that?

Closing

- We have talked about a number of things related to physical activity but some of you may have something else you'd like to share. Is there anything else anyone would like to add?

Thank you very much for participating in this focus group discussion. Thank you again for taking the time to participate in this study. Your feedback is greatly appreciated.

Appendix F. Participant information sheet, survey



Physical activity among young educated
Saudi Women: a framework to research the
factors influencing health behaviours in the
Middle Eastern context

DISCIPLINE OF PUBLIC HEALTH
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Facsimile: +61 8 8303 3339

CRICOS Provider Number 00123N

Cover letter for Study 2: Online Survey

Dear (student's name),

We were pleased that you recently expressed interest in receiving information about a research project conducted by Adelaide University researchers. The study, known as *Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context*, is explained more fully in the enclosed Information Sheet.

Few months ago, we contacted you about the possibility of participating in this study. Some of you may have then participated in either an in-depth interview or a focus group discussion.

Today, I am contacting you to request your completion of the final part of the study through a 15 minute online survey with the aim of further exploring your thoughts about physical activity among young educated Saudi women.

Participation in the research is voluntary and if you decide not to take part or to withdraw after agreeing to participate, this will not affect in any way at your School. You will be completely anonymous, and all information you provide will be kept strictly confidential.

As a thank you for completing the survey, choose one of the two prizes for participating in the study:

- A donation of \$ 2 will go to [Zahra Breast Cancer Association](#) for each completed survey
- A donation of \$ 2 will go to [Child Care Association \(CCA\)](#) for each completed survey

To start the survey click [here](#)

We would be happy to answer any questions you might have. You can call Mazna AIMarzoqi (PhD candidate) on +61 8 3133591 or email me at mazna.almazooqi@adelaide.edu.au. You can also call any of the following research members:



Principal investigator: Professor Annette Braunack-Mayer on +61 8 31 33569, email: annette.braunackmayer@adelaide.edu.au

Research team

Vicki Xafis: Ph +61 8 8313 1378, email: vicki.xafis@adelaide.edu.au
Dr. Mohammad Afzal Mahmood: Ph +61 8 31 33586, email: afzal.mahmood@adelaide.edu.au
Dr. Amy Salter: Ph + 61 8 31 34619, email: amy.salter@adelaide.edu.au
Professor Ensaf Abdel Gawwad: Ph +20 111 7592119, email: ensafabdel1@hotmail.com

PhD candidate: Mazna AlMarzooqi on 0545353968
Email: mazna.almarzooqi@adelaide.edu.au

Your participation will make an essential contribution to my research.

Thank you for your time and consideration.

Sincerely,
Prof Annette Braunack-Mayer

Head, School of Population Health
Level 11, Terrace Towers
178 North Terrace
UNIVERSITY OF ADELAIDE
Mail Drop DX 650 207
AUSTRALIA SA 5005
Ph : +61 8 8313 3569
e-mail: annette.braunackmayer@adelaide.edu.au



Participant Information Sheet Study 2: Online Survey Monkey

Study Title

Physical activity among young educated Saudi Women: a framework to research the factors influencing health behaviours in the Middle Eastern context

Introduction

My name is Mazna Al Marzooqi; this study is my research project for the PhD degree I am pursuing at the School of Population Health, The University of Adelaide, South Australia. Several researchers are involved in this study from the University of Adelaide (Australia) and King Saud University. You can find the contact details of principal investigators and other team members at the end of this sheet.

I would like to invite you to participate in this study. Please take your time to read the following information carefully, and then decide whether you want to participate or not. I will be glad to answer any questions that you may have.

Background

Research on physical activity status among Saudi women – especially educated ones – is rather scarce. Given the rising numbers of women seeking higher education in Saudi Arabia, in addition to their essential role in raising awareness in their societies and promoting healthier practices, especially among future generations, further research is needed on this topic. This study therefore aims to further exploring your thoughts about physical activity among young educated Saudi women.

Why have you been selected to participate?

This study will recruit students from the five colleges of the School of Health Sciences at King Saud University: Medicine, Applied Medical Sciences, Pharmacy, Nursing and Dentistry. Participants should be females, Saudi nationals, aged (18-24 years old), and are currently registered as undergraduate students in one of the five above mentioned colleges.

Do you have to participate?

You can decide whether to participate or not. This information sheet provides a detailed description of the study to help you decide. Participation is completely voluntary. If you choose to take part in this study, we will ask you to electronically consent online.

What will happen to me if I participate?

You will be asked to participate in an online survey to understand your thoughts on physical activity further.

Where will the study take place?

The survey will be conducted online; you will receive an e-mail with a link to the survey to complete and submit online.



What are the possible disadvantages and risks of participation?

Participation in this study does not expose you to any kind of risks or disadvantages.

What are the possible benefits of participation?

We cannot promise you any direct benefits; however, the information we get from the study will help in understand the factors that may shape engagement in physical activity among young educated Saudi women.

What if there is a problem?

The study has received ethics approval from the Human Research Ethics Committee at both University of Adelaide and the College of Applied Medical Sciences at King Saud University. If at any time, you wish to discuss the ethical approval process or have a concern or complaint please contact the Secretary of the Committee at the University of Adelaide (Ms Sabine Schreiber) on +61 8 313 6028 or e-mail sabine.schreiber@adelaide.edu.au. Or, the director of research centre at the College of Applied Medical Sciences (Dr. Mohammed AlKhorayef) on 4693742

Members of the research team also welcome your questions and comments, kindly find their contact details at the end of this document.

Will my participation in the study stay confidential?

Access to all research data, including online survey data will be limited to members of the research team. The data will be stored in a lockable office on a password protected computer.

The University of Adelaide, is registered with the Australian Access Federation (AAF) that provides a framework and support infrastructure to facilitate trusted electronic communications and collaboration within and between universities and research institutions in Australia. The storage, access, processing and dissemination of personal information received during this research will be controlled by rigorous administrative and security procedures, designed to minimise the risk of respondents being identified from the information they provide, and are summarised below.

IT Security and Data Storage

Your response forms will be coded upon receipt. Personal information about the respondent (e.g. name, telephone number and email address) will be obtained and stored on a password-protected. All data will be stored in a password-protected and encrypted folder. In order to enhance the security of these files, the data will be stored in separate password protected and encrypted folders. In addition, any hard copies data will be stored in locked cabinets, within a locked office, accessed only by the researcher.

What will happen to the results of the research study?

This research study will form part of my dissertation, the data will also be used to publish peer reviewed articles and conference papers. Whether in the dissertation or any publication, participants' identities will never be revealed.

Who is organising or sponsoring the research?

This research is supported by the College of Applied Medical Sciences, Department of Community Health Sciences, King Saud University, Riyadh, Saudi Arabia.



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معلومات الدراسة

استبيان الإلكتروني

عنوان الدراسة

النشاط البدني بين الشابات السعوديات المتعلقات: دراسة العوامل المؤثرة على السلوكيات الصحية في سياق الشرق الأوسط

مقدمة

السلام عليكم ورحم الله وبركاته،

اسمي مزنة المرزوقي؛ أود أن أدعوك للمشاركة في هذه الدراسة والتي تمثل مشروع بحثي للحصول على درجة الدكتوراه من كلية الصحة السكانية، جامعة أديلايد، أستراليا. يشارك العديد من الباحثين في هذه الدراسة من جامعة أديلايد (أستراليا) وجامعة الملك سعود. يمكنك العثور على تفاصيل الاتصال للمشرف الرئيسي وأعضاء الفريق الآخرين في نهاية هذه الأستمارة.

هذه الورقة توضح هدف وخلفية الدراسة، كما ستشرح دورك فيها وحقق في الانسحاب في أي وقت. الرجاء أخذ الوقت الكافي لقراءة المعلومات التالية بعناية وأخذ القرار بالمشاركة في هذه الدراسة أو عدمها. ويسعدني الإجابة على أسئلتكم في أي وقت.

خلفية الدراسة

البحوث والدراسات حول حالة النشاط البدني بين النساء السعوديات خاصتاً الشابات المتعلقات منهم نادرة إلى حد ما. بالنظر إلى الأعداد المتزايدة من النساء الذين يرغبون في التعليم العالي في المملكة العربية السعودية، بالإضافة إلى دورهم الأساسي في رفع مستوى الوعي وتشجيع الممارسات الصحية في مجتمعاتهم المحلية، وخاصة بين أجيال المستقبل، هناك حاجة إلى إجراء المزيد من البحوث حول هذا الموضوع. لذلك، تهدف هذه الدراسة إلى استكشاف تصورات وآراء الشابات السعوديات المتعلقات حول ممارسة النشاط البدني ودراسة العوامل التي قد تسهل أو تعيق مشاركتهم في النشاط البدني بانتظام.

لماذا تم اختيارك للمشاركة؟

تقتصر المشاركة في هذه الدراسة على الطالبات السعوديات اللاتي تتراوح أعمارهن بين (18-24 سنة) المسجلات حالياً في أحد الكليات الخمس (الصيدلة، الأسنان، العلوم الطبية التطبيقية، الطب البشري، والتمريض) التابعة للعلوم الصحية في جامعة الملك سعود.

هل عليك المشاركة؟

مشاركتك وأرائك في غاية الأهمية، ولكن لك كامل الحرية في اختيار المشاركة أو عدمها. سأصنف الدراسة وأراجع معك ورقة المعلومات هذه. يمكنك أن تطرحي أي أسئلة أخرى تساعدك في اتخاذ قرار المشاركة. في حال موافقه على المشاركة، سأطلب منك التوقيع على صيغة الموافقة.

ماذا سيحدث لك في حال المشاركة؟

في حال موافقه، سيطلب منك المشاركة بأستطلاع في تعبئة الأستمارة الذاتية على الإنترنت ستستغرق منك حوالي 10-15 دقيقة، لفهم المزيد عن أرائك حول ممارسة النشاط البدني.

أين ستجري الدراسة؟

سيتم إجراء الأستطلاع على الإنترنت، سوف تتلقى رسالة على البريد الإلكتروني مع رابط لإستكمال لإستمارة وتسليمها على الإنترنت.

ما هي الأضرار والمخاطر المحتملة نتيجة المشاركة؟

لا تعرضك المشاركة في هذه الدراسة لأي نوع من المخاطر أو الأضرار.

ما هي الفوائد المحتملة للمشاركة؟

لا نستطيع أن نعدك بأي فوائد مباشرة، ولكن المعلومات التي سوف نحصل عليها من هذه الدراسة ستساعد العديد من المهنيين الصحيين وصانعي السياسات في فهم وجهات نظر الشباب السعوديات المتعلقات حول النشاط البدني وتحديد العوامل التي قد تبلور موضوع ممارسة النشاط البدني بين هن.

ما الحل في حال حدوث مشكلة؟

هذه الدراسة قد منحة موافقة من لجنة أخلاقيات البحوث البشرية في جامعة ادلايد (استراليا)، وكلية العلوم الطبية التطبيقية في جامعة الملك سعود (المملكة العربية السعودية). إذا كان لديك أي قلق حول أي جانب من جوانب هذه الدراسة أو شكوى، يرجى الاتصال بسكرتيرة اللجنة في جامعة ادلايد على +61 8 313 6028 أو على البريد الإلكتروني hrec@adelaide.edu.au. أو الاتصال بمدير مركز البحوث في كلية العلوم الطبية التطبيقية في جامعة الملك سعود (الدكتور محمد الخريف) على 4693742 .

ايضا، يرحب أعضاء فريق البحث بأي أسئلة أو التعليقات حول هذه الدراسة، تجدون تفاصيل الاتصال بهم في نهاية هذه الورقة.

هل ستيقي مشاركتي في الدراسة سرية؟

ستبقى كل المعلومات التي سيتم جمعها عن المشاركين خلال البحث في سرية تامة؛ سيتم تخزين البيانات(المقابلات المسجلة والنصوص المكتوبة و الاستمارات) على جهاز كمبيوتر محمي بكلمة مرور في مكتب قابل للقفل. و من الجدير بالذكر بأن جامعة ادلايد مسجلة مع الاتحاد الأسترالي (AAF) Australian Access Federation التي توفر البنية التحتية و إطار الدعم لتسهيل الاتصالات الإلكترونية الموثوق بها و التعاون داخل و بين الجامعات و المؤسسات البحثية في أستراليا. سوف يتم السيطرة على التخزين والوصول الى المعلومات الشخصية التي وردت خلال هذا البحث بتطبيق إجراءات إدارية وأمنية صارمة، مصممة لتقليل مخاطر كشف هوية المشاركين بالدراسة و ذلك على النحو الموجز أدناه :

أمن تكنولوجيا المعلومات و تخزين البيانات

سيتم تخزين المعلومات الشخصية عن المشاركة (مثل الاسم ورقم الهاتف و عنوان البريد الإلكتروني) على ملف إلكتروني مشفر محمي بكلمة مرور. و سيتم تسمية التسجيلات الصوتية بأسماء بديلة و سوف يتم حفظها في ملفات إلكترونية مشفرة محمية بكلمة مرور. من أجل تعزيز أمن هذه الملفات و الملفات الصوتية، سيتم تخزين أي بيانات و نسخ في خزائن مقلدة في داخل مكتب مغلق لا يستطيع الوصول إليها إلا من قبل الباحثة.

ماذا سيحدث لنتائج الدراسة؟

هذه الدراسة البحثية ستكون رسالتي لنيل درجة الدكتوراه، كما ستستخدم البيانات لنشر مقالات علمية أو المشاركة في مؤتمرات علمية. في جميع الأحوال، ستيقي هوية المشاركات مجهولة تماماً.

من ينظم أو يرفع هذه الدراسة؟

هذا البحث مدعوم من قبل كلية العلوم الطبية التطبيقية، قسم علوم صحة المجتمع، جامعة الملك سعود، الرياض، المملكة العربية السعودية.

لمزيد من المعلومات يرجى الاتصال بـ:

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Appendix G. Survey

Physical Activity Survey: Young Saudi women in Health Sciences in King Saud University

General Instructions

- This is not a test - there are no right or wrong answers
- This survey is anonymous to maintain confidentiality
- Please answer each question as best you can by placing a (✓) in the box next to your preferred answer
- Some questions have a blank space for you to write your answer
- Please follow any arrows or instructions that direct you to the next question

Thank you very much for taking the time to complete this questionnaire

*Information collected via this survey will only be viewed by members of the research team.
Data will be aggregated in publications resulting from this study*

Please tick the appropriate box

1. College's Name: Dentistry Nursing Pharmacy Applied Medical Sciences
2. Year of study: 1st year 2nd year 3rd year 4th year 5th year 6th year 7th year
3. Do you have any chronic diseases? Yes if yes, please (specify) No
4. During the week, approximately how much time do you spend engaged in physical activity?
 No, I don't participate in PA Yes I do participate but not every week and only occasionally Yes, for half an hour
 Yes, for one hour Yes, for one and a half hours Yes, for two hours Yes, for two and a half hours or more
5. In a typical week, do you do any light-intensity activities which make no noticeable changes in your breathing pattern?
 You can easily carry on a full conversation and you don't break a sweat (unless it's very hot or humid). They can be sports, fitness or recreational (*leisure*) activities such as *easy walking*.
 No If No, go to Q 7 Yes If Yes, on how many days 1 2 3 4 or more
6. On one of these days, approximately how much time do you spend doing light- intensity activities?
 Less than 10 min 10 -20 min 21-30 min More than 30 min
7. In a typical week, do you do any moderate-intensity activities which make your heart beat a little faster than normal and you breathe a little faster? You can talk easily while doing moderate intensity activity, but you may not be able to engage on a long conversation and you typically develop a light sweat after about 10 minutes of activity. They can be sports, fitness or recreational (*leisure*) activities such as *brisk walking, cycling, swimming, dancing*?
 No If No, go to Q 9 Yes If Yes, on how many days 1 2 3 4 or more
8. On one of these days, approximately how much time do you spend doing moderate-intensity activities?
 Less than 10 min 10 -20 min 21-30 min More than 30 min
9. In a typical week, do you do any vigorous-intensity activities which make your heart beat much faster than normal and you may not be able to talk comfortably without stopping to catch your breath and you develop a sweat after a few minutes of activity? They can be sports, fitness or recreational (*leisure*) activities such as *jogging or running*.
 No If No, go to Q 11 Yes If Yes, on how many days 1 2 3 4 or more
10. On one of these days, approximately how much time do you spend doing vigorous-intensity activities?
 Less than 10 min 10 -20 min 21-30 min More than 30 min
11. What types of physical activities are you currently participating in? **Please check all that apply.**

<input type="checkbox"/> Running, jogging	<input type="checkbox"/> Yoga
<input type="checkbox"/> Walking	<input type="checkbox"/> Swimming
<input type="checkbox"/> Treadmill (machine)	<input type="checkbox"/> Aerobics
<input type="checkbox"/> Dancing (e.g. Zumba)	<input type="checkbox"/> Other (Please list activity).....
<input type="checkbox"/> None	

12. Please show how much you agree with each statement about physical activity.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. My family supports my decision to participate in PA					
2. My family practices PA regularly					
3. I participate in PA with my family					
4. My friends support my decision to participate in PA					
5. My friends participate in PA regularly					
6. I participate PA with my friends					
7. I feel embarrassed to engage in outdoor PA in front of people (e.g. fast walking or running)					
8. I feel embarrassed to sweat at the gym in front of people					
9. In general, Saudi women encourage other women to engage in PA					
10. In general, Saudi men encourage women to engage in PA					
11. Wearing pant is interpreted as being against religious beliefs and this constrain my ability to engage in PA.					
12. I cannot walk alone without a male accompanying me on sidewalks in streets					
13. I cannot jog or walk briskly when I am wearing an Abaya because it interferes with brisk movements					
14. It is very important to wear a comfortable outfit while exercising					
15. There are limited opportunities for women in Saudi society to practice PA					
16. There are limited opportunities for men in Saudi society to practice PA					

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. It is difficult to walk where I live because there is lack of infrastructure e.g. sidewalks, walking signals and lights					
2. It is difficult to walk where I live because there is no clear instructions for pedestrian rights					
3. It is difficult to walk where I live because of things like traffic congestion					
4. It is safe to walk alone on sidewalks in streets where I live					
5. I avoid walking in the street because I fear harassment from men (bad words, whistling etc..)					
6. I avoid walking in public because I fear harassment from men (bad words, whistling etc..)					
7. In general, the weather in Riyadh decreases my opportunities for practicing PA outdoors most of the year					

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8. Where I live, there are women only facilities to practice PA (e.g. health clubs)					
9. Where I live, there are facilities to practice PA that are easy to access					
10. On campus, there are available facilities to practice PA that are easy to access (e.g. health clubs, or walking path)					
11. For me to be able to participate in PA on campus, it is necessary to have easy access to showers and changing rooms on campus					
12. There is available transportation for me to access facilities to practice PA in anywhere					
13. The fees of women only health clubs are affordable to most young women					

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I don't have enough time to participate in regular PA					
2. I can't commit to regular PA					
3. I fear participating in regular PA will make me look muscular like a man					
4. I'm afraid of getting hurt or injured during practicing PA					
5. I'm afraid of pain through practicing PA					
6. Lack of physical education classes/ curriculum in (schools and universities) education system if one of the barriers for Saudi women to participate in regular physical activity					
7. I've knowledge about the benefits of PA					
8. I know how to plan my own physical activity program					
9. I've necessary skills to engage in PA					
10. I am knowledgeable about what constitutes a healthy diet					
11. I know how to plan and prepare my own nutritional meals					
12. I feel happy after participating in PA					
13. It is important for pregnant woman to be physically active while they are pregnant.					
14. Participating in PA during pregnancy will benefit the health of both the mother and baby					

15. Using social media such as twitter, Instagram, YouTube etc. motivates me to participate in physical activity					
16. Social media sport applications such as Nike plus etc. challenges are very motivating for my fitness practice					
17. Engaging in a fitness support group on social media is very effective at increasing my motivation to practice in PA					
18. Watching celebrities and athletes' social media profiles motivates me to be physically active					

13. During the last year I have considered joining a gym outside of the university but could not do so due to the high cost

I agree with this statement

The cost is not a barrier for me, but I don't want to join a gym

I am already a member of a gym

14. Please rank the following activities from 1 to 5 (1 = most preferred, 5 = least preferred).

Physical Education course as an elective in female education system (schools and universities)

Extra curriculum activities and events for physical activity such as marathon, cycling etc. in School and University settings

Sports team and competition sports events such as basketball in School and University settings

Community events for physical activity that increase awareness

Affordable women's health clubs that are easy to access

Other activity suggestions please (specify).....

15. How old are you? years

16. How much do you weigh approximately? in Kilograms (kg)

17. What is your approximate height? in Centimetres (cm)

18. Do you currently smoke any tobacco products? Yes daily Yes sometimes Yes rarely No

19. What is your marital status? Single Married Divorced Widowed

20. Nationality: Saudi Non Saudi

21. How many household members do you live with?

22. What is the highest level of education your mother completed?

Illiterate Read and write Intermediate school Secondary school
University or college or equivalent Postgraduate (Ms, PhD)

23. What is the highest level of education your father completed?

Illiterate Read and write Intermediate school Secondary school
University or college or equivalent Postgraduate (Ms, PhD)

-The End-

Thank you very much for your participation☺

Please remember that no information you have provided will be shared with anyone outside the research team

استبيان النشاط البدني بين الشباب السعوديات المتعلمات في الكليات الصحية في جامعة الملك سعود

تعليمات عامة

- هذا ليس امتحان، لا توجد أجوبة صحيحة أو خاطئة
- لن يتضمن هذا الاستبيان اسمك من أجل الحفاظ على سرية المعلومات.
- الرجاء قراءة كل الأسئلة ووضع علامة (✓) في المربع الموجود بجانب الإجابة التي تختارونها.
- في بعض الأسئلة، هناك مساحة بيضاء مخصصة لكتابة أجوبتك فيها
- الرجاء اتباع أية أسهم أو تعليمات للانتقال إلى الأسئلة التالية.
- استخدام المساحة الفارغة المخصصة لإجابة بعض الأسئلة المفتوحة.

شكرا جزيلاً لأخذ الوقت لاستكمال هذا الاستبيان علماً بأن البيانات التي تدلي بها سيطلع عليها فريق البحث فقط، وسوف تستخلص من هذه البيانات بحث علمي سينشر في مجلة علمية دون الإشارة إلى هوية المشاركات بالبحث.

1. اسم الكلية:

طب الأسنان الصيدلة العلوم الطبية التطبيقية التمريض الطب البشري

2. السنة الدراسية:

السنة الأولى السنة الثانية السنة الثالثة السنة الرابعة السنة الخامسة السنة السادسة السنة السابعة

3. هل تعاني من مرض مزمن؟

نعم حددي: لا

الأسئلة التالية عن الممارسات المتعلقة بالنشاط البدني

4. خلال الأسبوع، كم إجمالي الوقت تقريباً الذي تفضينه في القيام بأنشطة بدنية

لا، لا امارس انشطة بدنية امارس بعض الاحيان ولكن ليس كل اسبوع
 لمدة نصف ساعه في الأسبوع لمدة ساعة في الأسبوع
 لمدة ساعة ونصف في الأسبوع لمدة ساعتين في الأسبوع
 لمدة ساعتين وأكثر في الأسبوع

5. خلال اي اسبوع عادي، هل تمارسين نشاط بدني خفيف (نشاط لا يغير نمط التنفس أو لا يصاحبه التعرق، مع سهولة التحدث بطريقة عادية) مثل رياضة المشي الخفيف؟

لا، ← انتقلي للسؤال رقم 7
 نعم، ← كم يوم في الاسبوع؟.....يوم

6. في أي يوم من هذه الأيام، كم من الوقت تفضين في القيام بنشاط بدني خفيف؟

أقل من 10 دقائق بين 10 و20 دقيقة
 بين 21 و30 دقيقة أكثر من 30 دقيقة

7. خلال اي اسبوع عادي، هل تمارسين نشاط بدني متوسط الشدة (يصاحبه سرعة ضربات القلب والتنفس بدرجة أسرع بقليل من المعتاد، مع امكانية سهولة التحدث لفترات قصيرة فقط، والتعرق بعد فترة قصيرة مثل المشي السريع (الهرولة)، ركوب الدراجة الهوائية، السباحة، والرقص لفترة طويلة؟

لا، ← انتقلي للسؤال رقم 9
 نعم، ← كم يوم في الاسبوع؟.....يوم

8. في أي يوم من هذه الأيام، كم من الوقت تفضين في القيام بنشاط بدني متوسط الشدة تقريباً؟

أقل من 10 دقائق بين 10 و20 دقيقة
 بين 21 و30 دقيقة أكثر من 30 دقيقة

9. خلال اي اسبوع عادي، هل تمارسين نشاط بدني قوي (يؤدي الي ازدياد ضربات القلب وسرعة التنفس بشدة، مع صعوبة التحدث بدون التوقف لإلقاط النفس، التعرق بعد بضع دقائق من النشاط، مثل الجري او الركض؟

لا، ← انتقلي للسؤال رقم 11
 نعم، ← كم يوم في الاسبوع؟.....يوم

10. في أي يوم من هذه الأيام، كم من الوقت تفضين في القيام بنشاط بدني قوي؟

أقل من 10 دقائق بين 10 و20 دقيقة
 بين 21 و30 دقيقة أكثر من 30 دقيقة

11. ما أنواع الأنشطة البدنية التي تمارسها حالياً؟ (يمكن اختيار أكثر من إجابة)

- الجري، الهرولة
 السباحة
 المشي
 جهاز المشي (Treadmill)
 لا أشارك في أي نشاط بدني حالياً
 اليوغا، تمرينات التمدد
 تمارين الأيروبيكس
 الرقص (زمنياً)
 غيره، حددني:

فيما يلي بعض البيانات عن النشاط البدني. تذكر أن النشاط البدني يعني أي نشاط يجعل قلبك ينبض بشكل أسرع ويجعلك تتنفس بشكل أصعب قليلاً من عند وضعية الجلوس أو الوقوف

12. يرجى الإجابة بمدى موافقتك على الجمل التالية فيما يخص ممارسه النشاط البدني

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
					1. عائلتي تشجع قراري على القيام للنشاط البدني
					2. تمارس عائلتي النشاط البدني بانتظام
					3. أمارس النشاط البدني مع عائلتي
					4. صديقتي تشجع قراري على القيام بالنشاط البدني
					5. تمارس صديقتي النشاط البدني بانتظام
					6. أقوم بالنشاط البدني مع صديقتي
					7. أشعر بالإحراج عند القيام بنشاط بدني في الخارج امام الناس (كالمتشي السريع أو الركض)
					8. أشعر بالإحراج عندما أتعرق في النادي الرياضي امام الناس
					9. عموماً، النساء السعوديات يشجعن بعضهم على ممارسة النشاط البدني
					10. عموماً، الرجال السعوديون يشجعون النساء على ممارسة النشاط البدني
					11. ارتداء البنتالون يفسر على انه ضد المعتقدات الدينية مما يقيدني عند ممارسة الرياضة
					12. لا أستطيع ممارسه رياضة المشي على رصيف الطريق بدون مرافقه محرم
					13. عند ارتدائي للعباية لا أستطيع ممارسة رياضة الهرولة او المشي السريع لأنها تقيد حركتي
					14. من المهم جداً ارتداء ملابس مريحة عند ممارسة النشاط البدني
					15. في المجتمع السعودي الفرص محدودة للنساء لممارسة للنشاط البدني
					16. في المجتمع السعودي الفرص محدودة للرجال لممارسة للنشاط البدني

لا أوافق بشدة	محايد	لا فرق	أوافق	أوافق بشدة
				1. من الصعب المشي في المنطقة التي أسكن فيها بسبب عدم توافر البنية المساعدة مثل الارصفة، اماكن مخصصة للمشبي، حدائق
				2. من الصعب المشي في المنطقة التي أسكن فيها بسبب عدم وضوح ضوابط حماية المشاة
				3. من الصعب المشي في المنطقة التي أسكن فيها بسبب ازدحام حركة المرور
				4. اتجنب ممارسة رياضة المشي على الشارع خوفاً من معاكسات الرجال (بتعرض للتلفظ بكلمات غير ملائمة، المغارلات، نظرات الخ....)
				5. اتجنب ممارسة رياضة المشي في الاماكن العامة خوفاً من معاكسات الرجال (بتعرض للتلفظ بكلمات غير ملائمة، المغارلات، نظرات الخ....)
				6. تعتبر المنطقة التي اسكن فيها آمنة لممارسه رياضة المشي بمفردي علي ارضفتها
				7. في المنطقة التي اسكن فيها، تتوفر مرافق خاصة للنساء للممارسة النشاط البدني (مثال: النوادي الصحية، الجيم، مراكز اللياقة والرشاقة)
				8. في المنطقة التي اسكن فيها، من السهل الوصول لمرافق خاصة للنساء للممارسة النشاط البدني
				9. تتوفر لي وسائل النقل للوصول الي مرافق ممارسة النشاط البدني في اي مكان
				10. اسعار الاشتراك في النوادي الصحية النسائية في متناول غالبية الفتيات الشابات
				11. في الحرم الجامعي للبنات، هناك مرافق متاحة لممارسة النشاط البدني من السهل الوصول إليها مثل (نادي صحي أو ممشي)
				12. لكي اقوم بالنشاط البدني في الجامعة، من الضروري توفر غرف لتخزين الملابس او اماكن للاستحمام يسهل الوصول إليها في الحرم الجامعي
				13. عموماً، الطقس في الرياض يقلل فرصتي في القيام بنشاطات بدنية في الهواء الطلق في معظم أوقات السنة

لا أوافق بشدة	محايد	لا فرق	أوافق	أوافق بشدة
				1. ليس لدي الوقت الكافي للقيام بنشاط بدني بانتظام
				2. لا أستطيع الالتزام بممارسة النشاط البدني بانتظام
				3. أخاف أن تجعلني المشاركة بالنشاط البدني باستمرار أبدو بعضلات كالرجل
				4. أخاف أن أصاب بأذى أو جرح خلال ممارستي للنشاط البدني
				5. أخاف أن أشعر بألم خلال ممارستي للنشاط البدني
				6. عدم توفر حصص/ مناهج التربية البدنية في نظام تعليم المدارس والجامعات يعتبر أحد عوائق مشاركة المرأة السعودية في

					النشاط البدني بانتظام
					7. أعرف فوائد النشاط البدني
					8. أعرف كيف أخطط برنامج خاص بي لممارسة النشاط البدني
					9. أمتلك المهارات الضرورية لممارسة النشاط البدني
					10. أنا على دراية بمكونات الوجبات الغذائية الصحية
					11. أعرف كيف أخطط و اعد وجبات غذائية صحية لي
					12. اشعر بالسعادة بعد ممارستي للنشاط البدني
					13. من المهم للنساء الحوامل ممارسة النشاط البدني خلال فترة الحمل
					14. ممارسة النشاط البدني خلال الحمل يفيد صحة الام والجنين
					15. استخدام وسائل التواصل الاجتماعي كالتويتر، إنستاجرام، يوتيوب.. الخ يشجعتني على المشاركة في النشاط البدني
					16. تطبيقات الرياضيات في وسائل التواصل الاجتماعي (مثل Nike plus) تحمسنني جداً لممارسة النشاط البدني
					17. الانخراط في مجموعة دعم اللياقة البدنية على وسائل التواصل الاجتماعي يحمسنني جداً لممارسة النشاط البدني
					18. مشاهدة المشاهير والرياضيين في وسائل التواصل الاجتماعي تشجعتني أن اكون نشيطة بدنياً

13. خلال العام الماضي، فكرت بالانضمام والتسجيل في نادي صحي رياضي خارج الجامعة ولكن لم استطع القيام بذلك بسبب التكلفة العالية

اوافق على الجملة اعلاة

الكلفة ليست عائق بالنسبة لي، ولكني لا أودّ الاشتراك في نادي

انا حالياً مشتركة في نادي رياضي

14. يرجى ترتيب النشاطات التالية من 1 الى 5 تبعاً لافضليتها في تشجيع الفتيات السعوديات لممارسة النشاط البدني حيث (1= الاكثر تفضيلاً، 5= اقل تفضيلاً).

تدريس منهج التربية البدنية كمادة اختيارية في نظام التعليمي للفتيات على مستوى المدارس و الجامعات

عقد أنشطة لا صغية للنشاط البدني للفتيات مثل مسابقات المارتون، الدراجات الهوائية... الخ في المدارس والجامعات

تشكيل فرق رياضية للفتيات وأقامة مباريات تنافسية مثل فريق كرة السلة في المدارس والجامعات

اقامة مناسبات مجتمعية لزيادة الوعي بممارسة النشاط البدني مثل مسابقات ومهرجانات رياضية نسائية تشمل الركض وركوب درجات هوائية... الخ

توفير اندية رياضية نسائية بمعظم الأحياء السكنية بالرياض سهل الوصول إليها وبأسعار ملائمة

أنشطة اخرى مقترحة ارجو التحديد:.....

15. كم عمرك؟ _____ سنة

16. ما هو وزنك؟ _____ كغ

17. ما هو طولك؟ _____ سم

18. هل تدخنين حالياً أي نوع من التبغ؟

نعم نادراً نعم أحياناً نعم يومياً لا

19. ما هو وضعك الاجتماعي؟

عزباء متزوجة أرملة مطلقة

20. الجنسية

سعودية غير سعودية

21. كم عدد الأشخاص اللذين تعيش معهم في البيت بما فيهم انت؟-----

22. ما هو أعلى مستوى تعليمي وصلت إليه والدتك؟

أمية تقرأ وتكتب
 ابتدائي متوسط
 ثانوي تعليم جامعي
 دراسات عليا (ماجستير، دكتوراه)

23. ما هو أعلى مستوى تعليمي وصل إليه والدك؟

أمية تقرأ وتكتب
 ابتدائي متوسط
 ثانوي تعليم جامعي
 دراسات عليا (ماجستير، دكتوراه)

- النهاية -

فقط للتذكير بأنه لن يطلع على هذه المعلومات المشاركة غير فريق البحث فقط

شكراً جزيلاً على مشاركتك 😊

Appendix H. Ethics Approval from Adelaide University



RESEARCH BRANCH
OFFICE OF RESEARCH ETHICS, COMPLIANCE AND
INTEGRITY

SABINE SCHREIBER
SECRETARY
HUMAN RESEARCH ETHICS COMMITTEE
THE UNIVERSITY OF ADELAIDE
SA 5005
AUSTRALIA

TELEPHONE +61 8 8313 6028
FACSIMILE +61 8 8313 7325
email: sabine.schreiber@adelaide.edu.au
CRICOS Provider Number 00123M

13 December 2012

Dr M Mahmood
Population Health

Dear Dr Mahmood

PROJECT NO: H-2012-174
Physical activity among young educated Saudi women: a framework to research factors influencing health behaviours in the Middle Eastern context

I write to advise you that on behalf of the Human Research Ethics Committee I have approved the above project. Please refer to the enclosed endorsement sheet for further details and conditions that may be applicable to this approval. Ethics approval is granted for a period of three years subject to satisfactory annual progress reporting. Ethics approval may be extended subject to submission of a satisfactory ethics renewal report prior to expiry.


The ethics expiry date for this project is: 31 December 2015

Where possible, participants taking part in the study should be given a copy of the Information Sheet and the signed Consent Form to retain.

Please note that any changes to the project which might affect its continued ethical acceptability will invalidate the project's approval. In such cases an amended protocol must be submitted to the Committee for further approval. It is a condition of approval that you immediately report anything which might warrant review of ethical approval including (a) serious or unexpected adverse effects on participants (b) proposed changes in the protocol; and (c) unforeseen events that might affect continued ethical acceptability of the project. It is also a condition of approval that you inform the Committee, giving reasons, if the project is discontinued before the expected date of completion.

A reporting form for the annual progress report, project completion and ethics renewal report is available from the website at <http://www.adelaide.edu.au/ethics/human/guidelines/reporting/>

Yours sincerely

 **Dr John Semmler**
Acting Convenor
Human Research Ethics Committee



RESEARCH BRANCH
OFFICE OF RESEARCH ETHICS, COMPLIANCE AND
INTEGRITY

SABINE SCHREIBER
SECRETARY
HUMAN RESEARCH ETHICS COMMITTEE
THE UNIVERSITY OF ADELAIDE
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TELEPHONE +61 8 8313 6026
FACSIMILE +61 8 8313 7325
email: sabine.schreiber@adelaide.edu.au
ORCID Provider Number 00123M

Applicant: Dr M Mahmood

School: Population Health

Project Title: *Physical activity among young educated Saudi women: a framework to research factors influencing health behaviours in the Middle Eastern context*

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

Project No: **H-2012-174** RM No: 0000015490

APPROVED for the period until: **31 December 2015**

subject to approval from the College of Applied Medical Sciences Research Ethics Committee, King Saud University. It is noted that this project will be conducted by Mazna Abdulrahman AlMarzooqi, PhD candidate.

Refer also to the accompanying letter setting out requirements applying to approval.

Dr John Semmler
Acting Convenor
Human Research Ethics Committee

Date: 13 DEC 2012



22 December 2014

Professor A Braunack-Mayer
School of Population Health

RESEARCH BRANCH
OFFICE OF RESEARCH ETHICS, COMPLIANCE AND
INTEGRITY

SABINE SCHREIBER
SECRETARY
HUMAN RESEARCH ETHICS COMMITTEE
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email: sabine.schreiber@adelaide.edu.au
CRICOS Provider Number 00123M

Dear Professor Braunack-Mayer

PROJECT NO: H-2012-174
Physical activity among young educated Saudi women: a framework to research factors influencing health behaviours in the Middle Eastern context

Thank you for the email and supporting documents from Mazna AlMarzooqi dated 5.12.14 and 12.12.14 requesting approval of the online survey. I write to advise you that on behalf of the Human Research Ethics Committee I have approved the request to conduct this aspect of the project, subject to modification to the participant recruitment email and participant information sheet.

The ethical endorsement for the project applies for the period until: 31 December 2015

Please note that any changes to the project which might affect its continued ethical acceptability will invalidate the project's approval. In such cases an amended protocol must be submitted to the Committee for further approval. It is a condition of approval that you immediately report anything which might warrant review of ethical approval including (a) serious or unexpected adverse effects on participants (b) proposed changes in the protocol; and (c) unforeseen events that might affect continued ethical acceptability of the project. It is also a condition of approval that you inform the Committee, giving reasons, if the project is discontinued before the expected date of completion.

A reporting form is available from the Committee's website. This may be used to renew ethical approval or report on project status including completion.

Yours sincerely

Dr John Semmler
Convenor
Human Research Ethics Committee



RESEARCH BRANCH
OFFICE OF RESEARCH ETHICS, COMPLIANCE
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CRICOS Provider Number 00123M

10 February 2016

Professor A Braunack-Mayer
Public Health

Dear Professor Braunack-Mayer

ETHICS APPROVAL No: H-2012-174

PROJECT TITLE: **Physical activity among young educated Saudi women: a framework to research factors influencing health behaviours in the Middle Eastern context**

Thank you for the Annual Report on the Project Status form submitted on the 19 December 2015 by Ms AlMarzooqi, requesting extension to the above project. An extension request has been reviewed by the Office of Research Ethics, Compliance and Integrity and is deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research (2007)* involving no more than low risk for research participants.

The ethics expiry date for this project is: **31 December 2018**.

Ethics approval is granted for three years and is subject to satisfactory annual reporting. The form titled *Annual Report on Project Status* is to be used when reporting annual progress and project completion and can be downloaded at <http://www.adelaide.edu.au/ethics/human/guidelines/reporting>. Prior to expiry, ethics approval may be extended for a further period.

Participants in the study are to be given a copy of the Information Sheet and the signed Consent Form to retain. It is also a condition of approval that you **immediately report** anything which might warrant review of ethical approval including:

- serious or unexpected adverse effects on participants,
- previously unforeseen events which might affect continued ethical acceptability of the project,
- proposed changes to the protocol; and
- the project is discontinued before the expected date of completion.

Yours sincerely

Sabine Schreiber
Secretary, Human Research Ethics Committee
Office of Research Ethics, Compliance and Integrity

Appendix I. Ethics approval from King Saud University

<p>Kingdom of Saudi Arabia Ministry of Higher Education King Saud University Code 054 Deanship of Scientific Research College of Applied Medical Sciences Research Center</p>		<p>المملكة العربية السعودية وزارة التعليم العالي جامعة الملك سعود رمزها ٠٣٤ عمادة البحث العلمي مركز بحوث كلية العلوم الطبية التطبيقية</p>
رقم: ٢٠١٢/٤٠٣٦٥ Date: ١٤٣٤/١٢/٢٩ الموافق: ١٦/١٢/٢٠١٢		
To Whom It May Concern:		
The Research Ethics Application referred to below has been reviewed and the ethical aspects approved.	استعرضت لجنة أخلاقيات البحث مشروع البحث الموضح بياناته أدناه وتمت الموافقة عليه.	
Ethics Number: CAMS01/3334	الرقم: CAMS01/3334	
Project Title: Physical activity among young Saudi women: a framework to research factors influencing health behaviors.	عنوان البحث: النشاط البدني بين الشابات السعوديات: دراسة العوامل المؤثرة على السلوكيات الصحية.	
Name of Researchers: Mazna Abdulrahman Almarzooqi.	اسماء الباحثين: مزنا عبدالرحمن المرزوقي.	
Approval Date: 29 December 2012	تاريخ الموافقة: 16 صفر 1434هـ	
Expiry Date: 31 December 2015	تاريخ الانتهاء: 20 ربيع الأول 1437هـ	
Conditions for approval: As evidence of continuing compliance, the Research Ethics Committee requires that researchers immediately report:	شروط الموافقة: يتطلب من الباحثين سرعة تزويد لجنة أخلاقيات البحث بالكليه تقريرا عن:	
1) Proposed changes to the protocol including changes to investigators involved.	1) التغييرات التي قد تطرأ على البحث المقترح بما في ذلك أسماء الباحثين المشاركين.	
2) Serious or unexpected adverse effects on participants.	2) الآثار السلبية الخطيرة أو الغير متوقعة على المشاركين.	
3) Unforeseen events that might affect continued ethical acceptability of the project.	3) الأحداث الغير متوقعة التي قد تؤثر على استمرار قبول أخلاقيات البحث.	
You are also required to complete monitoring report at the end of your project. This report must be completed, signed by all researchers, and returned to the CAMS Research Center prior to the expiry date.	كما يتعهد الباحثين بتسليم تقرير عند نهاية المشروع موقعه من جميع الباحثين وإرساله لمركز البحث بكلية فن تاريخ انتهاء صلاحية الموافقة.	
Director of Research Center مدير مركز البحوث		
Dr. Mohammed Alkhorayef محمد بن عبدالرحمن الخريف		
P. O. Box 10219, Riyadh 11433, Tel: 4097343 Fax: 4095660-003541 من ص.ب. ١٠٢١٩ الرياض ١١٤٣٣ هاتف: ٤٠٩٧٣٤٣ فاكس: ٤٠٩٥٦٦٠-٠٠٣٥٤١		
www.ksu.edu.sa		



التاريخ: ١٤٣٤/٣/١٨ No.: بدون الرقم:

المحترمة الأستاذة / مزنة بنت عبدالرحمن المرزوقي

السلام عليكم ورحمة الله وبركاته ، وبعد :
إشارة إلى كتابكم بتاريخ ١٤٣٤/٢/١٦ هـ بخصوص طلبكم
للسماح لكم بجمع البيانات البحثية لمشروع الدكتوراه لدراسة سلوك
النشاط البدني بين طالبات الكليات الصحية في مرحلة البكالوريوس
المسجلين حالياً بجامعة الملك سعود بالرياض ولمدة ثلاثة شهور.
نفيد سعادتكم لموافقة وكيل الجامعة للدراسات العليا والبحث
العلمي في جامعة الملك سعود على ذلك.

وتقبلوا سعادتكم خالص تحياتي وتقديري ، ، ،

رئيس قسم علوم صحة المجتمع

د. علي بن ماضي الجول

فيمس ٢/٧

سعادة الأستاذ الدكتور / وكيل الجامعة للدراسات العليا والبحث العلمي المحترم
السلام عليكم ورحمة الله وبركاته .. وبعد ..

تجدون سعادتكم برفقه خطاب سعادة الدكتور رئيس قسم علوم صحة المجتمع رقم (٣/١٢/٧٠٩٠٧) وتاريخ ١٤٣٤/٢/٢٠هـ بخصوص الطلب المقدم من مبتعثة القسم/مزنه بنت عبدالرحمن المرزوقي وذلك لدراسة سلوك النشاط البدني بين طالبات الكليات الصحية في مرحلة البكالوريوس المسجلين حاليا بجامعة الملك سعود بالرياض بعنوان (النشاط البدني بين الشابات السعوديات : دراسة العوامل المؤثرة على السلوكيات الصحية في نطاق الشرق الأوسط) حيث تمت موافقة جامعة أدليدا في استراليا على اجراء البحث (مرفق) .
كما تجدون سعادتكم برفقه موافقة مركز اخلاقيات البحث في الكلية .
أمل من سعادتكم التكرم بالتوجيه لمن يلزم بعمل اللازم .

وتقبلوا سعادتكم فائق خياني وتقديري ..

عميد الكلية
س.ع. عميد كلية العلوم التطبيقية
المس
المراقب

أ.د. تركي بن محمد المبرد
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Date: التاريخ: ٠٣ - ٠٥ - ١٤٣٦ هـ No.: الرقم: ١١١٧٢٩ / ٣ / ٤

سعادة الدكتورة/ عميدة أقسام العلوم والدراسات الطبية
حفظها الله
السلام عليكم ورحمة الله وبركاته ، وبعد

مرفق لسعادتكم كتاب وكالة قسم علوم صحة المجتمع رقم ٦٦ / صحة وتاريخ ١٤٣٦/٤/٢٩ هـ
والمتضمن طلب الموافقة للمحاضرة / مزنة المرزوقي بنشر استبيان الكتروني بعنوان "النشاط البدني بين الشباب
السعوديات المتعلمات" لتسهيل جمع بيانات المرحلة الثانية من دراستها البحثية للدكتوراه بهدف طالبات
(الطب البشري ، العلوم الطبية التطبيقية ، طب الاسنان ، التمريض والصيدلة) وذلك بعد موافقة لجنة
أخلاقيات البحث ووكيل الجامعة للدراسات العليا والبحث العلمي بجامعة الملك سعود.

أمل من سعادتكم التكرم بالاحاطه والإيعاز لمن يلازم بعمل اللازم .

شاكرين ومقدرين تعاونكم واهتمامكم.

وكالة الكلية

د. مي بنت ناصر المعمر

سعادة وكالة الكلية تحية مني

مع الموانة

ح.ب. توبيخ صحة بكل
الجامعة للدراسات العليا والبحث العلمي (رمزها)

١١١٧٢٩/٣/٤

Appendix J. Policy audit tool (PAT)

Health-enhancing physical activity (HEPA) policy audit tool (PAT)

Version 2

<Insert COUNTRY>

Draft number: <X>
Date: <insert date>

Completed by:
<insert name(s)> <insert organization/affiliation>
<name> <organization/affiliation>
<name> <organization/affiliation>

Lead author: < insert name>

Contact details: <insert phone number> <insert email address>

Glossary

The following definitions are proposed in order to support the collection of relevant information for the PAT (based partly on Report of the global survey on the progress in national chronic diseases prevention and control (1)). However, it is not unusual for terms to be used interchangeably; for example, in one country a document may be called a policy, while in others a similar document could be labelled as action plan or strategy.

Action plan	An action plan should identify who does what (type of activities and people responsible for implementation), when (time frame), how (approaches, activities and interventions) and for how much (resources). It should ideally also have an inherent mechanism for monitoring and evaluation. An action plan can be part of a policy (see below) or be an independent document.
(Health-enhancing) physical activity (HEPA)	This is any form of physical activity that benefits health and functional capacity, without undue harm or risk.
Policy	A policy is a written document that contains priorities, defines goals and objectives, and is usually issued by (part of) the public administration. It can contain or be accompanied by an action plan (see above).
Programme	A programme is a set of measures or a single (but large-scale) long-term activity, which may or may not be related to a policy document. A programme can contain different types of activities, such as social marketing campaigns, promotional events, specific interventions or initiatives in different settings, and can be time limited or open ended.
Strategy	A strategy is defined by a long-term plan designed to achieve national goals (in this case, to promote health and prevent diseases).
Surveillance / monitoring system	A health surveillance/monitoring system is the continuous, systematic collection, analysis and interpretation of the health-related data needed for the planning, implementation, and evaluation of public health practice.
Sedentary behaviour	Sedentary behaviour is any waking behaviour involving very low energy expenditure and a sitting or reclining posture.

Disclaimer

The responses to the audit tool questions, as well as the conclusions and views resulting from the use of the tool, are the responsibility of its users and do not reflect the views of the WHO.

The questions and explanatory text in this unprotected version may not be changed in any way.

SECTION 1

Background information and country context

<p>1a. Please provide a brief overview of the government structure in your country (about 200-400 words). For example, briefly outline whether your country has a centralized or federal system and on which government level the main responsibility lies for issues such as health, sport, education, transport, environment and urban planning policy. <i>For examples relating to this and the other PAT questions, refer to the WHO website (www.euro.who.int/hepatat).</i></p>
<p>1b. Please briefly describe the governance at sub-national level (about 200-400 words) (e.g. at regional/provincial/cantonal/municipality level).</p>
<p>1c. Please provide a list of the main government ministries (e.g. health, sport, education, transport, environment and urban planning) in your national government that have a role in the promotion of HEPA (see Glossary for definition). Please also include a brief description of the role(s) of these key HEPA-related government departments. Please note: This question and Question 1d refer to the <u>national level</u>; please include information on the subnational level <u>only where relevant</u>, e.g. for countries with a strongly decentralized, federal system. Example: list the ministries and their role(s). The Ministry of Health, Welfare and Sport is responsible for sport, physical activity and health policy, initiation and delivery of frameworks for action plans/programmes, guidelines and subsidies. In addition, creating and maintaining links with other ministries and sectors concerning physical activity promotion is one of their tasks.</p>

<p>1d. Please list any other important national organizations, outside of government, which are actively engaged in HEPA promotion. This could include national sporting organizations, NGOs, charities, advocacy groups, the academic or scientific community, among others. Please provide a brief description of the role of these organizations (about 50-100 words). Please add/remove rows as needed.</p>	
Organization (please specify)	Description
Organization (please specify)	Description
Organization (please specify)	Description

SECTION 2

Leadership and partnerships

Questions 2 and 3 are about the situation relating to **leadership** and **coordination** of efforts to promote physical activity. In this context, the terms are used as follows.

- Leadership refers to the provision of overall direction for HEPA; e.g. responsibility for defining, supervising and managing the national physical activity agenda.
- Coordination means communication on, and alignment of actions and developments relating to HEPA, and could include facilitation of regular exchange between relevant stakeholders.

Leadership and coordination can be provided by one or more agencies within or outside of government. The same or different agencies may be involved in both activities, and different agencies might be involved at national and subnational levels. Mechanisms for leadership and coordination can take the form of a multisectoral committee, working group, alliance or task force, or might be led by a government agency or NGO

2. Please state any agency(ies) providing **leadership for HEPA promotion at the national level** in your country.

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3. Please state any agency(ies) providing **leadership for HEPA promotion at the subnational level** (e.g. at regional/ provincial/cantonal/municipal level) in your country.

--

4. Are any mechanisms or agencies in place in your country to ensure **cross-sectoral collaboration** on the delivery of HEPA policy, **at the national level**?

If yes, briefly describe. Please provide information on who is involved, who is leading these efforts, and how these collaborations function in practice. Please also mention (to the extent possible) any positive or more difficult experiences. This may also include examples of collaboration with the private and voluntary sectors.

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5. Are any mechanisms or bodies in place in your country to ensure **cross-sectoral collaboration** on the delivery of HEPA policy **at the subnational level**?

If yes, briefly describe. Please provide information on who is involved, who is leading these efforts, how these collaborations function in practice. Please also mention (to the extent possible) any positive or more difficult experiences. This may also include examples of collaboration with the private and voluntary sectors.

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SECTION 3

Policy documents

Question 6 is about **any relevant past policy documents or past events** that were influential in shaping the HEPA agenda in your country. This will provide background context about HEPA in your country. **Current policy documents** are described in Question 7.

<p>6. Please describe any key past policy documents and past events that have led to the current context of HEPA promotion in your country. This might include legislation or recent policy documents that are now technically out of date (e.g. a previous national HEPA policy that may or may not have been extended), previous landmark legislation, or other documents such as scientific reports. Key events might include political changes, position statements or scientific events that have shaped the HEPA agenda.</p> <p>Please list the documents/events, provide a web link (where available), and indicate if an English version or summary is available in each case.</p> <p>Please add/remove rows as needed.</p>
<p>Key past documents (please repeat as needed)</p> <p>Title and date:</p> <p>Issuing body:</p> <p>Web-link (English version available?):</p> <p>Brief description (about 50-100 words):</p>
<p>Key past events</p> <p>Brief description (about 50-100 words):</p>

<p>7. Please provide details (title, timeframe, issuing body) of the current key policy documents, legislation, strategies or action plans in your country, which outline government (and, where applicable, NGO) intention to increase national levels of physical activity (see Glossary for definitions of these terms). Please list the documents according to sector and, where available, provide a web link, indicating whether an English version or summary is available. Please provide a brief description of the general content of each policy (about 100–250 words). Please mark in the right-hand column which are the most important documents for the HEPA agenda in your country and briefly explain why these documents are deemed important. Please add/remove rows as needed.</p>		
Sector	Policy	Indicate (X) the most important documents
Example: Health	<p>Policy title: Resolution on the development of health enhancing physical activity and diet (Valtioneuvoston periaatepäätös terveyttä edistävän liikunnan ja ravinnon kehittämislinjoista) Publication date: 2008 Time frame covered (if specified): 2008–2011 Issuing body: Ministry of Health and Social Affairs Web link: English version available at: https://julkaisut.valtioneuvosto.fi/ Description: The statement is the main current political document on HEPA, providing the political and government strategy for physical activity in Finland. This resolution is multisectoral in nature, and was developed mainly by the Finnish Ministry of Health and Social Affairs in collaboration with the Ministry Education and Culture. It contains specific population targets and proposes principal methods for enhancing HEPA and healthy diet:</p> <ul style="list-style-type: none"> - within different populations (children, young people, families, students, workers, older people); - through the local environment (including equal access) - through political decisions at the local level - through education (doctors, nurses, teachers, etc.) - through national surveys and follow-up. <p>The last chapter emphasizes how the resolution is translated into action, and how it will be followed up.</p>	X
Health	<p>Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):</p>	
	<p>Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):</p>	

Sector	Policy	Indicate (X) the most important documents
Health (continued)	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
Sport and recreation	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
Education	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	

Sector	Policy	Indicate (X) the most important documents
Education (continued)	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
Transport	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
Environment	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	

Sector	Policy	Indicate (X) the most important documents
Environment (continued)	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
Urban design and planning	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	

Sector	Policy	Indicate (X) the most important documents
Other sector (please specify)	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	
Other sector (please specify)	Policy title: Publication date: Time frame covered (if specified): Issuing body: Web link (English version available?): Brief description of the content (and, if ticked, explanation of why it is deemed to be among the most important documents):	

8. During the development of the most important policies/action plans listed in Question 7, was a **consultative process** used, involving relevant stakeholders?
If yes, please briefly outline the steps of this consultation processes and which organizations were involved. Please also mention any challenges in recent years in engaging government ministries or other agencies through such processes.

9. In your appraisal of the policy documents listed in Question 7, is there evidence of **cross-referencing and alignment within and between policies, with genuine connections between different policy areas**, or do the policies present separate, sector-specific strategies without evidence of links and consistency across sectors and documents with relevant policy? For example: in the health sector, does a national obesity prevention strategy refer to an existing physical activity promotion plan, thus demonstrating an integrated overarching national approach to addressing physical activity? Does a transport policy recognize links with other policies that promote walking and cycling in the health sector (or sport field)? Does a sport promotion policy cross-reference HEPA promotion activities contained in a health promotion policy?
If yes, please briefly explain and give examples of such cross-referencing. Please state which of the policy documents presented in Question 7 you are referring to.

10. In your country, are any mechanisms in place to ensure that the key policy documents listed in Question 7 are **based on the best-available scientific evidence on HEPA**?
 For example, are specific mechanisms or agencies dedicated to reviewing evidence and ensuring that the latest evidence is used to inform national policy development? Do any formal committees or institutions exist that are responsible for reviewing evidence and providing guidance to national policy-making bodies, or any formal links between government and academic institutions for this purpose?
If yes, please briefly describe these.

--

11. Please indicate **how useful the following international documents have been** in the development of physical activity-related policy in your country, e.g. by serving as a basis, input or inspiration (whether having been specifically quoted or not in a policy document). Please rate the documents below on the scale from 1 (= "not at all useful") to 5 (= "very useful"). Please add any other international documents which have been important in the development of physical activity-related policy in your country, as necessary.

	Not at all useful					Very useful	
	1	2	3	4	5	Don't know	
Global strategy on diet, physical activity and health (2)							
Global recommendations on physical activity for health (3)							
2008–2013 action plan for the global strategy for the prevention and control of noncommunicable diseases (4)							
Global status report on noncommunicable diseases 2010 (5)							
Global action plan for the prevention and control of noncommunicable diseases 2013–2020 (6)							
Steps to health. A European framework to promote physical activity for health (7)							
Action plan for implementation of the European strategy for the prevention and control of noncommunicable diseases 2012–2016 (8)							
The Toronto Charter for physical activity: a global call for action (9)							
Noncommunicable disease prevention: investments that work for physical activity (10)							
Lancet series on Physical Activity (11)							
Other document (please specify):							
Other document (please specify):							
Other document (please specify):							

12. Do any **national documents or guidelines** exist that **support implementation of HEPA activities at the subnational level**? For example, does national policy determine what is delivered at the subnational level and, if so, is this national guidance strongly adhered to? Such guidance could include programmes, structures or funding. Or is subnational policy and activity developed and implemented largely independently from the national government?
Please note: please be brief here (about 300–500 words) and include cross-references to other questions (e.g. Question 7) where relevant, to avoid repetition.

SECTION 4

Policy scope, content and implementation

13. Considering all the key physical activity policy documents listed in Question 7, please indicate which **settings are included for the delivery of specific HEPA actions**. Please only tick those settings in which dedicated programmes or interventions are foreseen or already under way.

Preschools/kindergarten		Sport and recreation	
Primary schools		Transport	
Secondary/high schools		Tourism	
Colleges/universities		Environment	
Primary health care		Urban design and planning	
Clinical health care (e.g. hospitals)		Community	
Workplace		Other (please specify):	
Older adult/senior services			

14. Considering all the key physical activity policy documents listed in Question 7, please indicate which **population groups are targeted by specific HEPA actions**. Please only tick those groups for which dedicated programmes or interventions are foreseen or already under way.

Early years		Sedentary/the least active	
Children/young people		People from low socio-economic status	
Older adults		Families	
Workforce/employees		Indigenous people	
Women		Migrant populations	
People with disabilities		General population	
Clinical populations/chronic disease patients		Other (please specify):	

<p>15. Does your country have a current national communication strategy (using mass media) aimed at raising awareness and promoting physical activity?</p> <p>If yes, please provide details of the communication activities (e.g. posters, website, television or radio advertising, etc.) and whether these activities have a common branding or slogan (e.g. "Agita Sao Paulo" or "Find 30").</p> <p>If no, has your country conducted any national communication activities in the past?</p>

<p>16. To illustrate the types of policy actions in your country, please provide one or two examples (if available) of large-scale (preferably national) programmes or interventions in each of the settings listed.</p> <p>Please provide a brief description of each programme or intervention (about 100 words, including, for example: name, lead organization, approach, participants, results.) and a source where further information can be obtained.</p> <p>Suggestion: You could also consider developing these examples into more detailed case studies to complement your national PAT assessment.</p>	
<i>Example: sport/recreation</i>	<p>Youth and Sports is the Swiss national sports promotion programme for people aged 5–20 years. It offers courses in more than 70 disciplines and reaches more than half a million children and adolescents every year. More recently, it also offers sports promotion activities for children aged 5–10 years. Youth and Sports is based on the Federal Law on the Promotion of Gymnastics and Sport (described above).</p> <p>More information: Federal Office of Sport website (German, French, Italian) (http://www.jugendundsport.ch/) (12) and Kelly P, Cavill N, Foster C. An analysis of national approaches to promoting physical activity and sports in children and adolescents. Full report. Oxford: University of Oxford British Heart Foundation Health Promotion Research Group: 2009 (www.euro.who.int/data/assets/pdf_file/0009/119295/HEPA_children_analysis_report.pdf).</p>
Health	
Health	
Sport/recreation	
Sport/recreation	
Education	
Education	
Transport	
Transport	
Environment	
Urban design/planning	
Other (please specify):	

SECTION 5

Recommendations, goals and targets

This section contains questions referring to national recommendations on physical activity (Question 17a) and sedentary behaviour (Question 17b).

17a. Does your country have any national recommendations on physical activity and health ? National recommendations refer to a consensus statement on how much activity is required for health benefits. If recommendations exist for any of the target groups listed , please provide details for the population subgroups (where applicable), including issuing body, year of publication, title of the document, and provide a web link if available (please also specify whether the document is available in English). If no recommendations exist, please mark the “no” column for the respective target group. If your country has officially adopted or endorsed international recommendations (e.g. of WHO or the United States Department of Health), this should be mentioned as part of the description of the respective recommendations.		No
Early years (pre-school age)	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Children and young people (school-age)	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Adults	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Older adults/seniors	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
People with disabilities	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Other (please specify):	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	

17b. Does your country have any national recommendations on reducing sedentary behaviour ? If recommendations exist for any of the target groups listed , please provide details for each of the population subgroups (where applicable), including the issuing body, year of publication, title of the document, and provide a web link if available (please also specify whether the document is available in English). If no recommendations exist, please mark the “no” column for the respective target group.		No
Early years (pre-school age)	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Children and young people (school-age)	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Adults	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Older adults/seniors	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
People with disabilities	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	
Other (please specify):	Document/policy title and date: Issuing body: Web link (English version available?): Briefly state the recommendations and specify age range:	

18. Does your country have any national goals (or national targets) for population prevalence of physical activity ? If yes , please provide details of each target and the time frame. Please specify in which policy document(s) listed in Question 7 these goals are stated. Please start with the most specific and measurable targets, followed by a listing or summary statement of any more general targets and goals for physical activity-related behaviours. Examples: "By 2010, 65% (2004: 60%) of the adult population will meet the international exercise standard." "An increase in the number of children and youth who are physically active for at least 60 minutes per day."

19. Aside from any national goals and targets for population prevalence of physical activity or sedentary behaviour (already provided in previous questions), does your country have **any other goals and targets that directly or indirectly relate to physical activity promotion?**
 For example, a goal for health professionals to screen more patients for physical activity, or a target to replace a percentage of car trips by cycling and walking.
If so, please give examples, indicate the time period for the desired change, if available, and state in which of the policy documents presented in Question 7 these appear.

SECTION 6

Surveillance

20. Does your country have a **health surveillance or monitoring system** that includes measures of physical activity or sedentary behaviour?
If yes, please provide details according to age group (you may copy and paste as many response sections as needed). Please describe long-term general population surveys in: Question 20a (children and young people); Question 20b (adults) and Question 20c (older adults/seniors).
 Please add more boxes if needed.

20a. Children and young people						
Name of survey 1:						
Methods used (please tick as relevant)	Survey		Interview		Objective measures*	Other method (please state)
	Paper	Online	Phone	Personal		
Please complete <u>either</u> row A or row B below, as relevant						
A	Part of repeated surveillance system		Start year	Frequency	Latest year of data collection	
B	Single survey(s)		Year(s)	Meant as start of repeated surveillance system (yes/no or add comment)		
Name of survey 2:						
Methods used (please tick as relevant)	Survey		Interview		Objective measures*	Other method (please state)
	Paper	Online	Phone	Personal		
Please complete <u>either</u> row A or row B below, as relevant						
A	Part of repeated surveillance system		Start year	Frequency	Latest year of data collection	
B	Single survey(s)		Year(s)	Meant as start of repeated surveillance system (yes/no or add comment)		

* E.g. fitness, accelerometers

20b. Adults						
Name of survey 1:						
Methods used (please tick as relevant)	Survey		Interview		Objective measures*	Other method (please state)
	Paper	Online	Phone	Personal		
Please complete <u>either</u> row A or row B below, as relevant						
A	Part of repeated surveillance system		Start year	Frequency	Latest year of data collection	
B	Single survey(s)		Year(s)	Meant as start of repeated surveillance system (yes/no or add comment)		
Name of survey 2:						
Methods used (please tick as relevant)	Survey		Interview		Objective measures*	Other method (please state)
	Paper	Online	Phone	Personal		
Please complete <u>either</u> row A or row B below, as relevant						
A	Part of repeated surveillance system		Start year	Frequency	Latest year of data collection	
B	Single survey(s)		Year(s)	Meant as start of repeated surveillance system (yes/no or add comment)		

* E.g. fitness, accelerometers

20c. Older adults						
Name of survey 1:						
Method used (please tick as relevant)	Survey		Interview		Objective measures*	Other method (please state)
	Paper	Online	Phone	Personal		
Please complete <u>either</u> row A or row B below, as relevant						
A	Part of repeated surveillance system		Start year	Frequency	Latest year of data collection	
B	Single survey(s)		Year(s)	Meant as start of repeated surveillance system (yes/no or add comment)		
Name of survey 2:						
Method used (please tick as relevant)	Survey		Interview		Objective measures*	Other method (please state)
	Paper	Online	Phone	Personal		
Please complete <u>either</u> row A or row B below, as relevant						
A	Part of repeated surveillance system		Start year	Frequency	Latest year of data collection	
B	Single survey(s)		Year(s)	Meant as start of repeated surveillance system (yes/no or add comment)		

* E.g. fitness, accelerometers

<p>21a. Have data on the prevalence of physical activity or sedentary behaviour or other related factors influenced policy development in your country? For example, have surveillance data been used to define national goals and targets, or to assess progress towards achieving national goals and targets? If yes, please explain briefly and give examples. If no, please briefly explain why. For example, is the frequency of data collection not in line with the timeline of formulated policy goals, or do the questions asked in the survey not provide information on the effectiveness of national policy implementation?</p>
<p>21b. In your opinion, have surveillance data helped to progress the national promotion of physical activity in your country in any other ways? For example, has a decline of physical activity levels helped to increase political attention, or created media attention? If yes, please explain briefly, giving examples.</p>

SECTION 7

Evaluation

22a. Has your country undertaken **evaluation of any of the national policies or action plans listed in Question 7?**

If yes, please state the title of the report, publisher and year published. Where available, please also provide a web link and indicate whether an English version/summary is available. Please provide brief details of the evaluation undertaken, what has been evaluated, the data collection methods, a summary of the results and how these were used (or not) to define new policy.

Title:

Publisher and date:

Web link (English version available?):

Brief description of the approaches, results and their use:
(please repeat as needed)

22b. Has any **evaluation** of physical activity projects or interventions taken place **at the subnational level** (coordinated with or independent from the national level)?

If yes, please give a brief general overview of relevant processes. It is not expected to cover the whole range of activities but rather to give an indication and overview of the general approach taken at the subnational level.

23. Has any **economic evaluation** of interventions or **physical inactivity** (i.e. not reaching the minimum recommended level of physical activity) at national level been undertaken in your country?

If yes, please state the title of the report, publisher and year published. Where available, please also provide a web link and indicate whether an English version/summary is available. Please provide a brief description of the results of the assessment (about 50–100 words).

Title:

Publisher and date:

Web link (English version available?):

Brief description of the approaches, results and their use:
(please repeat as needed)

SECTION 8

Funding and commitments

24a. Within each of the sectors listed, is **funding** specifically allocated or "ring-fenced" for the delivery of physical activity- related policy or action plans **at the national level**? Please tick yes/no, and provide the amount (and currency), if known. Please also indicate whether this funding is recurrent; that is, provided on a regular basis (e.g. annually).

Sector	National						
					Recurrent		
	Yes	Amount	No	Don't know	Yes	No	Don't know
Health							
Sport/recreation							
Education							
Transport							
Environment							
Urban design/planning							
Other (please specify)							
Other (please specify)							
Remarks or comments							

24b. Within each of the sectors listed, is **funding** specifically allocated or "ring-fenced" for the delivery of physical activity- related policy or action plans **at the subnational level**? Please tick yes/no, and provide the amount (and currency), if known. Please also indicate whether this funding is recurrent; that is, provided on a regular basis (e.g. annually).

Sector	Sub-national						
					Recurrent		
	Yes	Amount	No	Don't know	Yes	No	Don't know
Health							
Sport /recreation							
Education							
Transport							
Environment							
Urban design / planning							
Other (please specify)							
Other (please specify)							
Remarks or comments							

25. In your opinion, does evidence exist of **political commitment** to the national agenda to promote physical activity? This might include, for example: recognition of physical activity as an important policy topic; increased funding; inclusion of physical activity in official speeches; political discussions about physical activity promotion in parliament; visible engagement by politicians in HEPA-related events, or their personal participation in HEPA.
If yes, please describe, giving examples, and also comment on whether you think there is greater or less political commitment to physical activity promotion in your country than in the recent past.

SECTION 9

Capacity-building through a national network

26. Does any professional **network or system exist in your country that links and/or supports professionals** interested or currently working in physical activity or related areas?
If yes, please describe, providing a web link and contact person, where available.

SECTION 10

Experience of policy implementation, progress and remaining challenges

27a. What do you think are the areas of greatest progress in national HEPA promotion in your country in recent years?
1.
2.
3.
27b. What do you think have been the biggest challenges faced by your country in the commencement or continuation of national-level approaches to HEPA promotion in recent years?
1.
2.
3.

28. Based on your experience, please identify up to three suggestions you would offer to another country that is setting up a national HEPA policy.
1.
2.
3.

29. Please use this space to provide any further details or comments you were not able to provide in other sections of the tool.

SECTION 11

Summary of how the HEPA PAT was completed

It will be of interest to those who read this audit of HEPA policy to know how this review was undertaken and who was involved in the process. Please briefly outline the process used. This should include details of:

- who initiated the process
- who led the process
- who was involved
- how stakeholders were identified or selected
- the main steps of the consultation process.

In addition, please include a list of individuals and organizations that were contacted to provide feedback and indicate who responded. Please add/remove rows as needed.

Lead of PAT completion process
Name: Institution: Contact details:
Name: Institution: Contact details:
Name: Institution: Contact details:
PAT completion team members
Name: Institution:
Name: Institution:
Name: Institution:

Overview of process and timelines	
Month/year	Main steps

List of experts who were consulted for input	
Institution/organization	Contact person

Appendix K. Frequency of survey participants' demographic characteristics versus their physical activity level

Table K.1: Frequency of survey participants' demographics characteristic versus their physical activity level

Variables	Meets recommendations	Insufficient (not meeting recommendations for either moderate or vigorous activities)	Inactive (no moderate or vigorous PA)
	(N=12)	(N=143)	(N=37)
	<i>n (n%)</i>	<i>n (n%)</i>	<i>n (n%)</i>
<i>Age</i>			
18-21	3 (25)	40 (28)	9 (24)
22-25	8 (67)	67 (47)	13 (35)
Missing	1 (8)	36 (25)	15 (41)
<i>College's name</i>			
Applied Medical Sciences	6 (50)	41 (29)	4 (11)
Dentistry	2 (17)	15 (10)	3 (8)
Medicine	4 (33)	49 (34)	21 (57)
Nursing	0 (0)	5 (3)	0 (0)
Pharmacy	0 (0)	18 (13)	3 (8)
Missing	0 (0)	15 (10)	6 (16)
<i>Year of study</i>			
1 st year	0 (0)	2 (1)	1 (3)
2nd year	0 (0)	10 (7)	1 (3)
3rd year	5 (42)	24 (17)	9 (24)
4th year	3 (25)	43 (30)	8 (22)
5 th year	1 (8)	33 (23)	7 (19)
6 th year	1 (8)	12 (8)	4 (11)
7 th year	2 (17)	11 (8)	4 (11)
Missing	0 (0)	8 (6)	3 (8)
<i>Marital status</i>			
Single	10 (83)	102 (71)	22 (59)
Married	1 (8)	3 (2)	0 (0)
Missing	1 (8)	38 (27)	15 (41)
<i>Household members</i>			
4 & less	2 (17)	15 (10)	3 (8)
5 to 9	8 (67)	80 (56)	16 (43)
10 and more%	1 (8)	12 (8)	3 (8)
Missing	1 (8)	36 (25)	15 (41)
<i>Mother's highest level of education</i>			
Intermediate school or under	1 (8)	19 (13)	3 (8)
Secondary school	1 (8)	26 (18)	6 (16)
University or college or equivalent	9 (75)	61 (43)	13 (35)
Missing	1 (8)	37 (26)	15 (41)
<i>Father's highest level of education</i>			
Intermediate school or under	2 (17)	13 (9)	3 (8)
Secondary school	0 (0)	16 (11)	1 (3)
University or college or equivalent	9 (75)	78 (55)	18 (49)
Missing	1 (8)	36 (25)	15 (41)

Appendix L. The Riyadh declaration

المؤتمر العربي الدولي لأنماط الحياة الصحية والأمراض غير السارية

INTERNATIONAL CONFERENCE ON HEALTHY LIFESTYLES AND NONCOMMUNICABLE DISEASES IN THE ARAB WORLD AND THE MIDDLE EAST

THE RIYADH DECLARATION September 12, 2012

PREAMBLE

We, the participants in the International Conference on Healthy Lifestyles and Noncommunicable Diseases (NCDs) in the Arab World and the Middle East, held in Riyadh, Kingdom of Saudi Arabia in September 2012;

Representing governments and nongovernmental organizations, research and academic centres, and various stakeholders from civil society in the Arab world and the larger Middle-East;

- I. Express our gratitude to the Custodian of the Two Holy Mosques, King Abdallah ben Abdulaziz, who graciously bestowed His patronage on this Conference;
- II. Express our appreciation to the Kingdom of Saudi Arabia for its leading role in organizing this Conference, and to the World Health Organization Regional Office for the Eastern Mediterranean for collaborating in its preparation; in response to the Resolution on NCDs voted by the Arab Ministers of Health;
- III. Recognize the right of everyone to the enjoyment of the highest attainable standards of physical and mental health, and in particular through NCD prevention and control;
- IV. Affirm our commitment to the pledges stated in the United Nations General Assembly Political Declaration (UNGAPD) on NCD Prevention and Control.

RATIONALE FOR ACTION

1. NCDs, principally cardiovascular diseases, diabetes, cancers and chronic respiratory diseases, are the leading causes of preventable morbidity, mortality and disability worldwide. They currently result in 60% of deaths. Already more than 50% of all deaths in the Middle East are attributable to NCDs. The pace of

the NCD epidemic is faster in the Middle East, as a consequence of rising levels of known risk factors. Several countries of the Region have the highest rates of diabetes, obesity and inactivity worldwide. In addition, the persistence of exposure to risk factors such as tobacco use from cigarettes and shisha and worsening environmental pollution is contributing to increased burden of chronic respiratory conditions, cardiovascular diseases and cancers.

2. In addition to the enormous health burden borne by affected individuals and their families, NCDs have also an impact on socio-economic development in all countries. Costs of NCD care and loss of productivity due to sickness, disability and premature death result in household impoverishment of households and a negative impact on the economy.
3. Evidence-based cost effective population and individual based interventions exist to prevent and control NCDs. These “best-buys” are high-impact interventions that are affordable even in low-resource settings. They have been shown to be effective in preventing a large proportion of NCDs. The “best-buys” include measures to control tobacco and alcohol use, reduce salt and trans-fat intake and promote public awareness about the advantages of healthy diet and physical activity.
4. Political leadership and concerted “whole of government” action is essential to the reduction of NCD risk factors. Non-health sectors like finance, agriculture, sports, transport, education, urban planning, environment, industry, trade and others should be actively engaged in action. In parallel, joint efforts with civil society, nongovernmental organizations (NGOs), academia and the private sector are equally essential.

COMMITMENT FOR NATIONAL ACTION

We commit, individually and collectively, to engage actively with relevant sectors and stakeholders in our respective countries in order to...

1. Provide attainable political, financial, technical and logistical support to scale up the fight against NCDs and implement the Political Declaration in the Arab World and the larger Middle East.
2. Develop by 2013, an integrated plan across all government levels, based on the “Global Strategy for the Prevention and Control of Noncommunicable Diseases”.
3. Adopt a “whole-of-government” approach in legislation, regulations and policy actions for an effective and comprehensive response to the NCD threat.

4. Promote the role and responsibilities of non-governmental stakeholders, in particular civil society and private sector that are clearly defined in the Political Declaration, while safeguarding against potential conflicts of interest.
5. Increase budgetary allocations for NCD programmes, and explore viable and sustainable financing options to that end. (???)
6. Advance the implementation of the “best-buy” interventions, involving all relevant sectors and civil society as appropriate.
7. Accelerate the implementation of the WHO Framework Convention on Tobacco Control and existing norms endorsed by the World Health Assembly relevant to NCD prevention and control.
8. Strengthen policy coherence to maximize positive and minimize negative impacts on NCD risk factors and the burden resulting from policies of other sectors.
9. Strengthen national health information systems to provide all surveillance data required for planning and evaluating interventions on NCDs.
10. Review health systems performance in infrastructural and technological investments, and the development of adequately trained human resources, to achieve the broader goals of equity, fairness in coverage and responsiveness by 2025.
11. Reorient health systems towards disease management and scale up the integration of NCD essential preventive and management services into basic primary health care packages, according to national priorities and resources.
12. Encourage the development of efficient procurement, viable financing options, and distribution of medicines, including generics, and equipment to improve equitable access to preventive, curative, palliative and rehabilitative services, particularly at the community level.
13. Encourage alliances and networks that bring together the civil society with academic and research institutes, for the development of community-based initiatives supportive of NCD prevention and control.
14. Promote operational research and translate and disseminate results which can identify culture-specific determinants of risk across the life-course, and obstacles to optimal prevention and management.

15. Enhance and promote the use of innovative media tools and communications technology in order to improve the implementation of NCD prevention and control programmes.
16. Strengthen joint work of World Health Organization with specialized United Nations agency for health, and all other relevant United Nations system agencies, development banks and key international organizations to support Member States in integrating NCD prevention and control priorities into the national sustainable development agendas in the Arab World and Middle East by 2025.
17. Develop regional and national strategies for gradual reduction of the salt, sugar and fat contents of manufactured food items, including public health awareness campaigns and mandatory legislation.
18. Recognize the importance of maternal and child health and nutrition in preventing future NCDs. In particular, compliance with WHO safe breastfeeding guidelines can be protective against future metabolic and cardiovascular disorders, in addition to immediate beneficial effects on newborn health and well-being.

APPENDIX: RECOMMENDED ACTION POINTS

Following deliberations and debates, experts gathered at the International Conference on Healthy Lifestyles and Noncommunicable Diseases (NCDs) in the Arab World and the Middle East, held in Riyadh, Kingdom of Saudi Arabia in September 2012; recommend the following immediate action points:

1. An annual screening package for early components of the metabolic syndrome (pre-hypertension, pre-diabetes, overweight, tobacco addiction) should be available to asymptomatic adults, through primary health care facilities, fully or largely subsidized based on the health insurance system and available finances in each country.
2. Individuals diagnosed through the screening package should be referred to adequate and accessible care.
3. Schools must be recognized as a major venue for NCD prevention. Accreditation or rehabilitation of educational facilities for boys and girls should be based on the criteria of WHO "Health Promoting Schools". In particular, physical education and access to healthy food items should be considered as priorities in the educational system, equal in importance to reading and writing.

4. Urban planning licenses of new residential developments have to include environments which promote walking or biking, social gathering, and safe space to allow physical activity for women, elderly persons and children.
5. Adopt the mandatory use of traffic light signs on all industrial food items imported or locally manufactured.
6. Impose nutritional labeling on all fast food items.
7. Impose the sale of fresh fruits and vegetables, as well as low-calorie products in all vending venues where high-calorie equivalents are sold.
8. Require a gradual reduction over the coming 5 years of the salt content of all manufactured food items, to ultimately reach 50% of the initial content.
9. Ban all shisha smoking cafes from residential areas and neighborhoods with health, educational and public service facilities.
10. Increase the taxation on items with negative health effects: tobacco products, energy drinks... and earmark obtained funds to NCD programs.

أنماط الحياة الصحية والأمراض غير السارية في العالم العربي والشرق الأوسط
الرياض، المملكة العربية السعودية

إعلان الرياض

2 شوال 1433 هـ الموافق 12 سبتمبر 2012م

الديباجة

عُقد المؤتمر الدولي لأنماط الحياة الصحية والأمراض غير السارية في العالم العربي والشرق الأوسط في العاصمة الرياض في المملكة العربية السعودية، خلال الفترة من 22-25 شوال 1433 هـ الموافق 9-12 سبتمبر 2012م ، وذلك تنفيذاً لقرار المكتب التنفيذي لمجلس وزراء الصحة العرب رقم (4) في دورته غير العادية في أكتوبر 2011م في القاهرة ، والقرار رقم (9) المتخذ في الدورة السابعة والثلاثين المنعقدة في مارس 2012م في عمان – الأردن.

وقد أعرب المشاركون في المؤتمر، والذين يمثلون الحكومات والمنظمات غير الحكومية ومراكز البحوث والمؤسسات الأكاديمية، وذوو العلاقة من المجتمع المدني في العالم العربي والشرق الأوسط، عن امتنانهم وشكرهم لخادم الحرمين الشريفين الملك عبد الله بن عبد العزيز على تفضله برعاية هذا المؤتمر.

كما عبروا عن تقديرهم للمملكة العربية السعودية لدورها الرائد في الإعداد والتنظيم لهذا المؤتمر، بالتعاون مع جامعة الدول العربية ومنظمة الصحة العالمية (المكتب الإقليمي لشرق المتوسط).

وأكدوا دعمهم الكامل لحق كل فرد في التمتع بأعلى مستوى يمكن بلوغه من الصحة البدنية والعقلية من خلال الوقاية والسيطرة الفعالة على الأمراض غير السارية، والتزامهم بالسعي الحثيث من أجل تحقيق التعهدات الواردة في الإعلان السياسي للجمعية العامة للأمم المتحدة (UNGAPD) للوقاية من الأمراض غير السارية ومكافحتها.

مسوغات العمل

أولاً- تعد الأمراض غير السارية وعلى رأسها أمراض القلب والأوعية الدموية والداء السكري وأمراض السرطان والأمراض التنفسية المزمنة، من الأسباب الرئيسية عالمياً للوفيات وحالات العجز التي يمكن الوقاية منها. وبشكل عام يعزى أكثر من 50٪ من مجموع الوفيات في الشرق الأوسط إلى الأمراض غير السارية. كما أن وتيرة انتشار الأمراض غير السارية في هذه المنطقة هي الأسرع من أي مكان آخر، نتيجة لارتفاع مستويات عوامل الخطورة المعروفة. تشهد العديد من دول المنطقة أعلى معدلات للداء السكري وقلّة النشاط البدني والسمنة مقارنة بباقي دول العالم، فضلاً عن استمرار التعرض لعوامل الخطورة، مثل تعاطي التبغ كالسجائر والشييشة والغذاء الغير متوازن وتفاقم التلوث البيئي الذي يسهم في زيادة حدوث الأمراض التنفسية المزمنة، وأمراض القلب والأوعية الدموية وأمراض السرطان.

ثانياً- الأعباء الجسيمة التي تتحملها الخدمات الصحية وأسر المصابين بهذه الأمراض، وما لها من أثر سلبي في التنمية الاقتصادية والاجتماعية في جميع البلدان، حيث أن تكاليف الرعاية للمصابين بهذه الأمراض وضعف الإنتاجية بسبب العجز والمرض والوفاة المبكرة تؤدي إلى إفقار الأسر وإضعاف الإقتصاد.

ثالثاً- الجدوى الإقتصادية المبنية على البراهين والتدخلات الفعالة لمكافحة الأمراض غير السارية هي "التدخلات الوقائية الأكثر مردوداً " ، والتي تشمل على سبيل المثال تدابير لمكافحة التبغ وتعاطي الكحول، والحد من تناول الملح والدهون وكذلك عبر تعزيز الوعي العام حول مزايا إتباع نظام غذائي صحي وممارسة النشاط البدني، وهي تدخلات ذات تأثير ملموس وفي متناول المناطق ذات الموارد المحدودة، وقد ثبت أنها فعالة في منع نسبة كبيرة من الأمراض غير السارية.

رابعاً- دور القيادة السياسية بتوجيه كل أجهزة الدولة أمر أساسي للحد من عوامل الخطورة والوقاية من الأمراض غير السارية. وينبغي على القطاعات غير الصحية مثل المالية، والزراعة، والرياضة، والشؤون الدينية ، والنقل،

والتعليم، وتخطيط المدن والبيئة والصناعة والتجارة وغيرها، أن تعمل بنشاط وبالتوازي مع منظمات المجتمع المدني، والمنظمات غير الحكومية والأوساط الأكاديمية والقطاع الخاص على حد سواء.

الالتزام بالعمل الوطني

يلتزم المجتمعون فرادى وجماعات بالمشاركة الفعالة مع القطاعات ذات الصلة وأصحاب المصلحة في بلدانهم من أجل تحقيق الإجراءات التالية:

1. توفير الدعم السياسي والمالي والتقني واللوجستي لتوسيع نطاق مكافحة الأمراض غير السارية وتنفيذ الإعلان السياسي للجمعية العامة للأمم المتحدة "UNGAPD" في العالم العربي والشرق الأوسط.
2. تعزيز دور ومسؤوليات القطاعات الحكومية المختلفة ، و المجتمع المدني وخاصة القطاع الخاص التي تم تعريفها بوضوح في الإعلان السياسي، مع ملاحظة عدم تداخل المصالح.
3. تضع الدول سياسات وبرامج تشمل القطاعات المختلفة بحلول عام 2013 استنادًا إلى الإستراتيجية العالمية للوقاية من الأمراض غير السارية ومكافحتها.
4. التزام السلطة التنفيذية بالمحافظة على نهج متكامل في التشريعات واللوائح حتى تحدث استجابة فعالة وشاملة لمجابهة تهديد الأمراض غير السارية.
5. زيادة المخصصات في الميزانية لبرامج الأمراض غير السارية ، واستكشاف خيارات تمويل قابلة للتطبيق ومستدامة لتحقيق هذه الغاية.
6. تسريع تطبيق "التدخلات الوقائية الأكثر مردوداً " مع مشاركة كل القطاعات المهمة ومنظمات المجتمع المدني حسب الحاجة.

7. التعجيل في تنفيذ إتفاقية منظمة الصحة العالمية الإطارية بشأن مكافحة التبغ والاستراتيجيات القائمة والتوصيات التي قد تقرها جمعية الصحة العالمية للوقاية من الأمراض غير السارية ومكافحتها.
8. تعزيز تنسيق سياسات القطاعات المختلفة لتحقيق أقصى قدر من الإيجابية وتقليل التأثيرات السلبية على عوامل الخطورة و على العبء الناجم عن تلك الأمراض بسبب سياسات القطاعات الأخرى.
9. تقوية نظم المعلومات الصحية والنقصى الضرورية لتخطيط التدخلات المناسبة لتلك الأمراض وتقييمها.
10. مراجعة أداء الأنظمة الصحية فيما يتعلق بالإستثمارات من الناحية البنيوية والتقنية ، وتدريب الموارد البشرية للوصول للنتائج المرجوة لتحقيق المساواة ، والعدالة في التغطية، والإستجابة للحاجات الصحية وذلك بحلول عام 2025.
11. إعادة توجيه الأنظمة الصحية لتحسين الرعاية الصحية والتوسع في دمج الخدمات الوقائية الأساسية وخدمات إدارة الأمراض غير السارية في الرعاية الصحية الأولية، وفقا للأولويات الوطنية والموارد المتوفرة.
12. تطوير كفاءة شراء وتوزيع الأدوية ؟ تعزيز خيارات تمويل قابلة للتطبيق لتوفير الأدوية وبالأخص الأدوية الجنيسة بأسعار معقولة، فضلا عن تحسين فرص الحصول على الخدمات الوقائية، والعلاجية وخدمات إعادة التأهيل لاسيما على المستوى المجتمعي.
13. تشجيع التحالفات والشبكات التي تجمع منظمات المجتمع المدني والمعاهد الأكاديمية والبحثية لتطوير المبادرات المجتمعية التي تدعم الوقاية من الأمراض غير السارية ومكافحتها.

14. تشجيع البحوث الصحية التطبيقية، وترجمة نتائجها الى سياسات هدفها التعرف على محددات الإختطار ذات الطابع الثقافي الخاص بمنطقتنا عبر مختلف مراحل الحياة وكذلك على العوامل التي تعيق التوصل الى أعلى درجة من الوقاية والعلاج.
15. تعزيز وتشجيع استخدام الأدوات الإعلامية وتقنية الاتصالات الحديثة من أجل تحسين تنفيذ برامج الوقاية من الأمراض غير السارية ومكافحتها
16. تعزيز العمل المشترك بين منظمة الصحة العالمية "الوكالة المتخصصة للأمم المتحدة من أجل الصحة"، والجامعة العربية ومجالسها الوزارية والمنظمات العربية المتخصصة وسائر وكالات الأمم المتحدة ذات الصلة، وبنوك التنمية والمنظمات الدولية الرئيسية من أجل دعم الدول الأعضاء في مجال دمج الوقاية من الأمراض غير السارية وأولويات مكافحتها في برامج أعمال التنمية الوطنية المستدامة في العالم العربي والشرق الأوسط
17. وضع استراتيجيات وطنية وإقليمية للتقليل التدريجي من نسبة الملح والسكر والدهون في المنتجات الغذائية المصنعة، متضمنة حملات توعية صحية وتشريعات ملزمة
18. التأكيد على أهمية برامج تغذية و صحة الأم والطفل للوقاية من الأمراض السارية وخاصة من ناحية الإلتزام بدليل الرضاعة الطبيعية الآمنة الصادر عن منظمة الصحة العالمية تأكيدا على أهمية الرضاعة الطبيعية كعامل حماية مستقبلي من الإصابة بالمتلازمة الإستقلابية وإضطرابات الجهاز القلبي الوعائي إضافة إلى الفائدة المباشرة لتمتع المواليد الجدد بصحة جيدة.

الملحق

توصيات للتطبيق العملي

خلصت مناقشات المختصين والخبراء المجتمعين في المؤتمر الدولي لأنماط الحياة الصحية والأمراض غير السارية في العالم العربي والشرق الأوسط المنعقد في مدينة الرياض بالمملكة العربية السعودية خلال الفترة من 22 - 25 شوال/1433هـ. الموافق 9-12 سبتمبر 2012م الى التوصيات التطبيقية العملية التالية:

1- عمل كشف مبكر و دوري لعوامل الاختطار بما في ذلك حالات ما قبل ارتفاع ضغط الدم، وما قبل الإصابة بداء السكري، وزيادة الوزن والتدخين للبالغين من خلال مراكز الرعاية الصحية الأولية على أن تكون متوفرة مجاناً أو بأسعار مدعومة للجميع وفق الإمكانيات المالية المتاحة لدى كل دولة.

2- تأمين نظم إحالة فعالة للحالات المشخصة من خلال الكشف المبكر الى خدمات صحية مناسبة.

3- إعتبار المدارس أهم أماكن الوقاية من الأمراض غير السارية. كما يجب الإلتزام بتطبيق معايير منظمة الصحة العالمية (المدارس المعززة للصحة) عند بناء أو إعادة تأهيل مدارس البنين و البنات ، وأهم تلك المعايير هو تعزيز برامج التربية الرياضية والغذاء بقدر الإهتمام بالقراءة والكتابة.

4- ضرورة إهتمام رخص التطوير العمراني على مضامير للمشي وقيادة الدراجات الهوائية وأماكن للتجمعات الإجتماعية ومناطق آمنة لمزاولة الأنشطة البدنية بالأخص للنساء وكبار السن والأطفال.

5- تبني سياسات محددة لمراقبة تسويق المواد الغذائية المصنعة محلياً والمستوردة، خاصة التسويق الموجه للأطفال.

6- مراقبة تسويق وعرض المنتجات الغذائية المصنعة عالية السعرات الحرارية في أماكن البيع و توفير بدائل صحية في نفس الموقع.

7- تشجيع توفير الفواكه والخضروات الطازجة بأسعار ميسورة للجميع.

8- خفض نسبة الملح تدريجياً في الأطعمة المصنعة وذلك خلال خمس سنوات، لتصل إلى 50% من النسبة الأولية .

9- حظر توفير الشيشة في المقاهي داخل المناطق السكنية وقرب المرافق التعليمية والصحية والخدمات العامة.

10- زيادة الضرائب على المواد المضرة بالصحة كالتبغ ومشتقاته ومشروبات الطاقة وماشابهها على أن تحول هذه الأموال المحصلة لتمويل برامج الوقاية من الأمراض غير السارية.

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