The perspectives of consumers relating to the group itself in group-delivered pain programs

by

Marelle K Wilson

B. App. Science (Physio)

APA Titled Pain Physiotherapist, MACP

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Table of Contents

Contents ii

List of Figures v

List of Tables vi

Glossary and abbreviations vii

Presentations and activities during candidature viii

Abstract ix

Declaration x

Acknowledgements xi

Acknowledgement of funding xiii

Preface xiv

CHAPTER ONE INTRODUCTION 1

1.1 CHRONIC PAIN 2

1.1.1 DEFINITIONS AND TERMINOLOGY 2

1.1.2 PREVALENCE 3

1.1.3 ECONOMIC BURDEN 3

1.1.4 COMPLEXITY 3

1.1.5 PAIN MANAGEMENT MODELS OF CARE 4

1.2 SOCIAL FACTORS 5

1.2.1 DEFINITIONS AND TERMINOLOGY 5

1.2.2 SOCIAL FACTORS AND CHRONIC PAIN 7

1.3 GROUP-DELIVERED PROGRAMS 9

1.3.1 GROUP PROGRAMS FOR CHRONIC PAIN 9

1.3.2 GROUP-RELATED RESEARCH IN OTHER CONTEXTS 11

1.3.3 GROUP PROCESSES IN CHRONIC PAIN PROGRAMS 12

1.4 SUMMARY OF AIMS, RESEARCH QUESTIONS, AND OVERVIEW OF THESIS STRUCTURE 13

References 15

CHAPTER TWO *Consumer perspectives of the group itself in group-delivered programs for people with chronic pain: a systematic review and meta-synthesis* 24

References 61

CHAPTER THREE *Consumer perspectives of group-delivered pain management programs: A qualitative content analysis of survey data* 74

References 100

CHAPTER FOUR DISCUSSION 104

4.1 OVERVIEW OF STUDIES 1 AND 2 105

4.2 TRIANGULATION STAGE 1 107

4.2.1 SOCIAL COMPARISON 107

4.2.2 CHANGES IN SOCIAL BEHAVIOUR 109

4.3 TRIANGULATION STAGE 2 111

4.4 CONGRUENT, INTEGRATED GROUP-RELATED FINDINGS FROM STUDIES 1 AND 2 111

4.4.1 THE SIGNIFICANCE OF DIRECT INTERACTION 111

4.4.2 CHANGED FEELINGS AND SOCIAL SELF-BELIEFS: MORE NORMAL, NOT ALONE, AND SAFE 114

4.4.3 POSITIVE CHANGES 121

4.4.4 PROGRAM ENDING 121

4.5 CONNECTING MAIN FINDINGS WITH LITERATURE AND THEORETICAL FRAMEWORKS 121

4.5.1 THE VALUE OF INTERACTION IN GROUP-DELIVERED PROGRAMS 121

4.5.2 SOCIAL COMPARISON IN GROUP-DELIVERED PROGRAMS 122

4.5.3 CHANGED FEELINGS AND SOCIAL SELF-BELIEFS: MORE NORMAL, NOT ALONE, AND SAFE 124

4.5.4 POSITIVE CHANGES BEYOND THE GROUP 125

4.5.5 PROGRAM ENDING 125

4.6 PROPOSED INTERACTION AND SOCIAL COMPARISON-BASED MODEL 126

4.7 CLINICAL AND PRACTICE IMPLICATIONS 127

4.7.1 PROGRAM PLANNING 127

4.7.2 PROGRAM IMPLEMENTATION 128

4.8 STRENGTHS AND LIMITATIONS 131

4.9 FUTURE RESEARCH DIRECTIONS 132

4.10 CONCLUSION 132

References 133

APPENDICES 142

APPENDIX A 143

Supplementary 1 (S1): Pre-registered protocol 144

Supplementary 2 (S2): Protocol amendments 147

Supplementary 3 (S3): Search strategies 148

Supplementary 4 (S4): Full text exclusion reasons 152

Supplementary 5 (S5): Codebook 158

Supplementary 6 (S6): Early development of categories 169

APPENDIX B 185

Supplementary 1 (S1): Selection of a qualitative methodology 186

Supplementary 2 (S2): Standards for Reporting Qualitative Research (SRQR) 187

Supplementary 3 (S3): Pain Management Unit feedback survey 189

Supplementary 4 (S4): Ethics approvals 191

Supplementary 5 (S5): Combined categories hierarchy chart 193

APPENDIX C 194

Supplementary 1 (S1): Triangulation stage 2 195

List of Figures

CHAPTER ONE

Figure 1 Conceptual frameworks related to social factors 6

CHAPTER TWO

Figure 1 PRISMA flowchart illustrating the screening process 33

Figure 2 Five analytical themes 45

CHAPTER THREE

Figure 1 Relative percentage of coding references for each category 90

Figure 2 Frequency of coding references across program content subcategories 91

Figure 3 Program content word frequencies 91

Figure 4 Frequency of coding references across group-related subcategories 92

Figure 5 Frequency of coding references within the group-related codes 92

Figure 6 Group-related word frequencies 93

Figure 7 Frequency of coding references across program structure subcategories 93

Figure 8 Program structure word frequencies 94

Figure 9 Frequency of coding references across facilitator subcategories 94

Figure 10 Facilitator word frequencies 95

Figure 11 Positive changes word frequencies 95

CHAPTER FOUR

Figure 1 Analytical themes from Study 1 and group-related subcategories and codes from Study 2 106

Figure 2 Social comparison theory and the identification/contrast model 123

Figure 3 Interaction and social comparison-based model 126

Figure 4 Hypothesised impact of inadequate interaction time 128

Figure 5 Hypothesised impact of negative comparison outcome 130

List of Tables

CHAPTER ONE

Table 1 Interpretations of social factors in relation to the biopsychosocial model 5

CHAPTER TWO

Table 1 Program characteristics 34

Table 2 Included study design and participant characteristics 38

Table 3 Critical appraisal skills programme of included studies 43

Table 4 Development of analytical themes 51

Table 5 Summary of author identified group related themes where exploration of group processes was a key aim 55

CHAPTER THREE

Table 1 Summary of programs and participants who completed the feedback survey 79

Table 2 Program content summary 81

Table 3 Number of responses to each question 84

Table 4 Qualitative categories and subcategories with supporting quotes 85

CHAPTER FOUR

Table 1 Program and study characteristics of studies with author-identified, social comparison-related themes 108

Table 2 Program characteristics of the six studies with more social code 110

Table 3 Program characteristics of studies where the code we needed more time for interaction was identified 113

Table 4 Program/participant variables and frequencies of the code not alone 115

Table 5 Program characteristics of the ten studies with author-identified, not alone related themes 116

Table 6 Study and demographic characteristics of the ten studies with author-identified, not alone related themes 117

Table 7 Program/participant characteristic variables and frequencies of the code more normal 119

Table 8 Program/participant characteristic variables and frequencies of the code feeling safe 120

Table 9 Methods for facilitating group processes in the ten studies from Study 1 with comparison related themes 129

Glossary of terms and abbreviations

Group-delivered program (the program): A program for people with chronic pain, delivered in a group setting. Throughout this thesis, *the program* refers to the entire program, which could encompass content-related factors (the intervention), program structure and dose, as well as other contextual factors, such as the setting, program facilitator, and group members.

The group itself (the group)

The group itself in this thesis refers to a narrower conceptualisation of group factors only, as distinct from the broader program. Group factors include the group size and mix of people (group composition), as well as group dynamics and interpersonal interactions (group processes).

ACT	Acceptance and Commitment Therapy
CBT	Cognitive Behavioural Therapy
CFT	Compassion Focused Therapy
Clin Psych	Clinical Psychologist
IASP	International Association for the Study of Pain
FMC	Flinders Medical Centre
GP	General Practitioner
MBCT	Mindfulness Based Cognitive Therapy
MBSR	Mindfulness Based Stress Reduction
Multi D	Multi-disciplinary
OT	Occupational Therapist
PMGP	Pain Management Group Program
PMP	Pain Management Program
PMU	Pain Management Unit
Psych	Psychologist
PT	Physiotherapist or physical therapist
QCA	Qualitative Content Analysis
SDH	Social Determinants of Health
SES	Socioeconomic status
SFBT	Solution Focused Brief Therapy
SSS	Subjective social status
SW	Social worker

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Abstract

This thesis explores consumer perspectives of group-delivered programs for people with chronic pain, with an emphasis on social factors and group processes.

The first study was a systematic review and meta-synthesis of qualitative literature, exploring consumer perspectives of group-delivered programs for chronic pain, specifically focusing on their experiences of the group itself. Synthesised findings from 94 included studies highlighted the importance of interaction and social comparison processes.

The second study was a qualitative content analysis of survey data from a South Australian pain management unit. It explored what 109 consumers valued most about the programs they participated in, identifying five key areas: program content, the group itself, program structure, the facilitator, and positive changes. The group itself was the second most prevalent category, underscoring its relative importance.

Together, these studies contribute to understanding social factors and group processes in group-delivered pain programs. A practical model, developed from these findings, may have broad implications for chronic pain clinical practice and the potential to inform group-based approaches for other chronic conditions. Recommendations include extending programs beyond six weeks, prioritising interaction, and monitoring social comparison outcomes. Future research could focus on refining the social aspects of group-delivered programs, developing facilitator training, and establishing evaluation tools to assess whether optimised group delivery improves patient experiences and outcomes.

Declaration

This thesis presents work carried out by myself and does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; to the best of my knowledge, it does not contain any materials previously published or written by another person except where due reference is made in the text; and all substantive contributions by others to the work presented, including jointly authored publications, are clearly acknowledged.



Marelle Wilson 07/10/2024

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If you feel safe in the area you are working in, you're not working in the right area. Always go a little further into the water than you feel you're capable of being in. Go a little bit out of your depth. And when you don't feel that your feet are quite touching the bottom, you're just about in the right place to do something exciting.

David Bowie

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Preface

This thesis consists of two studies, presented across four chapters. Chapter One introduces the thesis and provides an overview of the relevant literature on chronic pain, social factors and then group-delivered programs within a chronic pain context and more broadly. Chapter Two is a systematic review and meta-synthesis of consumer perspectives on the group itself in group-delivered programs for people with chronic pain. It is formatted for publication in *The Journal of Pain* (the Journal of the United States Association for The Study of Pain). Chapter Three is a qualitative content analysis of retrospective data exploring the importance of the group itself, as well as broader consumer perspectives of group-delivered pain management programs at the Pain Management Unit, Flinders Medical Centre. This chapter is formatted for publication in the *British Journal of Pain*. Chapter Four is a general, concluding discussion.

Conventions of Australian English have been used for consistency within the thesis, with tables and figures embedded in the text for ease of reading. A modified Vancouver (Sage Vancouver) reference style has been used throughout, with citation of literature references in the text using numbers that correspond to a numbered reference list. References are ordered numerically in order of citation. Each chapter contains its own reference list.

Appendices and supplemental material are included at the end of the thesis, including ethical approvals granted by the University of South Australia (UniSA) and the Southern Adelaide Local Health Area Network (SALHN) Human Research Ethics Committees.

CHAPTER ONE

Introduction

'Put down the weight of your aloneness and ease into the conversation…'

David Whyte

Chronic pain is complex, distressing, and profoundly life-altering for individuals and their social networks.[1] Group-delivered programs are frequently used in community and tertiary pain clinics,[2-7] offering benefits such as scalability, cost-effectiveness, and improved access. The group setting may contribute to outcomes, but social, group-related factors within group-based chronic pain programs remain under-explored and not fully understood.[8, 9] The following sections explore the current definitions and conceptualisations of chronic pain, social factors, group-delivered programs, and group-related social processes, in broader therapeutic contexts, and specifically within chronic pain.

1.1 CHRONIC PAIN

1.1.1 Definitions and terminology

The International Association for the Study of Pain (IASP) defines pain as '*an aversive sensory and emotional experience typically caused by, or resembling that caused by, actual or potential tissue injury*'.[10] Chronic pain is defined as pain that persists beyond three months, extending beyond normal tissue healing time.[11]

In 2019, the IASP successfully classified chronic pain as a disease within the International Classification of Diseases (ICD-11). Chronic pain is further categorised into *Chronic Primary Pain* (which is now considered a disease or condition) and *Chronic Secondary Pain*.[12] Chronic primary pain has no clear underlying condition that adequately accounts for the pain or its impact, and chronic secondary pain is pain linked to an underlying condition.[13] The IASP has classified chronic primary pain conditions as persistent pain occurring in one or more anatomical areas, associated with significant emotional distress or disability, and cannot be more accurately explained by another chronic pain condition. These conditions are categorised into five groups: chronic widespread pain (such as fibromyalgia), complex regional pain syndrome, chronic primary headache and orofacial pain, chronic primary visceral pain, and chronic primary musculoskeletal pain. Nociplastic, or pain system hypersensitivity are alternate terms used to describe this category of pain.[14, 15] Chronic secondary pain is defined as pain that arises as a symptom secondary to an underlying disease or condition. It persists for more than three months and is distinct from primary pain, which occurs without any clear underlying condition. Chronic secondary pain is classified into several categories, depending on the underlying causes. These include cancer-related pain, post-traumatic and post-surgical pain, neuropathic pain, headache and orofacial pain, musculoskeletal pain, visceral pain, and pain related to diseases of the nervous system, such as Multiple Sclerosis, or Parkinson's Disease.[12]

1.1.2 Prevalence

Pain is the most common reason people seek medical care, with osteoarthritis, back pain, and headaches among the top ten reasons.[16] Chronic pain impacts approximately 20% of the population worldwide, causing individual distress and placing considerable pressure on healthcare systems and society more broadly.[13] Over three million Australians were reported to be living with chronic pain in 2018, with 53.8% being women and 68.3% of working age.[17] A 2016 systematic review and meta-analysis estimated that between one-third and one-half of the population in the United Kingdom experience chronic pain, and in the United States, chronic pain affects one fifth of adults.[18, 19] Of the 50.2 million people in the US estimated to have chronic pain, 24.4 million (10% of U.S. adults) suffer high-impact chronic pain, leading to social and work limitations.[20, 21] Based on data from the US Centers for Disease Control and Prevention (CDC), women, people from lower socioeconomic backgrounds, military veterans, and those living in rural areas have higher prevalence rates of chronic pain.[22,23]

Low back pain and headache disorders are among the top three contributors of global years lived with disability.[24] A 2019 estimate from the Global Burden of Disease project indicates that musculoskeletal disorders alone affect approximately 1.71 billion people worldwide.[21]

1.1.3 Economic Burden

Chronic pain imposes a substantial economic burden. The recent classification of chronic pain as a disease within the International Classification of Diseases (ICD-11) recognises the significant impact of chronic pain and aims to improve data collection for research and funding purposes.

Annual costs to healthcare systems are estimated to exceed that of heart disease, cancer and diabetes combined.[20] In Australia, the 2019 Cost of Pain report estimated the cost of chronic pain to be $139.3 billion, with individuals bearing the largest share of these financial costs.[17] In the United States, the economic burden of chronic pain is estimated at $600 billion.[25]

1.1.4 Complexity

When pain persists, the connection between biological or physical factors (i.e. tissue damage), and pain becomes less direct,[26] implying more complex and multifaceted pain mechanisms.[13, 27, 28] Contemporary pain theories emphasise the role of the brain in generating the experience of pain, conceptualising pain as a protective response, rather than a direct indicator of tissue damage.[29] This means that pain is influenced not only by physical factors i.e. injury or tissue damage, but also by psychological and social factors, including thoughts, beliefs, memories, interpersonal relationships, social support, and context.[27, 28]

The biopsychosocial model, first proposed by Engel in 1977, argues that a biomedical model of disease is inadequate, and does not consider the important social, psychological, and behavioural dimensions of illness.[30] Since then, other biopsychosocial models have been conceptualised in the pain field.[28, 29, 31] Psychological factors such as affect (mood) and beliefs can influence pain outcomes.[27] Negative affect, including depression, anxiety, and anger can be both a consequence of and a risk factor for chronic pain.[27, 28] Self-efficacy, or the belief in one's ability to function despite pain, has been shown to reduce pain severity and distress, and improve function.[32] Catastrophising, characterised by repeated negative thinking and worrying about pain, is a risk factor for developing chronic pain and subsequent disability.[33] Fear of movement and re-injury, stemming from beliefs about pain and harm, can lead to activity avoidance, further disability, and social isolation.[34] Social factors have a bi-directional relationship with chronic pain, with these factors both predictive of pain and a consequence of it.[35-37]

1.1.5 Pain management models of care

Current best practice guidelines for chronic pain management encourage a multidisciplinary, personalised approach to address the complex nature of pain, using the biopsychosocial model.[22,38] Evidence supports pain science education,[26,39] exercise and physical activity (including in a group format), and psychological interventions like cognitive behavioural therapy (CBT) and acceptance and commitment therapy (ACT).[38]

Despite guidelines advocating for comprehensive, multimodal treatment approaches, many patients with chronic pain do not receive best practice, specialist interdisciplinary care. They are managed primarily with medication, including opioids, due to limited access to pain services, insufficient insurance coverage, or lack of provider training.[40]

For patients who attended a specialist pain service, data from 23,915 individuals across 75 adult specialist pain services in Australia and New Zealand (2014-2020) showed that most received an individual specialist appointment, and about half also participated in a group pain program (47%). Less than 3% received a procedural intervention. Overall, while 35% of all patients had a good outcome, one third experienced a poor outcome, with persisting moderate to severe symptoms across all clinical domains at the end of treatment. Patients more likely to experience poor outcomes after participation in pain management services were often unemployed (due to pain or other reasons), required an interpreter, had widespread pain such as fibromyalgia, experienced pain for more than a year, or attributed their pain to a workplace injury.[41]

Vulnerable populations, including older adults, children, and ethnic minorities may face additional challenges in accessing pain services due to socioeconomic factors, stigma, language barriers, or pre-existing health conditions.[22]

1.2 SOCIAL FACTORS

1.2.1 Definitions and terminology

When the IASP updated its definition of pain in 2019, it included an accompanying note stating, '*pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors*'.[10] Other proposed definitions also include explicit acknowledgement of the role of social factors, '*Pain is a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive, and social components*'.[42]

The definition of social factors within the biopsychosocial model does not have a clear, unified understanding, which complicates their definition, measurement, and interpretation.[43] Moreover, psychological and social factors are frequently merged conceptually, using the broader term *psychosocial*, which may dilute the distinct impact of social factors. Table 1 provides a summary of interpretations.

Table 1 Interpretations of social factors in relation to the biopsychosocial model

1st Author/year	Title	Terminology	Definition/scope
Gatchel 2007[28]	The Biopsychosocial Approach to Chronic Pain: Scientific Advances and Future Directions	Social	Activities of daily living Environmental stressors Interpersonal relationships Family environment Social support/Isolation Social expectations Cultural factors Medicolegal/Insurance issues Previous treatment Work history
Edwards 2016[27]	The Role of Psychosocial Processes in the Development and Maintenance of Chronic Pain	General psychosocial	Distress (depression, anxiety, emotional distress) Childhood traumatic experiences and post-traumatic stress disorder Social and interpersonal processes-social support, role of spouse, therapeutic alliance
		Pain specific psychosocial	Catastrophising Self-efficacy
Meints 2018[44]	Evaluating psychosocial contributions to chronic pain outcomes	Social/interpersonal factors	Social environment Social interactions Social support Therapeutic relationships
Rabbitts 2020[31]	A conceptual model of biopsychosocial mechanisms of transition from acute to chronic postsurgical pain in children and adolescents	Psychosocial	Emotional and cognitive factors Behavioural factors Parent and family factors

In their systematic review, Karran, Grant, and Moseley distinguished between proximal, individual-level social influences on pain and disability and the broader social conditions known as the social determinants of health (SDH).[37] SDH encompass the circumstances in which people are born, grow, live, work, and age, as well as the inequities in power, money, and resources that contribute to disparities in health outcomes.[45, 46] In contrast, individual-level social health factors include relationships, social support, and group membership.[47] Social capital is an additional conceptual framework referring to the resources available within communities through networks of relationships, norms of reciprocity, and social trust.[45, 48, 49] It is a community-level concept, reflecting the interplay between individual and broad societal elements in influencing health outcomes.[50, 51] Figure 1 summarises the conceptual frameworks related to social factors.

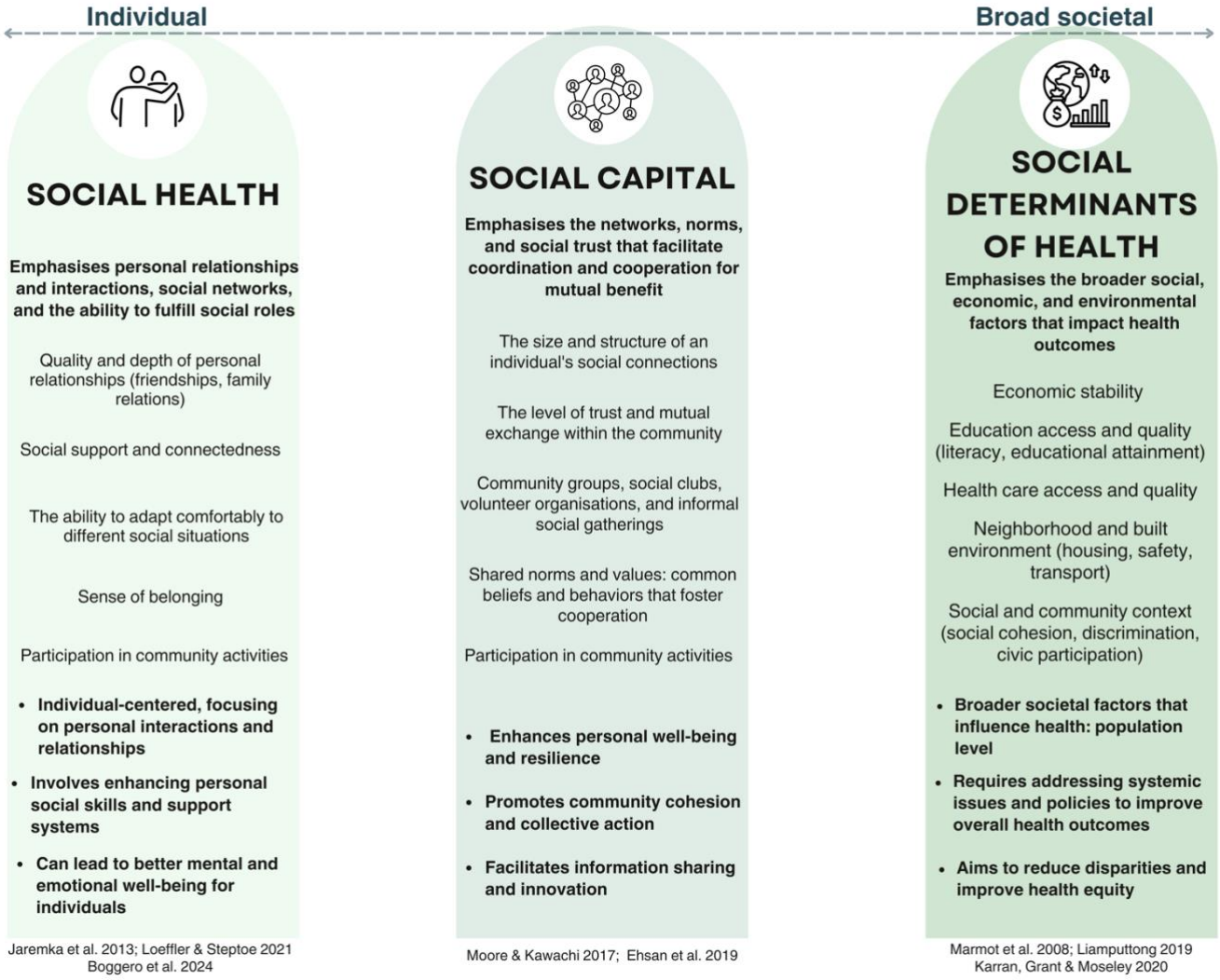


Figure 1 Conceptual frameworks related to social factors

1.2.2 Social factors and chronic pain

Chronic pain has been described as inherently social, in that it may be shaped by social causes, modulated by social interactions, and having social consequences.[36, 52] Chronic pain may be impacted by, and cause disruption across the following interconnected social domains:

- **Social support and interpersonal relationships**: the availability and quality of support from others, including emotional, informational, and practical assistance, and may relate to objective measures, or subjective perceptions of support. Strong social support networks help individuals with chronic pain cope better by providing empathy, advice, and practical help.[28, 44, 53, 54]
- **The social environment**: the context in which individuals live and interact, including relationships with family, friends, colleagues, work, and broader community networks.[28, 44, 53, 54]
- **Social roles and identity**: the roles individuals play in society, such as being a parent, worker, or community member. Chronic pain can impact a person's ability to fulfill these roles, affecting their sense of identity and self-worth.[55]
- **Cultural and societal influences**: the cultural norms, beliefs, and values that shape an individual's understanding and response to pain. Societal attitudes towards pain and disability can influence how individuals perceive their pain and seek treatment.[37, 56, 57]
- **Socioeconomic Status (SES)**: the economic and social position of an individual, which can affect access to healthcare resources, treatment options, and overall health outcomes.[37, 56, 58]
- **Subjective Social Status (SSS)**: an individual's perception of their own position within a social hierarchy, which can be influenced by various factors such as community standing, social roles, and relationships, rather than objective measures like income or education. It reflects how individuals see themselves relative to others, which can impact health and well-being.[59]

1.2.2.1 An under-explored dimension

Chronic pain may be conceptualised as a socially threatening experience, with potential loss of relationships, social roles, identity, economic stability, and perceived social standing.[60, 61] Despite the inclusion of social factors in more recent chronic pain definitions, these remain under-explored in pain research. A recent review highlighted the disparity in research focus, with significantly fewer studies examining social factors in pain compared to psychological and biological influences.[62] Consumer directed chronic pain resources include pain science facts to facilitate an understanding of pain mechanisms. Most include education on biomedical interventions such medication or injections, physical factors including exercise, nutrition and sleep, and psychological factors, such as managing stress and anxiety. Readily accessible information linking social factors with pain is limited.[63-65]

The 2021 UK National Institute for Health and Care Excellence (NICE) guidelines for chronic pain management have included a call for high-quality research into social interventions to guide future practice. Their review described social interventions as strategies aimed at improving the quality of life for individuals suffering from chronic pain by addressing the social challenges accompanying long-term pain conditions.[38] Examples provided in the review included social prescribing, cultural commissioning, case management, vocational rehabilitation, and befriending programs to reduce social isolation.

1.2.2.2 Loneliness

Associations between loneliness and chronic pain have been investigated,[8, 47, 66-73] where loneliness is conceptualised as the distressing subjective experience of disconnection, social isolation, and exclusion, with discrepancy between desired and actual relationships.[66, 74, 75] Loneliness is a significant, and growing global challenge,[67, 75] with consistent evidence linking loneliness and social isolation with worse health outcomes.[76-78] Boggero et al. examined the social functioning of young women with chronic pain conditions, finding that chronic pain negatively impacts friendships, social roles, leading to social isolation. Those with multiple overlapping chronic pain conditions experienced the greatest social impairments, highlighting the significant relationship between chronic pain and social health.[47] Lewis et al. examined the relationship between chronic illness (including chronic pain) and loneliness, finding that individuals with chronic conditions experience loneliness across multiple dimensions, feeling disconnected from themselves, others, and society, while managing illness-related limitations and societal pressure.[67] The authors cautioned that while community-based groups such as a walking group may be recommended as a remedy for loneliness, such groups may exacerbate feelings of disconnection for individuals with chronic pain, if others in the group do not have shared pain experiences.

1.2.2.3 Self-conscious emotions linked to social factors: guilt, shame, and embarrassment

In addition to social isolation and loneliness, experiences of invalidation and self-conscious emotions such as guilt, shame, stigma, and embarrassment, are frequently reported in chronic pain literature.[47, 60, 61, 66, 67, 69, 70, 79-101] A systematic review of chronic pain-related guilt highlighted that guilt often stems from patients feeling responsible for their pain or believing they were letting others down. Guilt can be exacerbated by societal stigma and the uncertainty surrounding the diagnosis and the legitimacy of chronic pain conditions. The review found that guilt is associated with more pain, greater functional impairment, and poorer psychological and social functioning.[88]

Individuals with chronic pain experience higher levels of shame and guilt compared to pain-free controls.[90] Invalidation of pain by medical professionals, family, or friends can exacerbate

depression, by leading to feelings of worthlessness and social withdrawal.[80] The emotional harm caused by invalidation, such as not being believed or having one's pain dismissed, can lead to feelings of shame, which in turn contribute to depressive symptoms, with invalidation from family found to be the most strongly linked to both shame and depression.[80]

A review of stigma experienced by those with functional somatic syndromes (including fibromyalgia) highlighted that stigma is frequently experienced and is linked to lower quality of life and increased rates of depression.[97]

1.3 GROUP-DELIVERED PROGRAMS

1.3.1 Group programs for chronic pain

Group-based programs for chronic pain are commonly used in tertiary pain unit models of care,[4-7] and offer benefits such as scalability, cost-effectiveness, and improved access, including the option for delivery via videoconferencing.[102, 103] A survey of Australian pain services found that 83% offered multidisciplinary, allied health-led pain management group programs (PMGPs),[4] and there were similar trends in North America and Europe.[5,6]

PMGPs aim to improve the long-term physical, emotional and social dimensions of health and functioning for people with chronic pain,[104] however there have been inconsistent findings regarding efficacy.[38,104] While the 2021 NICE guideline recommended supervised group exercise programs, it did not make a recommendation for or against pain management programs more broadly, although the evidence review considered both individual and group-delivered programs together.[38]

1.3.1.1 Group vs individual delivery

A study comparing group and individual delivery of CBT for chronic pain found they were equally effective, highlighting the potential access and cost benefits of group delivery.[105] Other studies have shown that group delivery may lead to better outcomes. A systematic review and meta-analysis exploring the effectiveness of psychological interventions in older adults with chronic pain found group-based therapy was more effective than individual therapy.[106] Group-based pain science education resulted in greater reductions in fear of movement compared to individual delivery of the same intervention for chronic musculoskeletal pain,[107] and participants who received group education for rheumatoid arthritis experienced more benefits than those who received individual education.[108]

1.3.1.2 Content related factors

Content related factors include pain science education curriculum, the theoretical orientation of psychological interventions (i.e. CBT or ACT), or the type of exercise (i.e. yoga, hydrotherapy, or

strength training). In a psychotherapy context, these may be referred to as *specific* factors, which are the distinct interventions within a therapeutic model designed to target particular aspects of a condition, providing the structured and focused components of treatment.[109] Cognitive behavioural therapy (CBT), acceptance and commitment therapy (ACT), mindfulness-based therapies, self-management, education, and physical activity are frequently included as part of PMGPs.[110-113] Psychological approaches and theoretical orientation have been compared and evaluated, with no significant differences identified,[112,114] although a recent meta-analysis by Alldredge and colleagues showed non-CBT approaches (mindfulness-based stress reduction, ACT, and expressive–supportive approaches) produced larger effect sizes in reducing pain when compared to CBT.[115]

1.3.1.3 Common factors

Common factors (also known as *non-specific*, or *contextual* factors*)* refer to factors that contribute to therapeutic outcomes beyond content related, specific factors. These could include patient characteristics, facilitator characteristics, characteristics of the dynamic between the patient and practitioner (therapeutic alliance), program structure and dose (frequency, session length, program length), the therapeutic environment (hospital or community), or group factors.[109,116-118] Group factors relate to the group structure, such as the group size or mix of people (group composition), or the group dynamics and interpersonal interactions (group processes).[9] Group factors, including both composition and group processes are referred to throughout this thesis as *the group itself*.

A review and meta-analysis of PMGPs by Romm et al. indicated that it was program structure and design factors that influenced pain outcomes more than content-related factors.[119] The authors found that PMGPs achieved optimal outcomes with 10-13 sessions, in groups of 8-10 participants.[119] Their group size finding was congruent with Wilson and colleagues, who also reported that groups of 8-12 participants were associated with more positive outcomes.[120] Studies have explored other group composition characteristics such as the psychological status of individual participants and the group's gender balance, in relation to pain related outcomes. The mix of psychological profiles did not seem to impact outcomes,[121,122] however gender composition was more significant, with female-dominated, or female only groups associated with improved outcomes.[115,120] Romm and co-authors also concluded that while the content and structure of PMGPs is important, the hidden effects of other therapeutic contextual factors, including group processes (group dynamics, group processes, or the group climate) may be even more crucial for enhancing outcomes, calling for further research into their role in chronic pain programs.[119]

1.3.2 Group-related research in other contexts

When considering group-delivered programs more broadly, distinct group styles can be conceptualised.[123]

1 *Psychotherapy* for psychiatric and substance related disorders where the development of relationships (interactions between group members and the group as a whole) is the primary therapeutic mechanism.[124,125]
2 *Consultation* or *task related*, which includes boards, committees, and clubs (and classrooms, if there is a common goal or project). The aim being to interact cohesively and collaboratively while producing an end result.[126]
3 *Skills training*, which uses a group setting to impart skills to an individual. There is no expectation that participants will work together in the future and a group-based method of instruction aims to give participants skills that will help them function in life more effectively.[127]
4 *Psycho-educational*, which is a hybrid of an academic or skills training class and a counselling or therapy group and can have characteristics of each.[128]

In educational settings, cooperative, task related learning groups have been extensively researched, demonstrating benefits in academic achievement and social skills development.[129]

In a psychotherapy context, group-delivered programs are frequently used and are effective for a range of psychological disorders.[130,131] Substance abuse treatment programs, such as those offered in group settings, have been found to provide significant support and improved recovery rates.[132,133]A significant body of research has systematically investigated the dynamics of these therapeutic groups, identifying factors that contribute to their effectiveness.[125] In recovery groups such as Alcoholics Anonymous (AA), the sense of belonging and mutual support among members is considered pivotal for sustained recovery, with research showing that the communal nature of these groups helps individuals develop coping strategies, build resilience, and maintain long-term sobriety.[134] In psychotherapy groups, cohesion[125] has been consistently linked to improved therapeutic outcomes, where cohesion is defined as the sense of belonging, acceptance, and mutual support that develops among members of a group.[135] This construct encompasses both the emotional bonds that members form with each other and their shared commitment to the group's goals and activities. These are considered essential for the group's overall effectiveness and individual members' therapeutic outcomes. Cohesive groups exhibit lower dropout rates and higher engagement levels, which are essential for effective therapy.[125]

Group identity, defined as the shared sense of purpose and collective identity within the group, plays a crucial role in enhancing members' commitment and motivation. Empirical studies have demonstrated that when individuals identify strongly with their group, they are more likely to participate actively and derive greater benefits from the group experience.[136] This shared identity fosters a supportive environment where members can openly share their experiences and work towards common goals.

Yalom's therapeutic factors, including instillation of hope, universality, imparting information, altruism, and group cohesiveness, are frequently referenced in group process literature.[130] These factors are measured using various psychometric instruments. For instance, cohesion is often assessed using tools like the Group Climate Questionnaire (GCQ),[137] and the Therapeutic Factors Inventory (TFI) evaluates the presence and impact of Yalom's factors in group therapy settings.[138]

1.3.3 Group processes in chronic pain programs

Beyond program content and group composition factors, it is becoming recognised that group process related social factors in the group itself may be important predictors of improvement in PMGPs.[104,117,119,139,140] Connections between pain related outcomes and group processes have only been examined relatively recently. Group process related constructs extrapolated from psychotherapy and social psychology literature,[135,141] such as group cohesion,[137] sense of belonging,[142] and group identity[143] have been evaluated, but with inconsistent associations with pain related outcomes.[9,140]

Most evidence-based PMGPs are conceptualised as psychoeducational (including CBT, ACT, and mindfulness-based approaches) or skills training, with the focus on education, exercise, and the individual implementation of practical strategies, rather than the development of relationships.[113,114,144] It is unclear whether using theoretical frameworks and group process related outcome measures from group psychotherapy research is appropriate in PMGPs which do not emphasise the development of relational dynamics so central to therapeutic and recovery groups. Evaluating group processes in pain programs provides challenges, as group factors and social group process interactions are not homogeneous within diverse programs and it is possible that social and interpersonal interactions were not featured in those PMGPs. Moreover, the evaluation tools used may not have captured social outcomes, or reflected what matters most to consumers in a pain program context.[35,145,146]

Social factors are acknowledged in contemporary definitions of chronic pain, and individuals with chronic pain report experiences of social distress.[47, 60, 61, 66, 67, 69, 70, 79-101] PMGPs may be well placed to

address social factors and embed social interventions aimed at reducing this distress. These are not currently addressed in group pain program guidelines, which provide recommendations on content and structure, but not social factors, group processes, or the social dynamics within these programs.[38,104] While factors like program content, group size, and composition have shown some connections to pain related outcomes, the impact of group processes remains uncertain.[9,119]

If we are to improve outcomes and understand how to measure and optimise group social processes within PMGPs, there are clear knowledge gaps. To avoid translational failure, it is critical to include consumer perceptions.[146] The development of consumer-driven, social group process frameworks, evaluations, and practice guidelines may lead to improved outcomes in group-delivered, chronic pain programs.

1.4 SUMMARY OF AIMS, RESEARCH QUESTIONS, AND OVERVIEW OF THESIS STRUCTURE

Given ambiguity related to social factors and group processes in group-delivered pain programs, rather than relying on existing frameworks from other domains, or making assumptions, we wanted to privilege the consumer voice and explore their perspectives. Qualitative research has been recognised as a valuable method for deeply exploring patient perspectives.[147]

Uncertainty about which social group process constructs we should be measuring and promoting in group-delivered pain programs prompted the development of the first research question:

> *What are the perspectives and experiences of consumers relating to the group itself, in group-delivered programs for people with chronic pain*?
>
> This question is explored in **Chapter Two**, in a systematic review of the literature submitted for publication (under review)*:*
>
> **Marelle Wilson,** Dianne Wilson, Amelia Searle, Shylie Mackintosh: The perspectives of consumers relating to the group itself in group-delivered programs for people with pain: a systematic review and meta-synthesis

To understand how important the social aspect of the group itself was to consumers, compared to other program components, and how we might improve outcomes in group-delivered pain programs at a local tertiary pain management unit, three further research questions were developed.

What can qualitative feedback from consumers of group-delivered, pain management programs tell us about what matters to them?

How frequently did participants highlight the group itself compared to other aspects of the program in group-delivered pain management programs?

How could group pain programs be structured to address consumer preferences, improve access, and optimise program outcomes?

These questions are explored in **Chapter Three**, in a qualitative content analysis submitted for publication:

Marelle Wilson, Amelia Searle, Dianne Wilson, Shylie Mackintosh: Consumer perspectives of group delivered, pain management programs: A qualitative content analysis of survey data

The final chapter of this thesis, **Chapter Four** integrates and discusses the collected findings of the thesis.

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CHAPTER TWO

Consumer perspectives of the group itself in group-delivered programs for people with chronic pain: a systematic review and meta-synthesis

Friendship is born at that moment when one person says to another, 'What! You too? I thought I was the only one.'

C.S. Lewis, *The Four Loves*

Chapter Two is currently under review with the Journal of Pain:

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Consumer perspectives of the group itself in group-delivered programs for people with chronic pain: a systematic review and meta-synthesis

Keywords: Chronic Pain; Group programs; Qualitative methods; Social factors; Consumer perspectives; Systematic reviews

Marelle K Wilson [1] (ORCiD 0000-0002-4552-1219)

Dianne J Wilson [1] (ORCiD 0000-0003-2298-3071)

Amelia K Searle [2,3,4] (ORCiD 0000-0002-8602-0146)

Shylie F Mackintosh [1] (ORCiD 0000-0003-4200-5363)

[1] Innovation, IMPlementation And Clinical Translation (IIMPACT) in Health, University of South Australia, Kaurna Country, Adelaide, Australia

[2] Flinders Medical Centre Pain Management Unit, Southern Adelaide Local Health Network, Bedford Park, Australia

[3] Faculty of Health, Charles Darwin University, Darwin, Australia

[4] College of Medicine and Public Health, Flinders University, Bedford Park, Australia

*Corresponding author: Marelle K Wilson

Abstract

Group-delivered programs for chronic pain are evidence-based and frequently used, yet the contribution of the group itself remains unclear, with no integrated findings on consumer perceptions of the social aspects of these programs. The aim of this systematic review was to search and synthesise qualitative data specifically related to the group itself in studies investigating group-delivered programs for chronic pain (PROSPERO, CRD42023382447). We searched MEDLINE, EMBASE, EmCare, PsycINFO, Scopus, and CINAHL, and included qualitative studies that explored the experiences of consumers with chronic pain who had attended a group-delivered program. We assessed methodological quality using the Critical Appraisal Skills Programme checklist and meta-synthesis was guided by a thematic synthesis approach. Ninety-four studies were included, with 1814 participants. Programs were predominantly multi-component, with diversity in group styles and facilitators. Five analytical themes were generated: (1) *comparison processes occur when there are opportunities to listen to and observe each other, and this is usually helpful*; (2) *a chance to experience feeling normal, not alone, and safe*; (3) *time for direct interaction between participants can be therapeutic and help learning*; (4) *group experiences can transform thinking, emotions, and social behaviour that have impact beyond the program*; and (5) *the group itself is valued, and its loss can be difficult*. Findings highlighted the importance of interaction and social comparison with consumer participation and co-design recommended for future research.

Introduction

Chronic pain poses a significant health challenge, impacting approximately 20% of the population worldwide, causing individual distress and placing considerable pressure on healthcare systems and society more broadly.[1] Epidemiological studies indicate that low back pain and headache disorders are among the top three contributors of global years lived with disability.[2] A 2019 estimate from the Global Burden of Disease project indicates that musculoskeletal disorders affect approximately 1.71 billion people worldwide, highlighting significant demand for rehabilitation services.[3]

The International Association for the Study of Pain (IASP) recently updated its definition of pain: 'an aversive sensory and emotional experience typically caused by, or resembling that caused by, actual or potential tissue injury', with an accompanying note, 'pain is always a personal experience that is influenced to varying degrees by biological, psychological, *and social factors*'.[4] This revision reflects growing evidence supporting biopsychosocial models of pain and that *social factors* can also shape an individual's pain experience.[5,6] This definition contrasts with current treatments, which rarely address the full complexity of chronic pain.[7] While biological and psychological components have received considerable research attention, social factors remain comparatively underexplored.[8]

Group-delivered programs for chronic pain are frequently used, evidence-based interventions,[9-11] although there are inconsistent findings regarding efficacy.[11,12] Programs may be multi-component, interdisciplinary pain management programs (which typically include strategies to promote behaviour change , cognitive behavioural therapy, education, skills training, and exercise),[11] or single component programs such as physical activity or exercise,[13] psychotherapy,[14] mindfulness,[15] or arts-based programs, such as music, dance, or storytelling.[16, 17] The group format adds a social dimension[18] and there are additional scale, cost, and access benefits, including virtual delivery via videoconferencing.[19, 20] The delivery style, dose, and content of group-delivered chronic pain programs has been explored.[21-25] It has been acknowleged that non-specific factors, (also referred to as contextual, or common factors) including group processes, may be important predictors of improvement in group-based pain management programs, where group processes refer to the social and interpersonal interactions that occur among group members.[11, 26-28]

Connections between group process contributions and pain-related outcomes has only been examined relatively recently. Group process related constructs extrapolated from psychotherapy and social psychology literature,[29, 30] such as group cohesion,[31] have been evaluated, with inconsistent associations with pain related outcomes.[28, 32] Evaluating group processes in pain programs provides challenges however, as group process components are not delivered homogeneously within diverse

programs, and evaluation tools may not capture individual social outcomes, or reflect what matters most to consumers in the context of programs for people with chronic pain.[18, 33, 34]

Qualitative literature exploring consumer perspectives related to group-delivered programs for chronic pain consistently reflects the importance of social interactions within the group (referred to in this review as 'the group itself'). Understanding what consumers do and don't value about the group itself may assist clinicians, researchers, and consumers to co-design group-process frameworks, evaluation tools, and practice guidelines which are patient-centred,[18, 34] and may lead to improved outcomes in group-delivered programs for people with chronic pain.

There are many qualitative studies that include consumer perceptions of the group itself in programs for people with chronic pain, but there are currently no integrated findings on this topic. The aim of our review was to systematically search and synthesise qualitative data, specifically related to the group itself, in studies investigating group-delivered programs for chronic pain.

The clinical significance of understanding, optimising, and evaluating group social processes, as identified by the consumer, is currently under-explored.

Review Question

'What are the perspectives and experiences of consumers relating to the group itself, in group-delivered programs for people with chronic pain?'

Method

The protocol for this review was registered on the International Prospective Register of Systematic Reviews (PROSPERO, CRD42023382447) (Appendix A: S1). During the review process, we made minor amendments to the protocol in order to increase the inclusivity of our review (Appendix A: S2). Reporting is in accordance with the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) statement,[35] and the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) protocol.[36]

Search strategy

The search strategy was developed using PICOS[37] with the assistance of an information specialist using medical subject headings and key words relating to 'chronic pain', 'pain management', 'group' and 'qualitative research' (full search strategies are available, Appendix A: S3).

A preliminary search of the Cochrane Database of Systematic Reviews and the JBI Database of Systematic Reviews and Implementation Reports did not identify a systematic review on this topic.

The following databases were searched from their inception to February 2023: MEDLINE (via Ovid), EMBASE (via Ovid), EmCare (via Ovid), APA PsychINFO (via Ovid), Scopus (via Elsevier), and CINAHL Complete (via EBSCOhost). Digital theses were searched using ProQuest and the University of South Australia library. An internet search was performed on 28/02/2023 using Google Scholar (first 250 references) in Adelaide, Australia. We reviewed the reference lists of key studies, and contacted researchers with expertise relevant to this review, to request studies that might meet our inclusion criteria.

Eligibility criteria

Studies were included if they qualitatively explored the experiences of consumers with chronic pain, who had attended a group-delivered program (four or more participants), conducted for six hours or more. A recent meta-analysis reported that 5-10 participants is the average size for groups in chronic pain programs,[14] with larger groups potentially offering better group and pain related outcomes,[38] therefore we set the minimum number of participants in the group at four. If the number of participants in the group(s) was not reported, the study was included if the intervention was described as group-delivered, and findings referred to several other people in the group. Programs delivered over multiple days are more typical,[14] but studies exploring single day programs were included.

We limited our criteria to programs where there was opportunity for participants to interact in real time. We did not distinguish between programs delivered in person (face to face), or via videoconferencing. Studies were excluded if groups did not include a facilitator or program focus (i.e. support groups), if an online program was self-paced (delivered asynchronously without the opportunity for direct interaction), if there was a rolling intake (i.e. not a cohort), if only an abstract was available, or if the study was not published in English. Interventions that included both individual and group delivery were excluded unless they reported qualitatively on the group component separately.

Mixed methods studies were included if there was adequate reporting of the qualitative component. We included studies that used all types of qualitative data collection (focus groups, individual interviews, or open-ended survey questions) or analysis approaches (i.e. thematic analysis, grounded theory, framework analysis, phenomenological analysis).

We did not apply limits on publication date. Digital theses were included but grey literature was excluded.

Screening and selection

Search results were exported into Endnote™ reference manager software (Clarivate Analytics, Philadelphia, USA), before the file was exported to Covidence™ (Veritas Health Innovation Ltd., Melbourne, Australia), where duplicates were removed. Two reviewers (MKW and AS, DW, or SM) independently checked titles and abstracts for eligibility before full text versions were examined by two independent reviewers (MKW and AS, DW, or SM). At each stage of screening, disagreements between reviewers, including the reason for exclusion, were resolved by discussion, or when required, arbitration by a third reviewer.

Once all studies eligible for inclusion were identified, we assessed whether the high number of included studies was likely to represent a problem for the analysis and considered selecting a sample of studies. A sampling strategy based on methodological limitations, or data collection methods would have resulted in the exclusion of key studies relevant to our review question, so all eligible studies were included in the synthesis.

Data extraction

Data extraction was conducted by one reviewer (MKW), with a second reviewer (SM) extracting a selection of studies for consensus and fidelity checking. A customised data extraction form within Covidence™ was developed, with categories including publication specific details (title, year of publication and author) and contextual data (details about participants, the intervention, methodology, recruitment, data collection and analysis).[39]

Primary themes and subthemes were extracted from all studies, noting whether themes were group related or not. Social, group-related quotes (as distinct from program-related quotes such as the facilitator or program content) from participants from anywhere in the paper (the abstract, results or discussion section) were extracted verbatim.[40]

Critical appraisal

The Critical Appraisal Skills Programme (CASP) guideline, a 10-question checklist, was used to appraise the methodological quality of included studies.[41] One reviewer appraised each study (MKW) with an independent assessment undertaken by a second reviewer (AS, DW or SM) for a selection of studies (35%). Any conflicts were discussed, and consensus reached.

Data synthesis

A thematic synthesis approach was chosen after consideration of the RETREAT criteria (review question, epistemology, time, resources, expertise, audience, and type of data).[42]

Thematic synthesis is an established method of qualitative synthesis,[43] commencing with line-by-line, inductive coding of the findings of primary studies, followed by organisation of codes into related areas to construct 'descriptive' themes, and the development of 'analytical' themes. This method transparently reports the descriptive and interpretive levels of the synthesis,[40] and enables reasoned hypotheses about intervention need, appropriateness and acceptability.[44]

Extracted qualitative data were imported into NVivo™ software (Lumivero™, version 14, 2023) and study and participant details were entered into Microsoft® Excel® (Microsoft Corporation, version 2308) to facilitate the process of analysis and synthesis.

Coding

Line-by-line coding of group-related, consumer quotes from an initial selection of three studies was conducted inductively and independently by all reviewers for discussion. Consensus was reached on the early development of codes. The remaining studies were then inductively coded in NVivo™ v14 by one reviewer (MKW).

Group-related primary themes and subthemes that had been developed by the original study authors were coded (referred to herein as 'author-identified themes') but analysed separately for triangulation purposes (rather than included with the quotes), to ensure we privileged the consumer perspective over interpretations potentially influenced by theoretical frameworks.

Developing categories, descriptive and analytical themes

By reviewing the author identified, group-related themes and subthemes, similar concepts were initially grouped together into broad categories. This was refined through discussion and consensus with all reviewers and was undertaken using NVivo™ 14, and more traditional paper methods (index cards, sticky notes, and mind mapping). This process was then repeated with the codes generated from group-related, consumer quotes. This was an iterative process, where we continuously went back to the data, and collapsed, or developed new codes, as we organised categories. We considered the frequency of codes within each broad category, and generated word frequency and hierarchy charts using NVivo™ 14 analytic software. The categories created from the author identified themes were compared with those from the consumer quotes for initial triangulation.

Codes from multiple categories were drawn together to develop descriptive themes and subthemes. Interrelated descriptive themes were integrated to generate the final analytical themes, which were discussed by all reviewers. The developed analytical themes were then compared with findings from included studies where exploration of group process was a stated core aim, for fidelity checking and further triangulation.

Descriptive themes, along with supporting narratives, and the final analytical themes were organised in a table format, clearly demonstrating the development process.

Review author reflexivity

The review team was composed of researchers with health professional and research expertise. Three reviewers were physiotherapists, and one a research scientist (with a background in psychology) working within a tertiary pain management unit. Two reviewers had extensive experience in both chronic pain and facilitating groups. While patients and the public were not involved in the design of this study, one reviewer had lived experience with chronic pain and the consumer perspective was privileged in our data extraction and synthesis processes. Three reviewers were experienced researchers, two in the pain field, two in qualitative research approaches. This diversity contributed to the conduct of this review, and for guiding our inductive analysis approach. The review authors debated and discussed inclusion criteria, quality assessment, coding, and analysis findings, to reach consensus.

Results

Electronic searches retrieved 6841 titles, with 11 additional titles added from citation searching and contacting authors. After the removal of duplicates, 3742 titles and abstracts were screened, with 282 studies included for full text assessment. After full-text screening, 94 studies were included in the final synthesis (Fig 1). The characteristics of the included studies are presented in Tables 1 and 2. Excluded studies and reason for exclusion are available in Appendix A: S4.

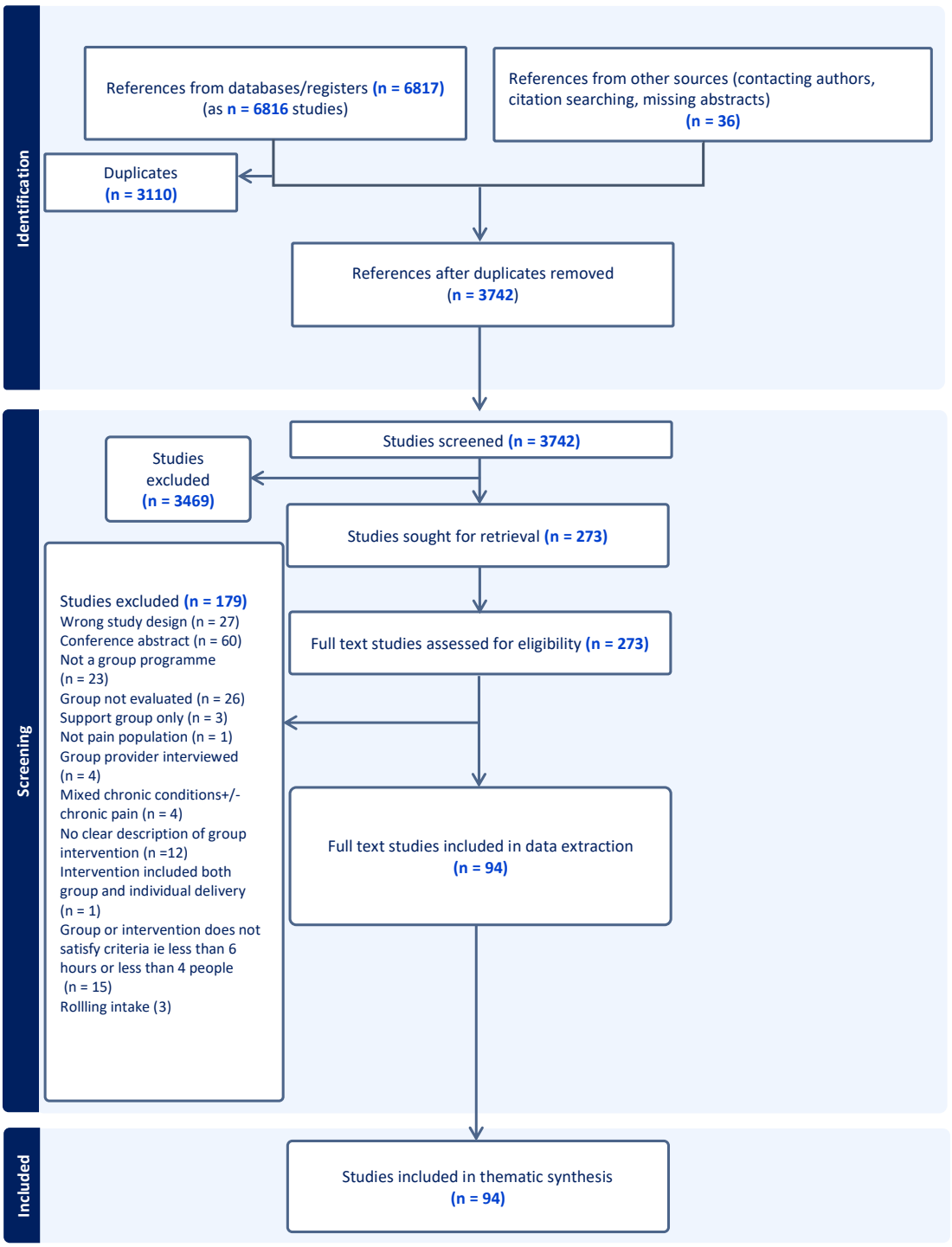


Figure 1 PRISMA flowchart illustrating the screening process

Table 1 Program characteristics

First Author/ Year	Program	Diagnosis	Facilitator	Group size	Delivery mode	Group process component	Session duration	Length of program
Ainsley 2021	PMP*	Facial Pain	Multi D* team OT*, clin psych*, PT*, pain consultant	10	In person	Guided group discussion	3 hrs	8 sessions over 8 wks + follow up at 6 months
Allen 2000	PMP	Mixed	Multi D team Clin psych, anaesthetist, nurse, OT, PT	10	In person	Not reported	30–90-min classes	4 wks (in-patient)
Andersen 2014	Exercise group + self-management program	Mixed	PT, Peer	Ex = 10 SM = 12-18	In person	Classes are highly participative	Exercise = 50 mins SM = 150 mins	Exercise 30 sessions over 10 wks SM 6 sessions over 6 wks
Arfuch 2021	PMP	Fibromyalgia	Multi D team GP*, PT, psych*, nurse	Not reported	In person	Not reported	2 hrs	12 sessions over 12 wks
Arfuch 2022	PMP	Fibromyalgia	Multi D team GP, PT, psych, nurse	10-12	In person	Not reported	2 hrs	12 sessions over 12 wks
Aymerich 2022	PMP; ACT* based	Mixed	Multi D team	7-8	In person	Encouraged interaction and sharing of experiences between group members	Not clear Group Physio 2 hrs per day	3 wks (in-patient)
Barrett 2021	DPM-Dialectical Pain Management	Mixed (on opioids)	Counsellor/SW*	6-9	In person	Interactive format. The therapist provided explanations and examples, frequently asking questions and soliciting input from group members to validate their experience	1 hr 45 mins	8 sessions over 8 wks
Beal 2009	PMP; Attention control group	Fibromyalgia	Nurse and peer/SW (with FMS)	8-12	In person	Group discussion	2 hrs	8 sessions over 8 wks
Booth 2022	PMP	Mixed	Multi D team	6-8	Telehealth/ teleconferencing	Informal meeting before the program. Virtual end-of-day social gathering to discuss program learnings	2.5 hrs group time per day	3 wk intensive (4-5 hrs per day)
Bourgault 2015	PMP Self-management	Fibromyalgia	Multi D team	8	In person	Discussion plus 15-min break when participants and could socialise	2.5 hrs	9 sessions over 6 months (first 8 over 11 wks, then final at 6 months)
Bradt 2016	Vocal Music Therapy	Mixed	Music therapist (expertise in chronic pain)	6-8	In person	Circle songs: call-and-response interactions for emotional expression and creative connection. Vocal improvisations led to discussions on personal struggles and insights, sometimes evolving into spontaneous singing to affirm group discussion ideas	1 hr	8 sessions over 8 wks
Braverman 2023	PMP	Mixed	Multi D team	6-10	In person	Not reported	3 hrs	10 sessions over 10 wks
Bremander 2009	PMP	Mixed	Multi D team Physician, psych, OT, PT	6-8	In person	Not reported	not clear	3 wks full time, follow up 3 & 6 months
Bridgman 2021	PMP	Mixed	Multi D team	10	In person	Group discussion	1 hr as group	6 sessions over 6 wks
Brintz 2020	Mindfulness	Mixed	Psych	6-9	In person	Not reported	1.5 hrs	4 sessions over 4 wks
Brotto 2013	PMP	Provoked vestibulodynia	Psych	Not reported	In person	Not reported	2 hrs	4 sessions over 8 wks
Brown 2022	Compassion based	Mixed	Psych	4	Telehealth/ teleconferencing	Not reported	1.5 hrs	8-10 wks
Bruns 2019	PMP	Mixed (on opioids)	Multi D team	9-19	In person	Not reported	2 hrs	12 wks
Bryl 2021	Pain management program (PMP)	Mixed	Multi D team	4	In person	Aimed for a supportive, respectful environment where all participants were heard and validated. Experienced patients mentored newcomers, creating a welcoming atmosphere and opportunity to serve in the role of helper and healer instead of just patient. Sessions were loosely structured for open discussion and sharing, with every third session being 'patient-directed' with no set topic	1 hr	Ongoing, 27 wks a year
Carpenter 2006	Yoga/Tai Chi	Osteoarthritis	Yoga/Tai Chi teacher	15	In person	Not reported	40-50 mins	18 sessions over 8 wks
Casey 2020	ACT*	Mixed	Multi D team	10	In person	Group discussion and problem solving	3.5 hrs (2hrs ACT, 30 mins education and 1hr exercise)	8 sessions over 8 wks
Cattanach 2021	Mindfulness, Cognitive therapy, and MBCT*	Low back pain	Clin Psych	5-6	In person	Guided inquiry into participants' experiences	2 hrs	8 sessions over 8 wks
Chen 2023	Mindfulness-Based Chronic Pain Management	Not reported	OT	8-10	In person	Not reported	2.5 hrs	12 sessions over 12 wks
Clarke 2017	ACT	Osteoarthritis	Psych	4-6	In person	Not reported	1.5 hrs	6 sessions over 6 wks
Collins 1998	PMP	Mixed	Multi D team Anaesthetist, PT, SW, psych, OT, psychiatry registrar	5-11	In person	Group discussions	7 hrs	3.5 wks (in-patient)
Cornelio-Flores 2018	PMP	Mixed	Unclear (clinician)	5-11	In person	Facilitated discussions let participants share thoughts on practices, helping correct health misinformation and giving them control. They shared past healthcare experiences, what worked or didn't work	Not clear	9 sessions over 9 wks

Dargan 2014	SFBT*	Mixed	Multi D team	10	In person	Icebreaker Focus on discussion, encouraging participants to share what works for them individually. Facilitators take a tentative approach, waiting for patient invitation, leading to rich conversations. They allow space and time for listening and acknowledgment	2 x 1 hr exercise and 1 x 3 hr education/ discussion	24 sessions over 8 wks
Day 2011	CBT* and Education	Mixed	Psych	3-4	In person	Interactive group discussion	1.5 hrs	10 sessions over 10 wks
Day 2014	MBCT	Headache	Psych	9-12	In person	Therapists sought to maximize rapport, group cohesion, and discussion related to the weekly topics	2 hrs	8 sessions over 8 wks
Dysvik 2014	CBT	Mixed	Two counsellors, volunteer	11	In person	Not reported	3 hrs	8 sessions over 8 wks
Egan 2017	PMP	Mixed	Multi D team	8-10	In person	Not reported	6 hrs	12 days over 4 wks
Ernstzen 2022	PMP	Mixed	Not reported	4-7	Telehealth/ teleconferencing	Share pain story	1 hr	6 sessions over 6 wks
Furnes 2014	CBT	Mixed	Nurse, trained peer	10-12	In person	Supervised dialogue	Not reported	8 sessions over 8 wks
Furnes 2015	CBT	Mixed	Nurse	9-13	In person	Not reported	5 hrs	8 sessions over 8 wks
George 2017	MBSR* and matched control	HIV/AIDS related pain	Counsellor/SW	15	In person	Group discussion Interactive rather than didactic format	Not stated (MBSR typically 2.5 hrs)	8 sessions over 8 wks
Glynn 2020	Mindfulness	Neuropathic pain in cancer survivors (secondary to treatment)	Mindfulness teacher	19	Telehealth/ teleconferencing	Group inquiry	2 hrs (plus one 3hr session)	9 sessions over 8 wks
Goksor 2022	PMP	Mixed	Multi D team PT, OT	6-10	In person	Interactive group-discussions	2 hrs	4 wks group education (then 10 wks individual activity)
Gooding 2020	CFT*	Mixed	Psych	5	In person	Not reported	2 hrs	12 wks
Gray 2022	Mindfulness for Health (Breathworks)	Mixed	Multi D team	Not reported	In person	Discussion	2.5 hrs	8 sessions over 9 wks
Gustafsson 2004	PMP	Mixed	Multi D team	7-8	In person	Group discussion	Full day	13 sessions over 12 wks
Haraldseid 2014	CBT	Mixed	Not reported	Not reported (6+)	In person	Not reported	Not reported	8 sessions over 8 wks
Harrison 2012	ACT	Mixed	Multi D team	12-18	In person	Not reported	3.5 hrs	8 sessions over 8 wks, follow up 3 months
Heleno 2021	PMP	Mixed	PT	4-6	In person	Unstructured sharing of personal experiences guided by patients' experiences and daily difficulties	1.25 hrs	8 sessions over 8 wks
Huestis 2017	ACT, CBT, plus MFT (multi-family therapy)	Mixed	Psych	5-7	In person	Not reported	1.5 hrs	9 sessions over 9 wks
Hunt 2000	PMP	Fibromyalgia	PT	25	In person	Group discussion and problem solving	1.5 hrs	5 sessions over wks
Hutting 2017	PMP	CANS (complaints of arm, neck, or shoulder)	Not clear (moderator)	5-10	In person	Not reported	Not reported	6 sessions over 6 wks
Igwesi-Chidobe 2019	Self-management	Low back pain	PT	10	In person	Not reported	2.5 hrs	6 sessions over 6 wks
Irons 2020	Group singing	Mixed	Music teacher	4	In person	A nonjudgmental and supportive environment was fostered, so that participants felt safe to explore their singing voices	1 hr	10 sessions over 10 wks
Jager 2021	ACT	Mixed	Psych, osteopath	9	In person	Group activities and discussions	2 hrs	6 sessions over 6 wks
Jerlock 2012	CBT	Unexplained chest pain	Nurse	9	In person	Not reported	Not reported	6 sessions over 6 wks
Joyce 2022	Yoga/Tai Chi + Education	Low back pain	Yoga teacher	Not reported	In person	Not reported	1.25 hrs	12 sessions over 12 wks
Kashikar-Zuck 2016	CBT, neuromuscular training	Fibromyalgia	Multi D team Psych, EP	Not reported (4+)	In person	Not reported	1 hr	16 sessions over 8 wks
Kruer-Zerhusen 2015	Psychotherapy Yoga and Meditation	Mixed (plus PTSD)	Psychotherapist	Not reported	In person	Not reported-talk therapy	1 hr	1 hour weekly, ongoing group (participants needed to have been attending for >4 months)
Larsen 2015	Hope based positive psychology	Mixed	Psych	5-8	In person	Members were seated in a circle…facilitators first modelled their own responses and then supported group members to take turns sharing… group discussion ensued, largely in celebration…	2 hrs	6 sessions over 6 wks
Larsen 2018	Hope based positive psychology	Mixed	Psych	5-8	In person	Facilitators first modelled collage debriefing by sharing their own collages. Participants then discussed each image on their collages, sharing hopeful stories. Facilitators encouraged elaboration on past, present, and future hopes, using prompts. This approach helped group members learn to be curious and supportive	2 hrs	6 sessions over 6 wks
Ledingham 2020	Exercise	Osteoarthritis	PT or exercise scientist, plus assistant	10	In person	Participants rotated between exercise stations at their own pace while engaging with other participants	1 hr	12 sessions over 6 wks
Lee 2020	Tai Chi	Low back pain	Tai Chi teacher	13-15	In person	Not reported-group exercise	1 hr	45 classes over 36 wks
Lestoquoy 2017	PMP	Mixed (plus depression)	Multi D team	9	In person	Not reported	2.5 hrs	10 sessions over 10 wks

Ley 2018	PMP	Mixed	Multi D team PT, clin psych, GP, nurses, OT	Not reported	In person	Not reported	Not clear	5 days a wk for 3-6 wks
Mathias 2014	Acceptance based PMP- CBT, mindfulness, and ACT	Mixed	Multi D team Clin psych, PT, nurse	6-10	In person	Not reported	6 hrs	8 sessions over 8 wks
McCracken 2014	ACT	Mixed	Psych	11-13	In person	Not reported	4 hrs	4 sessions over 2 wks (3 in one wk and then 1 a wk later)
Moore 2015	MBCT	Mixed	Psych	Not reported	In person	Not reported	2-2.5 hrs	8 sessions over 8 wks
Nanke 2017	ACT	Mixed	Multi D team	8-9	In person	Not reported	2 hrs	6 sessions over 6 wks
Nost 2022	ACT with enhanced mindfulness training (ACT + M) Self-management (SM)	Mixed	Not clear (trained health professionals)	10	In person	Not reported	4 hrs	Normally 8 x 4 hrs, 5 x 4 hrs in person and 1 x 4 hrs online due to COVID-19
Olsen 2017	Basic body awareness group therapy and Education	Osteoarthritis	PT	5	In person	20 minutes of reflective talk for the participants to share and conceptualize their movement experiences	1.5 hrs (education session 2 hrs)	1 x education session 12 exercise sessions over 12 wks
Ostroff 2009	Ceramics activity group	Mixed	OT	Not reported	In person	Members work on ceramic pieces individually but sit together and converse as a group	2 hrs	Ongoing group up to 6 months (maximum would be weekly for 26 wks)
Park 2021	Sickle cell pain management program (SCPMP); General PMP	Sickle cell disease	Multi D team Clin psych, PT	6 (SCPMP); not reported (general PMP)	In person	Not reported	Not reported	8 wks SCPMP, other not stated
Pate 2021	PMP	Mixed	Multi D team Clin psych, PT, pain specialist	6-12	In person	Not reported	2 hrs	6 sessions over 6 wks
Paul 2005	CBT based PMP	Mixed	Psych	Not reported	In person	Not reported	Not reported	8-12 wks
Penlington 2019	ResilientMind (Mindfulness based)	Mixed	Psych, trained mindfulness teachers	8-15	In person	Discussion	2 hrs	8 sessions over 8 wks
Penney 2019	PMP	Mixed	Multi D team Chaplain, clin psych, PT, SW, clerk, medical doctor	8-12	In person	Not reported	3 hrs	10 sessions over 10 wks
PietiläHolmner 2018	PMP	Mixed	Multi D team At least PT & OT. In each team, GP, SW, or psych either team member or consulting role	Not reported	In person	Not reported	1.5-3.5 hours	6-10 wks
Pike 2014	PMP 3 programs: COPE: MSK pain ABOUT FACE: facial pain LINK: urogenital & pelvic pain	Mixed	Multi D team Clin psych, PT, specialist pain doctor, nurse	8-10	In person	Not reported	Ranged from 3 hrs to all day	From 6 sessions over 6 wks to 8 sessions over 8 wks
Rasmussen 2017	PMP	Fibromyalgia	Multi D team Rheumatologist, psych, nurse, PT, OT	8	In person	Group discussion	2 wks of 3 hr group content each day	35 hours over 2 wks (10 consecutive workdays)
Rose 2021	Yoga/Tai Chi	Mixed	OT or PT	Not reported	In person	Not reported	1 hr	16 sessions over 8 wks
Ruskin 2014	Mindfulness	Mixed	Psych	8	In person	Not reported	2 hrs	8 sessions over 8 wks
Sadownik 2012	Education, Plus Mindfulness based CBT	Vulvodynia	Multi D team Gynaecologist, psych, PT	11	In person	Not reported	3 x 2-hr group sessions, 2 x 1hr seminars	5 sessions over 12-16 wks
Sallinen 2011	PMP	Fibromyalgia	Multi D team	10-12	In person	Group discussions	In-patient program	17-20 days, divided into 2 or 3 intensive in-patient periods
Salvo 2023	Narrative Therapy	Mixed	Psych	10-11	In person and telehealth/teleconferencing	We ask about challenges young people face collectively to connect their experiences and give them the choice to speak individually or collectively. Sharing past group ideas, like getting out of bed, or attending school, encourages them to share achievements they may have dismissed. Questions about their strategies help them contribute to the group, and we honor their skills before sharing our own ideas	1 day	1 full day
Scriven 2019	ACT based PMP	Mixed	Multi D team	4	Telehealth/ teleconferencing	Participants are encouraged to…provide feedback to the group each week	2 hrs	4 sessions over 4 wks
Sharma 2022	PMP	Fibromyalgia	Multi D team PT, psych, OT, pharmacist	Not reported	In person	Not reported	2.5 hrs	9 wks (plus 3 extra follow ups at 3,6,9 months)
Shim 2017	DMT (Dance Movement Therapy)	Mixed	Dance movement therapist	4-6	In person	Verbal check-in, shared movement practice, group discussion, closing with group movement ritual	70 mins	10 sessions over 10 wks
Silva 2006	PMP	Mixed	Multi D team Clin psych, PT	Not reported	In person	Not reported	2 hrs	8 sessions over 8 wks

Simm 2022	Drawing on ACT, CBT, Mindfulness, and SFBT	Mixed	Multi D team	7-10	Telehealth/ teleconferencing	Not reported	2 hrs	3 x wk for 9 wks (with a break week at week 5)
Sloan 2018	MBCT	Multiple Sclerosis related	Psych	3-5	In person	Group discussion	1.5 hrs	4 sessions over 4 wks
Sowden 2006	PMP	Mixed	Multi D team Clin psych, PT	Not reported	In person	Not reported	2 hrs	8 sessions over 8 wks
Steen 2001	Educational approach	Chronic musculoskeletal pain	Multi D team	8-9	In person	Not reported	4 hrs	12 sessions over 28 wks
Steihaug 2001	PMP	Chronic muscle pain	Multi D team GP, PT	10	In person	Discussion and interaction	1 hr	Initially 36 sessions over 12 wks Later 10-month program not clear-weekly training and discussion groups (about 43 wks)
Steihaug 2002	PMP	Chronic muscle pain	Multi D team GP, PT	10	In person	Group discussion linked to personal experiences for 1 hr	Not reported	Weekly for 10 months
Steihaug 2007	PMP	Chronic muscle pain	Multi D team GP, PT	8	In person	Group discussion linked to personal experiences for 1 hr	2 hrs	Weekly for 32 wks
Steihaug 2008	PMP	Chronic muscle pain	Multi D team GP, PT	8	In person	Group discussion linked to personal experiences for 1 hr	2 hrs	Weekly for 32 wks
Toye 2012	PMP	Low back pain	PT	8	In person	Group discussion	Not reported	9 sessions (either weekly for 9 wks or 3 x week for 3 weeks)
Werner 2003	PMP	Mixed	Multi D team GP, PT	Not reported	In person	Group discussion	2 hrs	Weekly for 12 months
Zgierska 2016	Mindfulness	Low back pain	Psych	21	In person	Not reported	2 hrs	8 sessions over 8 wks

ACT = Acceptance and Commitment Therapy *CBT = Cognitive Behavioural Therapy* *CFT = Compassion Focused Therapy* *Clin Psych = Clinical Psychologist* *GP = General Practitioner* *MBCT = Mindfulness Based Cognitive Therapy* *MBSR = Mindfulness Based Stress Reduction* *Multi D = Multi-disciplinary* *OT = Occupational Therapist* *PMP = Pain Management Program* *Psych = Psychologist* *PT = Physiotherapist or Physical Therapist* *SFBT= Solution Focused Brief Therapy* *SW = Social Worker*

Table 2 Included study design and participant characteristics

First Author/ Year	Country	Gender % Female	Mean age	Race/ ethnicity	Sample size	Data collection method	Design/Theoretical Framework Method of Analysis
Ainsley 2021	UK	55	50	Not reported	11	Focus groups	Constructionist framework Thematic analysis
Allen 2000	UK	56	45-50	92% White	13	Individual interviews	Interpretative phenomenological analysis
Andersen 2014	Denmark	43	47	Not reported	7	Individual interviews	Phenomenological, hermeneutical approach Systematic text condensation
Arfuch 2021	Spain	100	61.8	Not reported	19	Focus groups	Interpretative, hermeneutic phenomenological perspective Thematic analysis
Arfuch 2022	Spain	100	58.6	Not reported	10	Individual interviews	Not stated Thematic analysis
Aymerich 2022	UK	87	51.1	53% White, 47% Black/Asian/Minority	15	Focus groups	Qualitative descriptive-critical realist philosophical position Reflexive thematic analysis
Barrett 2021	USA	70	54	82% White	13	Individual interviews	Not stated Inductive thematic analysis
Beal 2009	USA	100	Not reported	83% White, 11% African American, 5.5% Hispanic	18	Individual interviews	Qualitative description Content analysis
Booth 2022	UK	77	42	Not reported	13	Focus groups	Exploratory study Abductive analysis
Bourgault 2015	Canada	93	50	Caucasian	16	Focus groups	Mixed methods Thematic analysis
Bradt 2016	USA	82	54.5	89% African American	23	Focus groups	Mixed methods with qualitative study embedded within RCT Thematic analysis-semantic approach
Braverman 2023	USA	68	Not reported	Not reported	34	Focus groups	Descriptive qualitative Thematic analysis
Bremander 2009	Sweden	81	46	Not reported	16	Individual interviews	Grounded Theory Open coding
Bridgman 2021	Australia	Not reported	62	Not reported	9	Survey	Service evaluation, constructivist approach Conventional content analysis approach
Brintz 2020	USA	74	53	78% White, 17% African American	22	Individual interviews	Mixed methods Reflexive thematic analysis
Brotto 2013	Canada	100	39.6	64% European, 36% East Asian	14	Individual interviews	Not stated Content analysis
Brown 2022	UK	85	Not reported	Predominantly White British	13	Survey	Mixed methods service evaluation Thematic analysis
Bruns 2019	USA	51	56.0	21% African American, 16% Hispanic, 37% White/Caucasian	41	Individual interviews	Mixed methods Thematic analysis -inductive approach
Bryl 2021	USA	67	48.44	Black	9	Individual interviews	Not stated Thematic analysis
Carpenter 2006	USA	83	78.9	White Caucasian	15	Individual interviews	Mixed methods Content analysis
Casey 2020	Ireland	64	47	Not reported	11	Focus groups	Not stated Thematic analysis
Cattanach 2021	Australia	54	51.6	89% Caucasian	57	Individual interviews	Not stated Thematic analysis
Chen 2023	Canada	47 In larger sample	50.7 in larger sample	Not reported	17	Individual interviews; Focus groups	Sequential explanatory mixed methods design Conventional content analysis
Clarke 2017	UK	75	66	White British	7	Individual interviews	Not stated Thematic analysis, inductive approach
Collins 1998	Ireland	63	40.6	Not reported	5	Focus groups	Mixed methods Thematic content analysis
Cornelio-Flores 2018	USA	89	51.6	All Spanish speaking (Dominican Republic, El Salvador, Guatemala, Colombia, Puerto Rico)	11	Individual interviews; Focus groups	Not stated Grounded thematic analysis
Dargan 2014	UK	60	Not reported	Not reported	5	Individual interviews	Critical realist approach Thematic analysis
Day 2011	USA	80	53.25	78% African American, 22% White American	52	Individual interviews	Not stated Thematic analysis
Day 2014	USA	95	42.8	95% White American	21	Individual interviews	Mixed methods Thematic analysis

Dysvik 2014	Norway	Not reported	49	Not reported	33	Survey	Mixed methods Phenomenological hermeneutic approach-naive reading, structural analysis, critical interpretation, and discussion
Egan 2017	Ireland	75	54.29	Not reported	16	Focus groups	Not stated Basic content analysis
Ernstzen 2022	South Africa	100	43.3	Not reported	6	Individual interviews	Exploratory descriptive with a phenomenological approach
Furnes 2014	Norway	Not reported	49	Not reported	34	Survey	Phenomenological hermeneutic approach Inductive thematic content analysis
Furnes 2015	Norway	75	52	Not reported	12	Individual interviews	Phenomenological–hermeneutic approach, based on Ricoeur's philosophy
George 2017	USA	53	52	91% Minority (African American or Hispanic)	32	Individual interviews; Focus groups	Essentialist/realist approach Thematic analysis
Glynn 2020	Canada	72	55.2	89% Caucasian	19	Individual interviews	Not stated Applied thematic analysis
Goksor 2022	Sweden	100	Not reported	92% born in Sweden	12	Individual interviews	Not stated Content analysis
Gooding 2020	UK	25	Not reported	Not reported	4	Individual interviews	Interpretative phenomenological analysis
Gray 2022	UK	88	Not reported	100% White	8	Individual interviews	Interpretative phenomenological analysis
Gustafsson 2004	Sweden	100	43	Not reported	16	Individual interviews	Grounded Theory using the method of constant comparison
Haraldseid 2014	Norway	50	43	Not reported	6	Individual interviews	Phenomenology
Harrison 2012	UK	75	50	92% White British, 8% Caribbean British	12	Individual interviews	Service evaluation, contextualised method, characterised by approaches such as critical realism, and lies between essentialism and constructionism Thematic analysis
Heleno 2021	Portugal	36	71	Not reported	14	Individual interviews; Focus groups	Not stated Data analysis was conducted in 5 steps: compiling, disassembling, reassembling, interpreting, and concluding
Huestis 2017	USA	60	15.4	80% Caucasian	17	Individual interviews; Survey	Not stated Thematic analysis
Hunt 2000	UK	88 in larger sample	44.56	Not reported	10	Individual interviews	Not stated
Hutting 2017	Netherlands	84	46.1	Not reported	31	Individual interviews	Mixed methods Theoretical thematic analysis
Igwesi-Chidobe 2019	Nigeria	77	53.9	Not reported	12	Individual interviews	Exploratory pragmatic non-randomised controlled feasibility study Inductive content analysis
Irons 2020	Australia	75	Not reported	Not reported	4	Individual interviews	Not stated Thematic analysis
Jager 2021	UK	89	Not clear	89% White	9	Individual interviews	Mixed methods Framework analysis
Jerlock 2012	Sweden	100	Not reported	Not reported	9	Individual interviews	Not stated Content analysis
Joyce 2022	USA	69	49.5	77% Black	26	Individual interviews	Qualitative study embedded in RCT Descriptive thematic content evaluation
Kashikar-Zuck 2016	USA	100	16	Not reported	10	Individual interviews	Informed by Grounded Theory Thematic analysis
Kruer-Zerhusen 2015	USA	80	Not reported	Not reported	5	Individual interviews	Modified analytic induction approach
Larsen 2015	Canada	67	Not reported	Not reported	12	Individual interviews	Case study Constructionist/ interpretivist orientation Thematic analysis
Larsen 2018	Canada	100	Not reported	Not reported	11	Individual interviews	Case study Thematic analysis
Ledingham 2020	USA	84	67	48% White, 36% Black	25	Individual interviews	Analysis congruent with Grounded Theory, influenced by constructionist ontology and interpretivist epistemology
Lee 2020	USA	61	Not reported	75% White, 11% Asian, 11% Black	18	Focus groups	Qualitative analysis from RCT Grounded theory
Lestoquoy 2017	USA	75	47	50% Black, 25% White, 15% Latino/a	20	Focus groups	Not stated General coding
Ley 2018	Canada	42	Not reported	Not reported	85	Survey	Content analysis, phenomenological and participatory action research Thematic analysis
Mathias 2014	UK	100	Not reported	White British	6	Individual interviews	Interpretative phenomenological analysis
McCracken 2014	UK	68	59.4	White	24	Individual interviews	Not stated Thematic content analysis

Moore 2015	Australia	82	54.6	Not reported	17	Individual interviews	Realist approach Thematic Analysis
Nanke 2017	UK	73	54.0	Not reported	9	Individual interviews	Mixed methods Thematic Analysis
Nost 2022	Norway	53	50.0	Not reported	15	Individual interviews	Not stated Systematic text condensation
Olsen 2017	Norway	40	66.6	Not reported	5	Individual interviews	Phenomenology Phenomenological analysis
Ostroff 2009	USA	71	49.6	71% White	7	Focus groups	Not stated A priori coding
Park 2021	UK	100	47.6	Black	10	Individual interviews	Grounded theory Critical realism
Pate 2021	Australia	55	55.0	Not reported	11	Individual interviews	Not stated Constant comparison method of grounded theory
Paul 2005	UK	91	50.0	White British	11	Individual interviews	Interpretative phenomenological analysis
Penlington 2019	UK	77	72.0	Not reported	58	Survey	Mixed methods inductive thematic analysis
Penney 2019	USA	interviews 45 Focus groups 65	interviews 53.0 Focus groups 54.0	Interviews 64% Black African American Focus groups 85% Black African American	61	Individual interviews; Focus groups	Not stated Thematic analysis
PietiläHolmner 2018	Sweden	58	47.0	Not reported	12	Individual interviews	Not stated Content analysis
Pike 2014	UK	71	47.0	Not reported	7	Individual interviews	Not stated Thematic analysis
Rasmussen 2017	Denmark	100	42.8	Not reported	17	Focus groups	Grounded theory
Rose 2021	USA	82	58.0	55% White	11	Individual interviews	Mixed methods Analysis method not clear
Ruskin 2014	Canada	100	15.8	Not reported	6	Survey	Mixed methods service evaluation Narrative summary
Sadownik 2012	Canada	100	30.8	58% Caucasian, 32% South Asian, 10% Middle Eastern	30	Individual interviews	Service evaluation Analysis not reported
Sallinen 2011	Finland	100	54.4	Not reported	20	Individual interviews	Narrative hermeneutic-phenomenological tradition, social constructivist Narrative analysis
Salvo 2023	UK	Not reported	Not reported	91% White British	32	Individual interviews; Survey	Not stated Thematic analysis
Scriven 2019	Australia	52	58.0	Not reported	21	Individual interviews; Survey	Mixed methods Thematic analysis
Sharma 2022	UK	Not reported	Not reported	Not reported	14	Focus groups	Service evaluation, constructivist epistemological approach Thematic analysis
Shim 2017	USA	84	51.9	72% African American	19	Individual interviews	Sequential Exploratory-Confirmatory Mixed methods Grounded theory
Silva 2006	UK	78	47.0	Not reported	9	Individual interviews	Interpretative phenomenological analysis
Simm 2022	UK	71	49.0	Not reported	17	Survey	Service evaluation-Mixed methods Thematic analysis
Sloan 2018	USA	77	52.7	Predominantly Caucasian	22	Survey	Not stated Responses to questions were categorized based on general themes and frequencies of themed responses were calculated
Sowden 2006	UK	71	50.4	Not reported	7	Individual interviews	Mixed methods Thematic content analysis
Steen 2001	Norway	95	Not reported	Not reported	75	Focus groups; Survey	Phenomenology Phenomenological analysis
Steihaug 2001	Norway	100	Not reported	Not reported	133	Focus groups; Survey	Action research Pragmatic analysis (Patton)
Steihaug 2002	Norway	100	Not reported	Not reported	31	Focus groups	Phenomenology Phenomenological analysis (Giorgi)
Steihaug 2007	Norway	100	42.0	Not reported	8	Individual interviews	Phenomenology Systematic text condensation (Giorgi)
Steihaug 2008	Norway	100	Aged in 50s (single case study)	Not reported	1	Individual interviews	Case study Narrative analysis
Toye 2012	UK	65	51.5	Not reported	20	Individual interviews; Focus groups	Constructivist (Charmaz) Grounded theory
Werner 2003	Norway	100	Not reported	Not reported	6	Individual interviews	Feminist theory Phenomenological analysis (Giorgi)
Zgierska 201	USA	71	52.7	76% White	17	Survey	Grounded theory

Included studies were conducted in 15 countries, across all continents, except Asia and South America. Dates of publication spanned 25 years, from 1998 to 2023.

The 94 included studies reported data from 1814 participants, aged between 15 and 79 years. When reported (n=71 studies), the mean age of study participants was 50.6 years. There was a high proportion of female participants. In the 90 studies which reported gender, 21 studies had only female participants and in the mixed-gender groups, 69% were female. Race or ethnicity was reported in 40 studies. Sixteen studies described the participants as all or mostly White, and ten studies described all, or mostly Black/African American participants. Seven studies had the specific aim of exploring underserved communities or minority populations.[33,45-50] The remaining studies described groups with mixed ethnicities, including White, Black, Hispanic, Middle Eastern, Asian, and South Asian.

Most were group programs with heterogenous chronic pain cohorts (any chronic pain condition) (n = 64), but there were also condition-specific groups (n=30) including cancer related neuropathic pain, muscle pain, facial pain, fibromyalgia, headache, HIV related pain, lower back pain, osteoarthritis, sickle cell disease, vulvodynia, and unexplained chest pain.

Group-delivered interventions were primarily multi-component pain management programs, which included a combination of elements such as education, skills training, physical exercise and psychological interventions (n=44); followed by 'third wave' therapies (mindfulness-based approaches, acceptance and commitment therapy, compassion-based programs, and dialectical behavioural therapy)[51] (n=22). Other programs included cognitive behavioural therapy, movement (exercise, dance yoga and tai chi), music, hope-based positive psychology, self-management, ceramics, education, narrative therapy, and solution focused brief therapy. Some studies included more than one type of group-delivered intervention. Most programs were delivered face to face (n=87), six studies explored programs delivered via videoconferencing and one used a combined approach.

Eighty-nine studies provided details about the program facilitator. Groups were most often delivered by multi-disciplinary teams (n=48), or psychologists (n=19). The remaining groups were facilitated by physiotherapists, non-health professionals (dance, music, or yoga teachers), occupational therapists, social workers, mindfulness teachers, nurses, or psychotherapists.

From studies that reported program structure details, the number of participants per group ranged from 4 to 15 (median 8, mean 9, n=73), the duration of each session/class ranged from 30 minutes to

7 hours (median 120 minutes, mean 139 minutes, n= 83), and the program length ranged from a single day to 12 months (median 8 weeks, mean 10 weeks, n=94).

Five of the 94 studies stated that exploration of social group processes was the core aim,[52-56] with a further six studies listing group processes as one of the aims.[57-62] The remaining studies explored perceptions of the program more broadly. Nineteen studies had specific questions related to the impact of the group itself in the interview guide or survey,[50,52,53,57,61,63-76] while the remaining studies asked questions related to program content or the program more generally.

Forty-eight studies (51%) did not provide details about the social, group processes used in the programs, such as discussions, small group activities, or other aspects related to group dynamics. Group discussion was the only reported group process descriptor in 25 studies (27%). Six studies (6%)[55, 72, 77-80] reported the time allocated to group discussion or social interaction. Fifteen studies included varying degrees of additional detail, with eleven studies (12%)[33, 45, 46, 56, 61, 63, 81-85] reporting detailed methods for facilitating the group process component of the program i.e. 'members were seated in a circle…facilitators first modelled their own responses and then supported group members to take turns sharing'.[56]

Methodological limitations of the studies

The full detail of each study's CASP appraisal are shown in Table 3. From the 94 included studies, 56 had no or very minor methodological concerns, 14 had minor concerns, 20 had moderate concerns, and four had serious concerns. Fifty-three percent (50/94) of studies did not provide information concerning reflexivity (consideration of relationship between researcher and participants, item 6 in the CASP checklist). There was an inadequate description of data analysis in 30 studies (item 8) and ethical information was lacking in seven studies (item 7).

Table 3 Critical appraisal skills programme of included studies

	Q1: Aims	Q2: Method	Q3: Design	Q4: Sampling	Q5: Data collection	Q6: Reflexivity	Q7: Ethics	Q8: Data analysis	Q9: Findings	Q10: Value of research
Ainsley 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Allen 2000	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Andersen 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arfuch 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arfuch 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Aymerich 2022	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Barrett 2021	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Beal 2009	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Booth 2022	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Can't tell	Yes
Bourgault 2015	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Yes
Bradt 2016	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Braverman 2023	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Bremander 2009	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Can't tell	Can't tell	Can't tell
Bridgman 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes
Brintz 2020	Yes	Yes	Yes	Can't tell	Can't tell	No	Yes	Can't tell	Yes	Yes
Brotto 2013	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Brown 2022	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bruns 2019	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Yes
Bryl 2021	Yes	Yes	Can't tell	Yes	Yes	Yes	No	Yes	Yes	Yes
Carpenter 2006	Yes	Yes	Yes	Yes	Can't tell	No	Yes	Can't tell	Yes	Can't tell
Casey 2020	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Can't tell	Yes	Yes
Cattanach 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chen 2023	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Clarke 2017	Yes	Yes	Yes	No	Yes	No	Yes	Can't tell	Yes	Yes
Collins 1998	Yes	Yes	Yes	No	Can't tell	No	Yes	Can't tell	Yes	Yes
Cornelio-Flores 2018	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Yes
Dargan 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day 2011	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Day 2014	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Dysvik 2014	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	yes
Egan 2017	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Ernstzen 2022	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Furnes 2014	Yes	Yes	Yes	No	Yes	Can't tell	Yes	Yes	Yes	Yes
Furnes 2015	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Yes
George 2017	Yes	Yes	Yes	Yes	Can't tell	No	Yes	Yes	Yes	Yes
Glynn 2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Goksor 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gooding 2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gray 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gustafsson 2004	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Yes
Haraldseid 2014	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Yes
Harrison 2012	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Heleno 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Huestis 2017	Yes	Yes	Can't tell	Can't tell	No	Can't tell	Yes	No	Can't tell	Can't tell
Hunt 2000	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No
Hutting 2017	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Can't tell	Yes	Can't tell
Igwesi-Chidobe 2019	Yes	Yes	Yes	Yes	Yes	No	Yes	Can't tell	Yes	Yes
Irons 2020	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Yes
Jager 2021	Yes	Yes	Yes	Yes	Can't tell	No	Yes	Yes	Yes	No
Jerlock 2012	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Joyce 2022	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes
Kashikar-Zuck 2016	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Kruer-Zerhusen 2015	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell	Can't tell

Larsen 2015	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes
Larsen 2018	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ledingham 2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lee 2020 6	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	yes	Yes	Can't tell
Lestoquoy 2017	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Ley 2018	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes
Mathias 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
McCracken 2014	No	Can't tell	Can't tell	Yes	Yes	No	Yes	Can't tell	No	No
Moore 2015	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Nanke 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes
Nost 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Olsen 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ostroff 2009	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Park 2021	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Pate 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Paul 2005	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Penlington 2019	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Yes	Can't tell	No	Yes
Penney 2019	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
PietiläHolmner 2018	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Pike 2014	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Yes
Rasmussen 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rose 2021	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Ruskin 2014	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	No	No	Yes
Sadownik 2012	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Sallinen 2011	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Salvo 2023	Yes	Yes	Yes	Yes	Can't tell	No	Yes	No	Yes	Yes
Scriven 2019	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Yes	Yes	Yes	Yes
Sharma 2022	Yes	Yes	Yes	Can't tell	Yes	Yes	Can't tell	Yes	Yes	Can't tell
Shim 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silva 2006	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Simm 2022	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Can't tell	Yes	Yes
Sloan 2018	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes
Sowden 2006	Yes	Yes	Yes	Yes	Can't tell	No	Yes	No	No	Yes
Steen 2001	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell
Steihaug 2001	Yes	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Yes	Yes
Steihaug 2002	Yes	Yes	Yes	Yes	Yes	Can't tell	No	Can't tell	Yes	Can't tell
Steihaug 2007	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Can't tell	Yes	Can't tell
Steihaug 2008	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell	Yes	Can't tell	Yes	Can't tell
Toye 2012	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Werner 2003	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zgierska 2016	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell	Yes
% yes per question	99	99	97	81	83	53	93	68	86	85

Q1 Was there a clear statement of the aims of the research?; Q2 Is a qualitative methodology appropriate?; Q3 Was the research design appropriate to address the aims of the research?; Q4 Was the recruitment strategy appropriate to the aims of the research?; Q5 Was the data collected in a way that addressed the research issue?; Q6 Has the relationship between researcher and participants been adequately considered?; Q7 Have ethical issues been taken into consideration?; Q8 Was the data analysis sufficiently rigorous?; Q9 Is there a clear statement of findings?; Q10 How valuable is the research? Will the results help locally

Synthesis

The author identified, group-related themes were initially sorted into five broad categories: comparison, feelings/emotions, in-group behaviours, changes, and program structure. We then sorted the codes from the direct participant quotes into categories, which were congruent with those from the author-identified themes, despite being approached inductively. (Appendix A: S5 and S6). Codes from multiple categories of the participant quotes were drawn together to develop nine descriptive themes, which summarised the literal content. Interrelated descriptive themes were then integrated, to generate five analytical themes to further interpret the data[40] (Fig 2).The progression from descriptive, to analytical themes, with accompanying illustrative quotes, and the studies supporting each final theme is presented in Table 4.

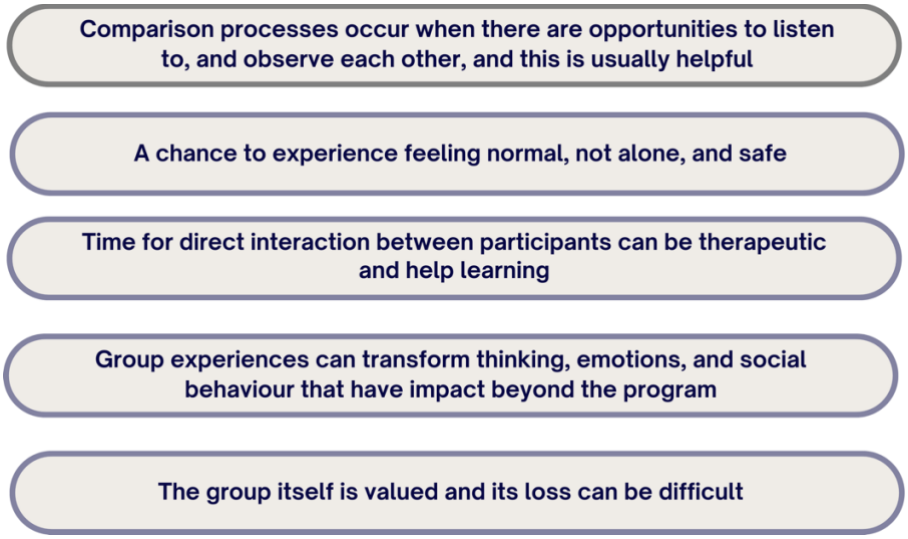


Figure 2 Five analytical themes

Analytical theme 1: Comparison processes occur when there are opportunities to listen to and observe each other, and this is usually helpful.

Comparison was identified in 67 studies.[33, 45, 46, 48, 49, 52-54, 56-62, 65-73, 75, 77, 78, 81-120] Comparison processes occurred frequently in the group environment and were described by consumers without comparison-prompting interview or survey questions. While terminology from social comparison literature [121, 122] has been used here for clarity, all comparison codes, categories, themes and subthemes were generated inductively from the primary studies.

Participants valued listening to,[47, 48, 53, 54, 56, 57, 63, 65, 66, 71, 74, 75, 78, 81, 83, 84, 95-98, 102, 103, 106, 109, 117, 119, 123, 124] and watching each other.[55, 66, 69, 73, 75, 83, 103, 105, 125]

> *So, I really liked being able to see people and hear them, yeah being together, and seeing everybody else's experience.[103] (page 1670)*

I was very to myself in the beginning, just listening, I was saying, 'Wow, there are a lot of people out here feeling just like I feel'. And I started opening up. It helped me open up and I started speaking and getting more involved when we talk…And I felt more connected. I felt that there is a world out there that connects with me[78] *(page 45)*

There were isolated occasions when participants did not find listening to others helpful.[52, 88]

The direct contact and close affiliation gave participants access to new, relevant information.[47, 48, 53-57, 60, 63, 65, 66, 69, 71, 73-75, 78, 81, 83, 84, 95-98, 103, 106, 109, 110, 117, 119, 123-125]

I really liked being with the other girls…I never knew they were going through the same things or…the same problems…knowing someone else feels the same way you do really helped. [105] *(page 76)*

Across all studies, lateral comparison (the perception that others are the same, or similar) was common.[33, 45, 48, 49, 52-54, 56-62, 65-68, 70, 71, 73, 75, 78, 81, 82, 84-89, 91-106, 110-114, 116-120] Perceiving similarity helped participants feel understood,[45, 48, 53-55, 57, 61, 67, 70, 73, 75, 88, 101, 104, 106, 111-113, 115, 120, 126] validated/believed,[45, 57, 62, 66, 73, 75, 101] more normal,[49, 56, 62, 73, 75, 84, 85, 87, 124, 127] and not alone.[45, 47, 50, 56-59, 62-64, 70, 73-75, 78, 82, 84-88, 90, 92-94, 96, 97, 103, 105, 106, 114, 128]

I gained more confidence I guess just being surrounded by other people that were going through the same thing. I didn't feel alone anymore. [97] *(page7)*

I recognized myself in everything he said! Everything! It was like: 'Yes! Yes! Yes! [67] *(page16)*

You find that comforting in a perverse way, that it's not you, you're not the only one, there are other people out there who are suffering in a similar way…you see parallels with other people with your situation and it provides as I say a comfort really that other people are in the same boat as yourself. [75] *(page185)*

Upward identification (perceiving that the advantage of others is within reach) generated hope, optimism, and motivation.[45, 48, 56, 57, 65, 69, 75, 77, 82-85, 96, 97, 105, 107, 109, 113, 119, 128]

I was thinking that if she can do it then I can do it too.[105] *(page74)*

Participants reluctantly admitted that perceiving their relative advantage i.e. being better off than others (downward contrast), was relieving. They felt more determined,[60, 89-91] grateful,[46, 56, 90, 108, 112] relieved,[46, 49, 54, 56, 60, 84, 87, 88, 90, 91, 96, 108, 111, 112, 115] and proud.[57, 60, 84, 90, 115]

.. but what helped me in a way was, and it sounds awful, that some people seemed to be a lot worse than me.[111] *(page196)*

People in my programme, they were as close to paralysed as you can get whilst still being mobile. I'm not in that boat, so I almost felt better.[96] *(page 99)*

Many times, you feel bad, but maybe next to you there is another person who is feeling worse than you. And then you think: 'well, maybe my situation is not so terrible'. And this strengthens you and gives you a little more encouragement[87] *(page 9)*

There were some instances where comparison was unhelpful.[52, 54, 56, 58, 60, 68, 73, 75, 82, 109, 116] Participants occasionally perceived lack of similarity if they perceived they were the 'odd one out',[58, 75] based on diagnosis,[73] pain severity,[52] or age.[68] Occasionally, the advantage of others was perceived to be out of reach (upward contrast),[56, 82] or that decline was inevitable (downward identification).[54, 109]

There were many who were in really bad condition and who had problems with mental health. . .I could not help thinking if that is to be my destiny, too.[54] *(page 129)*

Analytical theme 2: A chance to experience feeling normal, not alone, and safe.

When with similar others, positive emotional states were generated. The most prevalent were feeling not alone,[33, 45, 47-50, 56-64, 67, 68, 70, 72-75, 77, 78, 82, 84-88, 90, 92-97, 101, 103-106, 110, 111, 114-119, 123, 126-131] more normal,[62, 63, 73, 75, 76, 84, 85, 90, 93, 106, 116, 124, 127, 129, 132] validated,[45, 50, 54, 57, 62, 66, 73, 75, 76, 81, 87, 94, 100, 101, 111, 116, 119, 120, 127] understood,[53, 55, 65, 75, 81, 94, 101, 103] and safe.[52, 53, 56, 67, 68, 73, 78, 82, 84, 86, 91, 94, 97, 115, 119, 129]

I felt I am not alone. People really opened up about things they wouldn't probably share with anyone else because we are going through the same thing. You realize that it's kind of normal.[85] *(page 34)*

This program has helped me to not be ashamed and embarrassed that I hurt and have pain.[106] *(page 88)*

The group is a safe place where I can just be me. The other members understand me. We recognize ourselves in the other.[53] *(page 1088)*

Accounts of internal states (how *I* felt) were reported more frequently than observations of the external group environment (how *it* felt), however descriptions of the environment included a safe atmosphere,[52, 53, 56, 68, 82, 84, 97, 119] like a family,[47, 60, 61, 73, 78, 98] and fun or happy climate.[57, 68, 82, 101]

Less frequently, participants reported feeling judged,[73] uncomfortable,[59, 60, 80] overwhelmed,[88, 119] upset,[105, 109] or frustrated with others.[60, 128]

To me, saying things it brings out emotions in me and I usually well up and have tears. You don't always want to show that to people that you don't know.[59] *(page 38)*

Participants frequently contrasted their positive group experiences with prior experiences of feeling alone, isolated, excluded,[47, 57, 62, 63, 74, 75, 77, 84, 85, 87, 88, 93, 95, 97, 114, 123] embarrassed, guilty, ashamed,[47, 54, 56, 62, 63, 76, 87, 89, 93, 106, 124, 129, 132] or misunderstood.[61, 73, 84, 87, 88, 96, 101, 111, 115, 128]

Analytical theme 3: Time for direct interaction between participants can be therapeutic and help learning.

Talking to each other,[45, 48, 50, 53-56, 58, 59, 65, 75, 78, 81, 84, 86, 87, 91, 94, 95, 101-103, 106, 111, 119, 129] and being listened to by peers[53, 55, 75, 81, 94, 103] was therapeutic. For some, there was value in expressing feelings, and for others, talking things through helped clarify their thinking, or consolidate learning.

> *What was most helpful for me was having the place to talk to people like myself. And when I spoke about having HIV and medication, and me being tired of being sick, other people could identify with me. And I sat here, and I cried, and I just let go of everything that I had been holding on to for years.* [48] *(page 113)*

> *It was just the fact that they listened, you feel as if you're important.* [81] *(page 38)*

There were very few instances of participants reporting that talking was unhelpful.[105, 109]

> *Talking sometimes about being ill, and not dealing with it, does make me upset sometimes.*[109] *(page 14)*

Participants frequently described how they encouraged each other.[52, 53, 73, 89, 101, 102, 105]

They helped and supported each other and found this meaningful.[33, 47, 52, 57, 58, 60, 61, 66, 74, 75, 77, 86, 88, 90, 98, 101, 116, 133]

> *I was supporting the lady who was terrified of lying down. She convinced herself that if she lay on the floor, something was going to bulge and pop and go, and we were sort of talking and we said, 'well how can it if you are just laying there?' So, I helped her with that, and she helped me with my bending forward . . . so we were helping one another.* [133] *(page 898)*

Many articulated the value of learning from peers.[33, 45, 46, 48, 49, 53, 54, 57, 58, 60, 61, 65, 69, 73, 75, 77, 84, 86-88, 90-92, 97, 105, 123, 125, 134]

> *It is better group-based because it enables you to see other people having the condition and learn from other people.* [125] *(supp. p 1)*

Participants frequently expressed the need for more time to be allocated to talking and interacting directly with each other.[48, 63, 64, 75, 84, 86-88, 117, 129, 134]

> *She kept saying: 'okay, be quiet.' It was the only thing that I didn't like.*

Me, too… Being told to be quiet. We had a chance to not just hear what everybody has to say, but to talk to each other. And we were being curtailed from doing that. [48] *(page 114)*

Some noted that time was necessary to develop relationships.[58, 59, 64, 120]

If the class had gone longer, like on-going, it would have been nice, because you barely get to know people just a little. [64] *(page 2806)*

Analytical theme 4: Group experiences can transform thinking, emotions, and social behaviour that have impact beyond the program.

Participants described how being part of a group had changed their beliefs, feelings, and behaviours. The most prominent was no longer thinking they were alone, or the only one with chronic pain and related struggles.[33, 45, 47, 48, 50, 57-64, 67, 70, 73-75, 78, 82, 84, 86-88, 90, 92-94, 97, 101, 103, 105, 106, 111, 115-117, 119, 126-128, 130, 131] They no longer believed there was something wrong with them, or that they were somehow to blame.[47, 55, 56, 62, 63, 70, 73, 75, 76, 84, 90, 93, 116, 124, 129, 132, 135]

So, I learned not to say anything. But then, being surrounded by people in the same situation, opened the doors to a world where there were people like me. [87] *(page 9)*

I know I'm doing as well as I can. I know I've been tough, and I can trust this feeling since the group agrees to that . . . Now, I don't believe that it's me it is something wrong with, because I've had it confirmed several times that I'm not crazy. In fact, it's quite normal to be tired when you've pain over a long period of time. [76] *(page 496)*

Emotion related changes were social in nature, and included feeling less lonely,[47, 57, 62, 63, 74, 75, 77, 84, 85, 87, 88, 93, 95, 97, 114, 123, 130] less self-conscious (not embarrassed, guilty, or ashamed),[47, 54, 56, 62, 63, 76, 87, 89, 93, 106, 124, 129, 132] more confident,[33, 45, 52, 54, 56, 60, 73, 82, 85, 87, 97, 111] and more understood.[61, 73, 84, 87, 88, 96, 101, 111, 115, 128]

I didn't know that so many people suffered from FMS, now I feel less lonely. [77] *(page 19)*

It's because I gained confidence in being able to express how I feel and understood from being in this group. I don't used to do that because I stayed by myself. I am really coming along, inside and outside. [85] *(page 35)*

It made me much more positive that I was going to get through this, that I was going to get over this and just being able to tell somebody else that was actually suffering, ermm helped a lot. You know, you felt supported and actually understood and whilst we all have partners they're not always so understanding. [111] *(page 205)*

Behaviour changes reported were predominantly becoming more social,[33, 53, 54, 60, 85, 87, 92, 136] with a few participants described becoming more active as a result of the group.[53, 87, 107]

I was getting out. Enjoying people. I wanted to be around people again. [33] *(page 197)*

There was one lady that said she couldn't…she wasn't going to be able to swim and then she did. I said, 'well if she can do that then I can do the gardening, and that's what I did; so that's where transformation came about. I thought, well I've got to be positive, and I've got to do something. I can't just sit here and just fester, I've got to go out and do something, and that's what I did. [107] *(page 319)*

Analytical theme 5: The group itself is valued and its loss can be difficult.

Many participants said that meeting others with pain, and the group itself was the most important component of the program.[48, 52-55, 58-61, 63, 66, 70, 75, 77, 84, 86, 88, 91, 93, 98-101, 105, 106, 118, 119, 137] Participants who emphasised the relative importance of the group predominantly attended multi-component pain management programs (51%), followed by those who participated in 'third wave'[51] therapy-based programs (28%).

The group interaction and participation was the best part. [58] *(page 330)*

To me, the best thing was to meet others in the same situation. [99] *(page 870)*

Newly developed relationships, and positive changes meant the end of the program was difficult for some.[59, 68, 76, 81, 91, 103, 127]

To belong in a group is of great importance to me. Therefore, it really scares me being thrown out into the blue when the group ceased. You find a place where you feel you're taken into the warmth, and then you are pushed out to the desolate cold again. This can be pretty tough. [76] *(page 49)*

…we had the weekly session and then we went from that to pretty much nothing. I think it would've been nice[…] once that was over, if we could have a session maybe once every two weeks, and then maybe once every three weeks, and you know, maybe not cut it off <u>completely</u>. So that we can kind of regroup and stay connected and have that schedule time maybe, you know, once a month so that it's more at the forefront. [103] *(page 167)*

Table 4 Development of analytical themes

Descriptive themes and sub-themes	Example narratives from primary studies	Analytical themes
1. Through direct contact and affiliation, the other group participants become a reference and source of relevant information. Developed from Behaviour and Comparison categories. Codes: watching others, listening, listening to others helps, learning from peers, modelling, monitoring, similar others.	*To tell you the honest truth, at first, I didn't want to participate…and I went in with that attitude, like 'I'm not going to come back', but you know what? I came out with a different attitude. I felt a difference, like I had lifted a load off of my shoulders hearing the stories from the other ladies.* [78] *So, I really liked being able to see people and hear them, yeah being together, and seeing everybody else's experience.* [103] *I loved hearing different people talk about what they're going through and how they deal with it. And it gives me an idea of how I can change myself… when it comes to my pain.* [48]	1. Comparison processes occur when there are opportunities to listen to and observe each other, and this is usually helpful. * Descriptive themes one and two were integrated. The addition of 'usually helpful' reflects that the outcome of comparison was predominantly positive, but there were some instances where it was not. Studies supporting this theme: [33, 45, 46, 48, 49, 52-54, 56-62, 65-73, 75, 77, 78, 81-120]
2. Comparison processes occur frequently, and most often in helpful ways. 2.1 Perceiving that other people are 'just like me' where participants feel accepted, understood, validated, believed, comfortable, normal, and safe. More confident, willing to try new things, open to learning. 'Lifting their gaze' to notice others, feel empathy and connection to others. Shifts in social self-perception (reduced sense of being alone and abnormal) 2.2 Perceiving the advantage of others compared to me (that others are better off) (in coping capacity or knowledge**)** offers hope and motivation. The opportunity to mirror, seeing others as role models and noticing improvement in others. 2.3 Perceiving my relative advantage (that I am better off) (in coping or pain severity) offers reassurance and relief. A determination to maintain or engage in helpful activities. The opportunity to share knowledge and be in a position of having something to offer others, helps feel valued and important. 2.4 Less frequently, perceiving the others in the group are not 'like me', a lack of similarity, that the advantage of others is out of reach, or the disadvantage of others means decline is inevitable. Developed from Comparison, Thoughts and Feelings, Behaviour, and Change categories and incorporating indications of mechanism/direction of influence. Codes: feeling motivated by others, vicarious learning and modelling, reframing through comparison, shared experience, monitoring, general comparison, similar others, felt different to the others, downward contrast, downward identification, upward identification, upward contrast, embarrassed, watching others, listening to others helps, talking helps, new perspective, accepted, empathy, understood, validated, comfortable, normal, safe, hopeful, motivated, seeing evidence of improvement in others, not alone, more normal.	*I recognized myself in everything he said! Everything! It was like: 'Yes! Yes! Yes!* [67] *You find that comforting in a perverse way, that it's not you, you're not the only one, there are other people out there who are suffering in a similar way…you see parallels with other people with your situation and it provides as I say a comfort really that other people are in the same boat as yourself.* [75] *I was thinking that if she can do it then I can do it too.* [105] *there was one lady that said she couldn't…she wasn't going to be able to swim and then she did. I said, 'well if she can do that then I can do the gardening, and that's what I did; so that's where transformation came about. I thought, well I've got to be positive, and I've got to do something. I can't just sit here and just fester, I've got to go out and do something, and that's what I did.* [107] *Many times, you feel bad, but maybe next to you there is another person who is feeling worse than you. And then you think: 'well, maybe my situation is not so terrible'. And this strengthens you and gives you a little more encouragement.* [87] *.. but what helped me in a way was, and it sounds awful, that some people seemed to be a lot worse than me [in pain level].* [111]	
3. Groups offer an environment for people with chronic pain in which to feel normal, understood, validated, not alone, and safe. 3.1 Less frequently, participants feel judged, uncomfortable, overwhelmed, upset, or frustrated with others. This is often associated with perceived lack of similarity. Developed from Comparison and Thoughts and Feelings categories. Codes: not alone, validated, similar others, feeling understood, more normal, less self-conscious, comfortable, safe, safety, safe environment, didn't really belong, felt different to the others, excluded, annoyed, uncomfortable.	*This program has helped me to not be ashamed and embarrassed that I hurt and have pain.* [106] *Being with others that are having problems helps you realize you are not alone in how you feel.* [45] *Suddenly you don't feel like ''OK, I'm just some freak of nature'' . . . I don't feel damaged anymore, but I do feel complicated"*[93] *The group is a safe place where I can just be me. The other members understand me. We recognize ourselves in the other.* [53]	2. A chance to experience feeling normal, not alone, and safe. Studies supporting this theme: Feeling more normal [62, 63, 73, 75, 76, 84, 85, 90, 93, 106, 116, 124, 127, 129, 132] Feeling not alone [33, 45, 47-50, 56-64, 67, 68, 70, 73-75, 77, 78, 82, 84-88, 90, 92-97, 101, 103-106, 111, 114-119, 123, 126-131] Feeling safe [52, 53, 56, 67, 68, 73, 78, 82, 84, 86, 91, 94, 97, 115, 119, 129]

4. When with similar others and feeling safe, people naturally support one other, and value learning from each other. Developed from Comparison, Thoughts and Feelings, and Behaviour categories, and incorporating indications of mechanism/direction of influence. Codes: similar others, reciprocity (exchange of knowledge, mutual support, problem-solving, skills distribution, supporting, we trade ways of doing things), talking, listening, learning from peers, talking helps, we learned from each other, similar others were helpful, their ideas made me think, watching others, safe, safe environment, learning together, learning from peers, compare notes.	*I think the group we're in, cos we're all supportive of each other and that's helped actually participating, cause if you feel that you're not, you don't feel you belong in that group, you wouldn't really do that much, but you all felt belonging, we all encouraged each other so that was like a really good thing.* [89] *We could actually sit and talk without being judged. It wasn't a negative atmosphere, it was like we had formed a big family-type thing, and everybody was supporting everybody else and coming up with ideas to help everybody else.* [98] *We could really talk to each other openly and ask advice. We encouraged and strengthened each other. Our biggest role was to support each other. We did not know each other personally, but we understood each other.* [101]	3. Time for direct interaction between participants can be therapeutic and help learning. * Descriptive themes four and five relate to pro-social, in-group behaviours, and it was considered that time (descriptive theme six) was necessary to enable these. Studies supporting this theme: [33, 45-50, 52-61, 65, 66, 69, 73-75, 77, 78, 81, 84-92, 94, 95, 97, 101-103, 105, 106, 111, 115, 117, 119, 120, 123, 125, 129, 131, 133, 134] It takes time/we needed more time for interaction: [48, 53, 58, 59, 63, 64, 75, 84, 86-88, 117, 120, 129, 134]
5. Other participants offer a listening ear, and the opportunity to talk things through. 5.1 Occasionally, sharing personal information remains uncomfortable. Developed from Thoughts and Feelings and Behaviour categories. Codes: understood, validation, talking helps, talking, being listened to, talking though what I have learned helps, discussions can lead to insight, sharing difficulties, some things I don't want to say in the group, upset.	*I don't know anyone that has the [pain] problems that I have, and I am not someone that talks about having pain or wants to share it, so that's why it was somewhat good to come to a group where you could talk about [your pain experience].* [129] *I learned new things each week, and I'm looking forward to share the experiences with everybody and how what I've learned has helped, and we talk about the cases like what we've one, like the case like I'm putting in different terms …I liked that. It helps me identify things.* [58] *… to me, saying things it brings out emotions in me and I usually well up and have tears. You don't always want to show that to people that you don't know.* [59]	
6. Time allocated for peer interaction and discussion is valued. Developed from Group Structure, Behaviour and Thoughts and Feelings categories. Codes: time, it takes time, we needed more time for discussion and group interaction, rushed, understood, validation, talking helps, talking, being listened to, talking though what I have learned helps, discussions can lead to insight, sharing difficulties.	*Talking as a group without anybody around, say in the break times, you can do, you know, you have a cup of tea, have a little chat and stuff like that and it becomes slightly more relaxed . . . having the time to start to bond and build relationships within the group . . . start to open up—to start to trust people and not feel ashamed and embarrassed and stuff like that—I think it is really important* [86] *The problem was the lack of time to delve a little deeper into the different topics. Moreover, because each person had things to say and issues to share, and there was not enough time for everybody.* [88] *She kept saying: "okay, be quiet." It was the only thing that I didn't like. Me, too. Being told to be quiet. We had a chance to not just hear what everybody has to say, but to talk to each other. And we were being curtailed from doing that.* [48]	
7. The group can transform thoughts, feelings, and behaviours. **From:** Being alone or 'the only one', something wrong or abnormal about me. Feeling alone and self-conscious. Isolated and avoiding social situations. **To:** Not alone, in fact, normal, and just like other people living with chronic pain. Feeling more connected generally and less self-conscious. Socialising more. Developed from Comparison, Thoughts and Feelings, Behaviour and Change categories. Codes: similar others, more normal, trying new things, we learned from each other, not hiding, more social, change in thinking or core beliefs, (change in perspective, new role, normalisation, not alone, ready to connect, reframing through comparison, repositioning oneself, less self-conscious, not alone, changes in thinking or self-perception (I used to think I was alone, there was something wrong with me).	*Then I be able to talk to a group of people that you know, the same as you, kinda makes you a little happier about yourself like, 'this is not me I'm not alone in this world.'* [45] *Socially (the program) got me started! Woohoo!*[92] *Before, I was more isolated. I've been for about eight years that way isolating myself and I pretty much didn't do anything, but now I can go to work. I even had a date the other day.* [33]	4. Group experiences can transform thinking, emotions, and social behaviour that have impact beyond the program. * Descriptive theme seven was updated to better capture the way participants described changes persisting after the end of the group-delivered program and emphasises that the most significant behaviour change was socialising more. Studies supporting this theme: Changes in thinking/identity/beliefs: [33, 45, 47, 48, 50, 55-57, 59-64, 67, 70, 73, 74, 76, 78, 82, 84, 86-88, 90, 92-94, 97, 101, 103, 105, 106, 111, 115-117, 119, 120, 124, 126-132, 135] Changes in self-conscious emotions: [54, 56, 62, 63, 76, 87, 89, 93, 106, 124, 129, 132] More confident: [33, 45, 52, 54, 56, 60, 73, 82, 85, 87, 97, 111] Changes in social behaviour: [33, 53, 54, 60, 85, 87, 92, 136]

8. The group itself is an important component of the program/intervention. Developed from Comparison, Thoughts and Feelings, Behaviour, Change, and Group Structure categories. Codes: discussions were important, like a family, camaraderie, the group was very important, group sessions preferred, pain reduced by being with similar others.	*I think it's the support of the group, you know, and all being sort of offloading and having other people that know how you feel because in your everyday life, nobody else "gets it" .... I think, the support aspect was one of the best aspects for me.* [115] *The group interaction and participation was the best part.* [58] *To me, the best thing was to meet others in the same situation.* [99]	5. The group itself is valued and its loss can be difficult. * Descriptive theme eight (the importance of the group) was interpreted as the reason that some participants found the ending of the program a difficult transition, particularly if program cessation was abrupt. Studies supporting this theme: The group was very important/the most important component: [48, 52-55, 58-61, 63, 66, 70, 75, 77, 84, 86, 88, 91, 93, 98-101, 105, 106, 118, 119, 137] Offboarding/ending problems: [59, 68, 76, 81, 91, 103, 127]
9. The ending of the group can be difficult. Given the importance of the group, the cessation of a group program can be difficult, with some participants feeling abandoned. Developed from Group Structure and Thoughts and Feelings categories. Codes: offboarding, feeling abandoned at the end of the program, disconcerting when people left the group or were absent.	*To belong in a group is of great importance to me. Therefore, it really scares me being thrown out into the blue when the group ceased. You find a place where you feel you're taken into the warmth, and then you are pushed out to the desolate cold again. This can be pretty tough.* [76] *It took me a long time to be able to get things out there from what I wanted to say, and felt comfortable saying, and then it was all over and I just, you know, it was too soon for me.* [59] *...we had the weekly session and then we went from that to pretty much nothing. I think it would've been nice[...] once that was over, if we could have a session maybe once every two weeks, and then maybe once every three weeks, and you know, maybe not cut it off completely. So that we can kind of regroup and stay connected and have that schedule time maybe, you know, once a month so that it's more at the forefront.* [103]	

Comparison and triangulation

We reviewed and considered if our developed analytical themes were supported by the primary studies (Table 4) and were congruent with the author identified themes in studies where exploration of group processes was explicitly stated in the study aims (Table 5).[52-62] All group related themes from the literature were considered congruent with our synthesis.

Table 5 Summary of author identified group related themes where exploration of group processes was a key aim

First Author/ Year	Group related theme 1	Group related theme 2	Group related theme 3	Group related theme 4	Group related theme 5
Allen 2000 [57]	Shared Experience	Isolation	Understanding	Comparing Self	
Andersen 2014 [52]	Significance of the Group	Similar Others			
Cattanach 2021 [58]	Interaction	Not Alone	Listening	Group learning environment	Negative dynamics (lacking similarity)
Furnes 2014[53]	Significance of Community and Group Support	Sharing Experiences	Listening	Similar others	Safety
Gooding 2020 [59]	Connection	Similar others	Reduced Isolation	Offboarding problems	
Harrison 2012 [60]	Understanding	Mutual support	Increased confidence and sociability	Negative aspects (lacking similarity, group too large)	
Larsen 2015[56]	Comparison	Similar others	Not the only one		
Ostroff 2009 [61]	Changes your mindset	A place in the big world	Socialising	Learning from each other	
Sadownik 2012 [62]	More normal	Listening	Validation	Not alone	The group an important component
Sallinen 2011 [54]	Permission to talk	Need for experiential knowledge	Reciprocity	Self-evaluation through comparison	
Steihaug 2002 [55]	Listening	Understanding	Acceptance and tolerance	Confirmation (more normal)	Recognition

Discussion

Our review's synthesised findings of 94 studies with 1814 participants provides insights to consumer perspectives of the group itself in group delivered programs for chronic pain.

Of the five analytical themes generated, *theme one* related to comparison, which occurred frequently with opportunities to listen to and observe each other. Being part of a group provided a chance to experience feeling normal, not alone, and safe (*theme two*). Time for direct interaction was therapeutic and helped learning (*theme three*). *Theme four* highlighted how group experiences changed thoughts and beliefs, emotions, and social behaviour; and the group itself was highly valued, with its loss sometimes difficult (*theme five*).

Comparison processes, identified in 67 studies, are congruent with social comparison theory[138] and social cognitive theory's *observational learning* and *modelling*.[139] Our findings are supported by expert clinical observation[26] and included study authors, who reported that participants have reflexive tendencies to compare themselves with others.[56, 82] There are congruent comparison findings in reviews of qualitative studies exploring group-delivered programs for other chronic conditions.[140-143]

Negative comparison outcomes occurred occasionally if participants perceived that the advantage of others was out of reach, or that decline was inevitable.[54, 56, 82, 109] Social comparison research[122, 144-146] has reported that those with higher pain perception, or psychological distress (higher levels of anxiety/depression), may use negative outcome comparisons more frequently.[144, 145]

In clinical practice, group participants need opportunities to observe and listen to each other, supported by prompts for self-reflection, to realise the potential benefits of comparison. Facilitators may consider open exploration and normalisation of comparison, as the tendency to compare was prevalent, but participants were at times reluctant to admit this. Moreover, it would present opportunities for facilitators to monitor and intervene if comparisons turn in a negative direction.

The phrase *I'm not alone* (from theme two) was striking among consumer quotes, particularly in 'third wave'[51] programs. It was identified as a primary theme, or sub-theme by included study authors,[47, 50, 58, 62, 70, 73, 84, 97, 129, 130] and reported in reviews exploring consumer perceptions of group programs for other chronic conditions.[141, 143] Participants frequently contrasted their positive in-group experiences with prior experiences of feeling alone, isolated, excluded, embarrassed, ashamed, or misunderstood.

The prevalence of chronic pain-related shame and stigma is supported by the literature,[164-188] and reflected in related systematic reviews.[140-143] Self-conscious emotions such as feeling embarrassed or

ashamed are likely to be experienced by participants at the commencement of group programs, so normalising this may be helpful. Social stress and feeling self-conscious early in the program may impact learning.[189] Program facilitators could provide opportunities in early sessions for participants to interact informally, perhaps allowing longer breaks, or offering structured activities in smaller groups initially. Group-delivered programs for chronic pain may reduce self-conscious emotions. This could be monitored over time using validated measures for chronic illness related shame or stigma,[18] or given comparison tendencies, subjective social status. SSS is typically measured using a single item visual analogue scale,[190] which may offer pragmatic advantages over lengthy questionnaires.

Converging research proposes that the primary function of the human brain and immune system is to ensure biological and physical safety, resulting in the pursuit of belonging, social safety, and connection.[147-150] Loneliness is conceptualised as a distressing subjective experience of disconnection, social isolation, and exclusion, with discrepancy between desired and actual relationships.[151-153] Loneliness is a significant, and growing global challenge,[152, 154] with consistent evidence linking loneliness and social isolation with worse health outcomes.[155-157] Loneliness has been associated with chronic pain[153, 154, 158-160] and there is evidence that the impact of pain can be reduced with a greater sense of inclusion, and engagement with others.[161]

Our synthesis indicates social benefits from group-delivered programs, which may impact pain and other health related outcomes, particularly if group processes are optimised. While some participants reported feeling more confident to seek ongoing social connection after their program ended, [33, 53, 54, 60, 85, 87, 92, 136] some may require additional support.[162, 163]

Time for direct interaction between participants can be therapeutic and help learning (theme three) refers to pro-social behaviours that participants observed and valued. Congruent themes including *interaction*, *talking*, *learning from each other*, and *reciprocity*, were identified by included study authors.[33, 45-47, 54-58, 60, 62, 65, 67, 69, 72-75, 84, 90-92, 99, 101, 102, 104, 105, 110, 113, 120, 123, 128, 134]

Humans evolved to foster friendly relationships with one another.[6, 149, 191, 192] Both social cognitive theory[139] and self-determination theory[193, 194] provide frameworks for how social interactions contribute to self-efficacy, learning, and behaviour change. If education is included in program curriculum, facilitators could consider dyadic, or small group discussions rather than didactic, lecture-based methods.

Theme four, *group experiences can transform thinking, emotions, and social behaviour that have impact beyond the program* demonstrates that consumer reported group-related changes were *social*, including broad social self-perceptions, such as no longer feeling alone, realising they were

not the only one with chronic pain.[33, 45, 47, 48, 50, 55-57, 59-64, 67, 70, 73, 74, 76, 78, 82, 84, 86-88, 90, 92-94, 97, 101, 103, 105, 106, 111, 115-117, 119, 120, 124, 126-132, 135] Participants reported socialising more,[33, 53, 54, 60, 85, 87, 92, 136] and becoming less embarrassed or ashamed.[54, 56, 62, 63, 76, 87, 89, 93, 106, 124, 129, 132] This highlights the importance of evaluating *social outcomes* in a pain context, as supported by recent literature.[18, 180]

The final theme (*the group itself is valued and its loss can be difficult)* underscores the importance of the group from the consumer perspective. Participants valued feeling part of a supportive community, frequently ranking the group itself as the most important component. The impact of group termination is well described in psychotherapy literature,[195-197] however the significance of the group itself in a pain context may be underestimated. One included study participant suggested slowly reducing the frequency of sessions, rather than ending abruptly.[103] Openly acknowledging the group's ending might also lead to valuable conversations about continuing social connections.

There were few negative perceptions of the group itself. Some participants perceived they lacked similarity with other group members.[52, 54, 58, 60, 68, 73, 75] Group composition may be relevant for optimising comparison related outcomes, with larger groups potentially offering more diverse comparison opportunities. It was important for group participants to find at least one similar other, which is congruent with research that explored group size and composition in pain programs.[38] Larger groups (up to 12) had more positive outcomes than smaller groups, and heterogenous groups in terms of age or gender were better than those *mostly* homogeneous, suggesting that adding one or two members of the opposite gender to an otherwise all same-gender group may create disadvantages for them.[38]

Some participants felt uncomfortable talking or sharing because it could evoke strong emotions, involve topics they felt were too personal, raise concerns about worsening their pain, or make them feel self-conscious about being perceived as irrelevant to others.[59, 60, 105, 109, 112] Others found listening challenging because it could feel overwhelming, emotionally burdensome, or even frightening when witnessing others' struggles and emotions.[52, 60, 88, 119] Acknowledging potential challenges may help normalise these experiences and reassure participants facing group-related difficulties. However, in some cases, individual delivery or a smaller group may be preferred by those uncomfortable in larger groups.

Overall, our findings highlight that consumers valued being part of a group. Further exploration of the social contributions of the group itself in group-delivered pain programs appears warranted.

Clinical implications

While we recognise that group programs may not be available or suitable for everyone, consumers and clinicians should be aware that there may be distinct social benefits in a group setting. The

consumer perspectives identified in our synthesis may guide the development, or review of group-delivered pain programs.

In summary, clinicians offering group-delivered chronic pain programs could consider:

1. Optimising social, group process interactions;
2. Leveraging and promoting positive outcome social comparisons (consider interaction opportunities, group size, composition, program structure, encouraging self-reflection, and directly addressing comparison);
3. Exploring and measuring social outcomes including loneliness, shame/stigma, or subjective social status, in addition to pain outcomes;
4. Reviewing end of program procedures and including strategies to support ongoing social connection.

Future directions and research recommendations

Further research into group-process for pain programs could include:

1. Consumer feedback on the findings of this review;
2. Consumer participation and co-design of group-process frameworks, evaluation tools, and practice guidelines to improve outcomes;
3. Comparisons between standard and optimised group processes on pain, learning and social outcomes.

Strengths and limitations

The strengths to this review include: a published protocol and comprehensive search strategy; a systematic, transparent synthesis method to interpret a large volume of data, with high-quality studies contributing to each theme.

We acknowledge potential limitations. There was a high proportion of female participants, however this is consistent with gender representation in chronic pain populations.[198, 199] While there were few negative perceptions of the group itself, we acknowledge the possibility of self-selection bias in the sampling, as well as limited representation of participants who may have discontinued the program, had less favourable experiences, or were deemed unsuitable for inclusion in group programs, which may have skewed the findings towards more positive outcomes. Lack of researcher reflexivity

reported in 53% of studies may be a source of potential bias. Our clinician and researcher lens may have impacted the review synthesis and interpretation.

Despite limitations, findings were strikingly homogeneous across a large number of diverse studies. Generated descriptive and analytical themes were congruent with individual studies, and reviews of consumer experiences in group delivered programs for other chronic conditions.[140-143] This consistency suggests that our findings are robust and trustworthy, reinforcing the validity of our synthesis.

Conclusion

The group itself was highly valued by consumers in group-delivered pain programs. When facilitating these programs, clinicians might consider ensuring opportunities for social interaction. Future research could investigate whether optimising social group processes and social comparison outcomes in group-delivered pain programs could improve pain, social, learning, and overall health outcomes.

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Conflicts of interest:

The authors have no conflicts to declare.

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CHAPTER THREE

Consumer perspectives of group-delivered pain management programs: A qualitative content analysis of survey data

Chapter Three is currently under review with the British Journal of Pain:

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Consumer perspectives of group-delivered pain management programs: A qualitative content analysis of survey data

Keywords: Chronic Pain; Chronic pain management; Group-delivered pain programs; Program structure; Pain program improvements; Qualitative methods; Consumer perspectives

Marelle K Wilson [1] (ORCiD 0000-0002-4552-1219)

Amelia K Searle [2,3,4] (ORCiD 0000-0002-8602-0146)

Dianne J Wilson [1] (ORCiD 0000-0003-2298-3071)

Shylie F Mackintosh [1] (ORCiD 0000-0003-4200-5363)

[1] Innovation, IMPlementation And Clinical Translation (IIMPACT) in Health, University of South Australia, Kaurna Country, Adelaide, Australia

[2] Flinders Medical Centre Pain Management Unit, Southern Adelaide Local Health Network, Beford Park, Australia

[3] Faculty of Health, Charles Darwin University, Darwin, Australia

[4] College of Medicine and Public Health, Flinders University, Bedford Park, Australia

*Corresponding author: Marelle K Wilson

Abstract

This study explored consumer perspectives of group-delivered pain management programs at a pain management unit in South Australia. Qualitative content analysis of feedback survey data from 109 participants explored what consumers valued most in these programs, with a particular focus on the importance of the group itself. Respondents had attended one of four pain management group programs, facilitated primarily by either a physiotherapist or psychologist.

Five categories were identified in the analysis: *program content*, *the group itself*, *program structure*, the *facilitator*, and *positive changes*. *The group itself* was the second most prevalent category, highlighting its relative importance to consumers.

This study revealed the positive impact of group-delivered pain programs from the consumer perspective, with participants valuing program content, group interactions, and skilled facilitators. The most frequent suggestion for improvement related to *program structure*, with most respondents wanting the program to extend beyond six weeks.

This study highlights the relative importance of the group itself in group-delivered pain programs and findings could inform future program design and contribute to better access and outcomes for individuals with chronic pain.

Introduction

Access to chronic pain services remains a significant challenge in many countries, with long wait times for consultations with pain specialists, and entry into multidisciplinary pain programs.[1-5]

Pain management group programs (PMGPs) offer scale, cost, and access benefits, and are frequently used within tertiary pain unit models of care.[3-6] They are designed to address the multidimensional nature of chronic pain with a blend of physical rehabilitation, psychological support, and patient education.

Beyond efficiency and improved access, group delivery may lead to better outcomes than individual delivery. Group-based pain science education resulted in greater reductions in fear of movement compared to individual delivery of the same intervention for chronic musculoskeletal pain,[7] and participants who received group education for rheumatoid arthritis experienced more benefits than those who received individual education.[8]

A survey of Australian pain services found that 83% of services offered allied health-led, multidisciplinary PMGPs,[5] and surveys conducted in North America and Europe have indicated that

chronic pain services frequently include group-based programs.[3, 4] The duration of these programs have been reported to range from two hours (for pain education groups) to 120 hours (for intensive multidisciplinary programs).[5] Shorter programs concentrated on pain education, patient assessment, goal setting, and introductory pain management modules, while longer programs focused on physical rehabilitation integrated with diverse psychological therapies.[4, 5, 9-12]

Cognitive behavioural therapy (CBT), acceptance and commitment therapy (ACT), mindfulness-based therapies, self-management, education, and physical activity are frequently offered as part of PMGPs.[13-16] Psychological approaches have been compared and evaluated, however a recent meta-analysis of 30 PMGPs indicated that program structure and design factors influenced pain outcomes more than content-related factors.[17] Structure and design components included intensity (program length, number of sessions, session duration), group size, and other therapeutic contextual factors such as the program setting, relationships with program facilitators (therapeutic alliance), and the dynamics and processes within the group itself.[17]

It is becoming recognised that group processes may be important predictors of improvement in group-based pain management programs,[10, 17-20] where group processes refer to the social and interpersonal interactions that occur, in contrast to the content being delivered.

It is widely recommended that consumer perspectives are considered in pain service designs. In the policy document *Desirable Characteristics of National Pain Strategies,* the International Association for the Study of Pain (IASP) stated that feedback from the patient should be included as part of monitoring and quality improvement.[21] Despite increasing focus on collecting patient feedback, simply gathering qualitative data without robust analysis undermines its potential to drive meaningful change.[22, 23] To fully leverage this feedback, it is essential to conduct thorough analysis to ensure patient voices translate into concrete improvements in care quality and service delivery.

Previous studies have explored feedback survey data as part of group-delivered pain program service evaluations.[24-26] Findings in these studies highlighted the importance of the group itself, however each study explored a single program style, and two had relatively small sample sizes.[24, 25]

This study aimed to understand patient experiences and identify areas for improvement by exploring existing data (feedback forms) from four styles of group-delivered pain management programs at the Pain Management Unit (PMU), Flinders Medical Centre (FMC). We were particularly interested in the perceived importance of group factors relative to other program aspects.

Research questions

What can qualitative feedback from consumers of group-delivered, pain management programs tell us about what matters to them?

How frequently did participants highlight the group itself compared to other aspects of the program in group-delivered pain management programs?

How could group pain programs be structured to address consumer preferences, improve access, and optimise program outcomes?

Method

Research design

This study was guided by a qualitative descriptive approach which was selected by considering our research question and the retrospective dataset (Appendix B: S1).[27, 28] This approach does not adhere to specific philosophical assumptions or aim to develop theory. Instead, it provides a framework to analyse participants' experiences of an event. It is a flexible, naturalistic approach for exploring research questions not aligned with traditional qualitative methodologies like phenomenology or ethnography. It emphasises practical considerations and allows researchers to adapt their methods to the specific context of their study and is well suited to program evaluation studies.[27, 28]

We used qualitative content analysis[29, 30] to explore the responses to three open-ended questions on the client satisfaction and feedback survey for the PMGPs at the FMC PMU, Adelaide, South Australia. We were particularly interested in perspectives and experiences of the group itself, however given that we were working with an existing dataset not specifically collected for the purposes of this study, all responses were analysed.

Reporting is in accordance with the items included in Standards for Reporting Qualitative Research: A Synthesis of Recommendations (Appendix B: S2).[31]

Setting

The FMC PMU is an interdisciplinary outpatient service in South Australia providing assessment and management for adults with chronic pain. Patients are referred to this service by their general practitioner or specialist, with many required to attend a group education seminar, and sometimes a personalised pain management planning workshop, before being offered a pain specialist consultant appointment. Patients may be referred to group programs by the consultant based on their needs, availability, and perceived commitment and motivation. Occasionally patients self-elect (with the

support of the allied health facilitator) to attend a group program during their planning workshop. Group programs are conducted at a community-based clinic affiliated with the hospital.

Participants

A convenience sample (n= 109) of participants from PMGPs at the FMC PMU were included in this study. While all program participants were asked to complete a feedback form before completion, only participants who had consented to their feedback form data being used for future research purposes were included in this study. Participants could choose to provide their name on their feedback form or respond anonymously.

The retrospective dataset was provided de-identified, without accompanying demographic data. It is unknown whether those who completed the feedback forms represent the patient population typically referred to the program. Only a very small proportion of patients who completed the survey requested their data not be used for research purposes.

Data were collected from program inception in mid-2019, until December 2022. There were 109 eligible feedback forms, with most (n= 65) from the Movement is Medicine group, which was delivered more frequently (Table 1).

Table 1 Summary of programs and participants who completed the feedback survey

Group	Number of participants
Movement is Medicine (Physiotherapist facilitated)	65
Embrace your Pace (Physiotherapist facilitated)	16
Thinking Matters (Psychologist facilitated)	15
Mindfulness (Psychologist facilitated)	13

Program details

Group-delivered programs at the FMC PMU offered pain science education and active self-management skills training, delivered by either a physiotherapist or psychologist, with a deliberate emphasis on the development of skills.[32] Between July 2019 and December 2022, four styles of group-delivered programs were offered. Movement is Medicine (MiM) and Embrace your Pace (EP) were facilitated by a physiotherapist (with assistance from a second allied health professional, usually a nurse), and Thinking Matters (TM) and Mindfulness (MF) were facilitated by a psychologist (with assistance). All content was delivered in-person, and interactively, with participants seated at tables, which were moved aside for exercise components. There were short breaks midway through the

sessions, where participants could interact informally if they chose. Each program comprised one session per week (2-3 hours), over six consecutive weeks, delivered in small groups (on average 3-6 participants). At times, COVID-19 restrictions necessitated smaller groups. Content summaries from the two most frequently run programs, MiM and TM, are provided in Table 2. MF and EP were offered less frequently as 'graduate' programs for participants who have already completed either MiM or TM.

Table 2 Program content summary

	Movement is Medicine (2.5-3hr sessions)	Thinking Matters (2 hr sessions)
Session 1	Welcome-housekeeping and group guidelines Box breathing 10 mins Tea break 15 mins Education: Back facts, benefits of exercise, components of exercise Tea break 10 mins Practical: Box breathing, functional assessment	Welcome-housekeeping and group guidelines Participant intro 5 mins Program overview and aims Education: understanding pain 30 mins Tea break 10 mins Education: how we think about pain matters, helpful vs unhelpful thinking 35 mins Set homework 20 mins
Session 2	Skills review and problem solving 20 mins Breathing ex 10 mins Education: Pain education and pacing Tea break 10 mins Education: Establishing baseline, hydro Tea break 10 mins Practical: Breathing ex, chi ball class 45 min	Review home practice and reflections 10 mins Education: CBT 20 mins Tea break 5 mins Education: CBT 15 mins Unhelpful thinking practice and discussion 40 mins Tea break 5 mins Summary and set homework 10 mins
Session 3	Skills review and problem solving 20 mins Breathing ex 10 mins Education: Review baseline Tea break 15 mins Education: barriers to exercise Tea break 15 mins Practical: 45 min strengthening and stretching	Review home practice and reflections 20 mins Education: CBT 15 mins Tea break 5 mins Education: CBT 15 mins In session practice 25 mins Tea break 5 mins In session practice 15 mins Summary and set homework 10 mins
Session 4	Skills review and problem solving 15 mins Progressive muscle relaxation 15 mins Education: Flare up management 45 mins Tea break 15 mins Education: Flare up management 30 mins Tea break 15 mins Practical: Progressive muscle relaxation and flare up exercises	Review home practice and reflections 20 mins Education: CBT and ACT Tea break 10 mins In session practice 10 mins Tea break 5 mins In session practice 15 mins Check behavioural experiment 10 mins
Session 5	Skills review and problem solving 20 mins Relaxation-guided imagery 15 mins Education: Flare up plan Tea break 15 mins Education: Upgrading exercises and pacing up Tea break 10 mins Practical: Relaxation-guided imagery and chair yoga 30 mins	Review home practice and reflections 20 mins Education: ACT 25 mins Tea break 10 mins In session practice 40 mins Summary and set homework 15 mins
Session 6	Skills review and problem solving 15 mins Practical: Relaxation-guided imagery comfort ability Physical reassessment Tea break 15 mins Education: lifestyle balance 30 mins Where to from here? 30 mins Graduation 15mins Repeat questionnaires 30 mins	Review home practice and reflections 40 mins Reflecting on progress 20 mins Tea break 10 mins My helpful thinking plan 20 mins Repeat questionnaires 15 mins Resources and wrap up 15 mins

CBT = Cognitive behavioural therapy ACT = Acceptance and commitment therapy

Feedback survey

Prior to the final session of each six-week program, participants were provided with a client satisfaction and feedback survey (Appendix B: S3), which they were asked to complete and return at the final session. This survey was developed by the unit and was uniform across all group programs. The first section of the survey had statements asking for Likert-style responses regarding learning outcomes, program content, the facilitator, and format. At the end of the survey there were three broad open-ended questions allowing longer responses of several rows of text (i.e. several dot points, or a detailed paragraph). The questions were:

- What did you find most helpful about this program?
- If the program did not meet your expectations, why was this?
- What could be improved about this program?

Procedure

Ethics approval was obtained both from Southern Adelaide Local Health Network (Ref: 40.23) and the University of South Australia Human Research Ethics Committee (Ref: 205439, Appendix B: S4).

Data from feedback surveys had previously been entered into a unit database. Our analysis was limited to the three open-ended questions in the feedback survey.

Data analysis

Qualitative content analysis was considered a good fit for this survey data which consisted of short sections of text.[28, 33] Qualitative content analysis allowed both inductive and deductive coding, and a quantitative element of counting and reporting frequencies of specific codes, themes, or topics.[29, 30] A recently conducted systematic review (under review) that explored consumer perspectives on the group itself in group-delivered pain programs guided development of the group-related coding framework. We remained open to the possibility of new group-related codes or categories emerging from the analysis; however, we allowed our pre-understandings to guide this part of the analysis. All non-group related data were approached inductively.

Our approach involved the following steps:

1 **Familiarisation**

The dataset was read and re-read by MW to become familiar and identify initial codes and categories. Initially this was done manually, using paper, by highlighting sections and making notes.

2. **Develop a coding frame**

The dataset was imported into NVivo™ (Lumivero™, version 14, 2023) to facilitate the analysis and enable frequency calculations.

Two authors (MW and DW, AS, or SM) independently and systematically read a selection of data and assigned text segments both inductively and deductively.

Following independent coding, and the development of initial categories, we compared codes assigned to each segment of content. Inter-coder reliability was 88%. Discrepancies were discussed in consensus meetings, during which we clarified codes and resolved disagreements to ensure consistency in how the data were labelled.

Clear, mutually exclusive categories and subcategories were identified, representing different topics in the data, to develop the coding frame. The analysis team reviewed and refined the framework to ensure it accurately represented the data.

3. **Apply the coding frame**

The refined coding frame was applied by MW to the entire dataset systematically, promoting a reliable interpretation of the data.

4. **Calculate relative frequencies**

Frequencies of each coding occurrence and the number of times each category, subcategory, and code appeared in the data were calculated (using NVivo™). Frequency data were summarised using word frequency viusalisations (word clouds), and charts.

Author reflexivity

The analysis team was composed of researchers with health professional and research expertise. Three were physiotherapists (MKW, DW, SM) and not connected to the FMC PMU. AS was a research scientist at the FMC PMU, but with no clinical role in delivering the group programs. Two researchers had extensive experience in both chronic pain and facilitating groups. Three were experienced

researchers, two in the pain field, two in qualitative research approaches. The researchers robustly debated and discussed coding, and analysis findings, to reach consensus.

Findings

A total of 109 respondents, from August 2019 to December 2022, were included in the analysis. All except one respondent provided comments on what they found most helpful, 48 respondents provided improvement suggestions, and 6 respondents provided comments on the program not meeting expectations (see Table 3).

Table 3 Number of responses to each question

	Most helpful	Suggestions for improvement	Did not meet expectations
Mindfulness (MF) n=13	13	6	1
Movement is medicine (MiM) n =65	64	24	2
Embrace your Pace (EP) n=16	16	6	2
Thinking matters (TM) n=15	15	12	1

From the 109 respondents, 230 segments of text were coded (herein referred to as references or coding references).

Qualitative categories and subcategories

There were five categories: *(1) content, (2) the group itself, (3) program structure, (4) facilitator*, and *(5) positive changes*. Each category had a number of subcategories. Table 4 provides a summary of the categories, subcategories, and supporting illustrative quotes.

Table 4 Qualitative categories and subcategories with supporting quotes

1. CONTENT

Subject matter, topics, information, resources, teaching materials, curriculum, activities

SUB-CATEGORIES	ILLUSTRATIVE QUOTES
1.1 STRATEGIES, TOOLS, TECHNIQUES	*Strategies to increase movement (MiM P36)* *Logical strategies for pain management, relief and change (MiM P53)* *Interrupting thought patterns and learning NEW techniques (MF P7)*
1.2 PAIN SCIENCE CONCEPTS	*Understanding the 'Explain Pain' book better by Butler and Moseley (EP P10)* *Science of pain (EP P4)* *Learning that movement is good and to pace myself so that I don't boom and bust (MiM P31)*
1.3 RESOURCES	*The exercise pictures which have enabled me to use these when & wherever I was in pain (MiM P2)* *And it provided good reading material (TM P6)* *Some of the printing too small (MiM P43)*
1.4 PRACTICAL COMPONENTS	*Physical practice of implemented activities (MiM P26)* *Maybe more sessions and more exercises done in session (MiM P21)* *Mindfulness group practice (MF P4)* *As it is called a movement program, I thought there would be more physical stuff involved (MiM P34)*
1.5 CBT CONCEPTS	*New skills to develop labelling unhelpful thinking patterns, doing experiments to test my thinking (TM P12)* *Understanding 'why' I fall into thought traps and how I can turn this around (TM P7)*
1.6 GENERAL INFORMATION	*Just the general information on moving more (MiM P58)* *Teachers gave so much knowledge about different myths about body posture which I was not aware of (EP P9)* *A lot of the information was basic stuff I already knew (MiM P42)* *Maybe tried to cram too much info into each module (MiM P68)*

2. THE GROUP ITSELF

Participants, attendees, peers, relationships, group dynamics, interactions, social support

SUB-CATEGORIES and CODES	ILLUSTRATIVE QUOTES
2.1 FEELINGS Not alone, comfortable, understood, more confident, like I fit in, supported, not judged, safe, respected, validated/ believed	*The group setting was of benefit i.e. I am not alone in pain (MF P5)* *Easy to feel at ease/participate (MiM P40)* *Finally, being able to fit in a group where people understand my situation (MF P8)*
2.2 IN-GROUP BEHAVIOUR Socialising and interacting, talking helps, disruptive behaviour, listening to others is helpful, learned from others	*Open group attendants that share and comment helps to broaden learning (TM P8)* *Interaction with other patients & enhancing of ideas (MiM P54)* *The disruptive participant could have been removed earlier-the program could have been more productive (MiM P9)*
2.3 SIMILAR OTHERS Like-minded, also with chronic pain, shared or same or similar experiences, same boat	*Being in a group with other people in the same boat was helpful (EP P12)* *Understanding others feel the same as me/similar experience (EP P4)* *Also very helpful to know other people are experiencing the same in life (MiM P67)*

3. PROGRAM STRUCTURE

Duration, length, number of sessions, schedule, timing, group size, format, breaks, session length

SUB-CATEGORIES	ILLUSTRATIVE QUOTES
3.1 PROGRAM LENGTH	*I would have liked it to go a bit longer (maybe 8 weeks) instead of 6 weeks (EP P8)* *Maybe having it slightly longer by 2 weeks (TM P10)* *I feel that the 6 weeks are just a stepping-stone and going forward there should be another 6 weeks to help with progressing (MiM P57)*
3.2 POST-PROGRAM	*Maybe a follow up with the same group in a few months (MiM P52)* *I definitely would love a little re-guidance in 6mths or so to work through some speed bumps/mistakes I make (TM P8)*
3.3 SESSION LENGTH	*Make the sessions 3 hours to allow for more discussion (TM P11)* *Should be given longer tea breaks (EP P4)*
3.4 GROUP SIZE	*Maybe a slightly bigger group so that illness and absences don't impact participation (TM P13)* *Group having more people attending - helpful listening to other people (TM P14)*

4. FACILITATOR

Teacher, instructor, educator, presenter, trainer, leader

SUB-CATEGORIES	**ILLUSTRATIVE QUOTES**
4.1 STYLE/SKILL	*Interaction from both clinical psychs was personal & they fleshed out the handouts too (TM P6)* *Easy to understand language (MiM P61)* *Adhering to session topic/plan and not allowing participants to hold the floor of session time for so long and repeatedly (TM P1)*
4.2 PERSONAL ATTRIBUTES	*The approach by the trainers was thoughtful and understanding (EP P6)* *The understanding from the teachers with no judgement (MiM P58)*
4.3 PROFESSIONAL BACKGROUND	*A psychologist should be present too (much chronic pain is trauma related) (EP P4)*

5. POSITIVE CHANGES

Improvements, shifts, outcomes, progress, impact

SUB-CATEGORIES	**ILLUSTRATIVE QUOTES**
5.1 CHANGES IN FEELINGS OR THINKING	*Very understanding program, planted a seed in my head and reminded me I'm not useless (TM P6)* *I worry less about my condition now and feel more positive about my future (MiM P52)*
5.2 BEHAVIOUR CHANGE	*Getting me out of the house (has been helpful) (MiM P36)*

EP = Embrace your Pace (Physiotherapist facilitated program, pain science education and pacing)

MiM = Movement is Medicine (Physiotherapist facilitated program, pain science education and increasing movement)

MF = Mindfulness (Psychologist facilitated program, development of mindfulness skills)

TM = Thinking Matters (Psychologist facilitated program, cognitive behavioural, and acceptance and commitment therapy)

Category 1: Content

Program *content* (which refers to subject matter, topics, information, resources, teaching materials, and activities) was frequently mentioned by participants. Several subcategories were identified in the analysis, including *strategies, tools and techniques*, *pain science concepts*, *resources*, *practical components* (particularly exercise), *CBT concepts*, and *general information* (see Table 4). Participants mentioned the value of specific strategies for pain management, increasing movement, and techniques for interrupting unhelpful thought patterns. Understanding pain science (supported by educational resources), and practical components, including the practice of physical activity and mindfulness exercises were valued.

> *'Learning that movement is good and to pace myself so that I don't boom and bust' (MiM P31)*

Some participants found there was too much information presented in each session, or that the written resources were hard to read.

> *'Maybe tried to cram too much info into each module'* (MiM P68)

Category 2: The group itself

This category included segments of data related to the group setting, peers, interactions, or relationships with other people in the group. Group-related subcategories were *thoughts and feelings*, *in-group behaviour*, and *similar others*.

Many group-related responses related to *thoughts and feelings*: less alone, comfortable, supported, and understood. Participants appreciated being in a group where others felt the same way and were experiencing similar challenges.

> *'Finally, being able to fit in a group where people understand my situation'* (MF P8)

In-group behaviour included interaction through sharing, talking, and listening to similar others.

> *'Interaction with other patients & enhancing of ideas'* (MiM P54)

Participants noted the benefit of being in a group where they were not alone in their pain and could learn from others, however, one participant noted that a disruptive individual hindered the group's productivity.

As we were particularly interested in group-related findings, for this category only, the individual codes, in addition to the broader subcategories, have been included in Table 4.

Category 3: Program structure

This category refers to elements such as the length of the program, group size, length of sessions, and the scheduling of breaks. Structure related subcategories included *program length*, *post-program*, *session length*, and *group size*.

Many participants made comments relating to the program length, with all wanting the program to be longer than six weeks (suggestions ranged from eight to ten weeks). One participant also suggested a longer break between specific weeks would help to better implement homework and absorb the content.

> *'I would have liked it to go a bit longer (maybe 8 weeks) instead of 6 weeks'* (EPP8)

Some people wanted follow-up after the program ended. Ideas included regular follow-up sessions or a drop-in group for continued support, particularly for practices such as mindfulness meditation.

> *'Maybe a follow up with the same group in a few months'* (MiM P52)

There were suggestions related to the length and structure of individual sessions. Some participants found the current session length of 2.5 hours too long and recommended shortening them or including additional breaks to help maintain concentration. Others wanted longer sessions to allow more time for discussion. Two respondents wanted more people in the group.

Category 4: Facilitator

The program facilitator refers to the instructor, educator, presenter, trainer, or group leader. Subcategories included the *skill or style* of the program facilitator, their *personal attributes*, and their *professional background*.

Interaction with the facilitators who provided personalised attention was valued. Elaborating on information provided in course books was valued, with plain language, simple terms and easy to understand messaging helpful. Their use of a conversational, yet evidence-based approach was also highlighted.

Participants appreciated the compassionate and non-judgmental attitude of the facilitators, noting that it made them feel comfortable and supported.

> *'The approach by the trainers was thoughtful and understanding'* (EP P6)

Some suggestions for improvement were noted. One participant suggested that a psychologist should be present. Others recommended that facilitators adhere to the program schedule, ensure adequate break times, and manage disruptive participants more effectively.

Category 5: Positive changes

Few participants used the feedback form to report changes, progress, or shifts they had noticed. There were two change related subcategories: *changes in feeling or thinking* and *behaviour change*.

Two participants noted that the program was helpful in getting them out of the house. Participants mentioned that the program helped them feel 'not so useless' or embarrassed about having chronic pain. One reported feeling more positive about the future and less worried about their condition. One participant said that the program helped them shift their perspective from letting pain dictate their identity to recognising that they are individuals who happen to have pain.

> *'I allow(ed) my pain to dictate who I am, rather than I am 'me' and I have pain! This program helped me turn this around'* TM P7

Distribution of coding references and word frequencies

From a total of 230 coding references, 110 of these (48%) related to program content, 48 (20%) to the group itself, 34 (15%) to the facilitator, 34 (15%) to program structure, and 6 (2%) to positive changes (Fig 1) (Appendix B: S5).

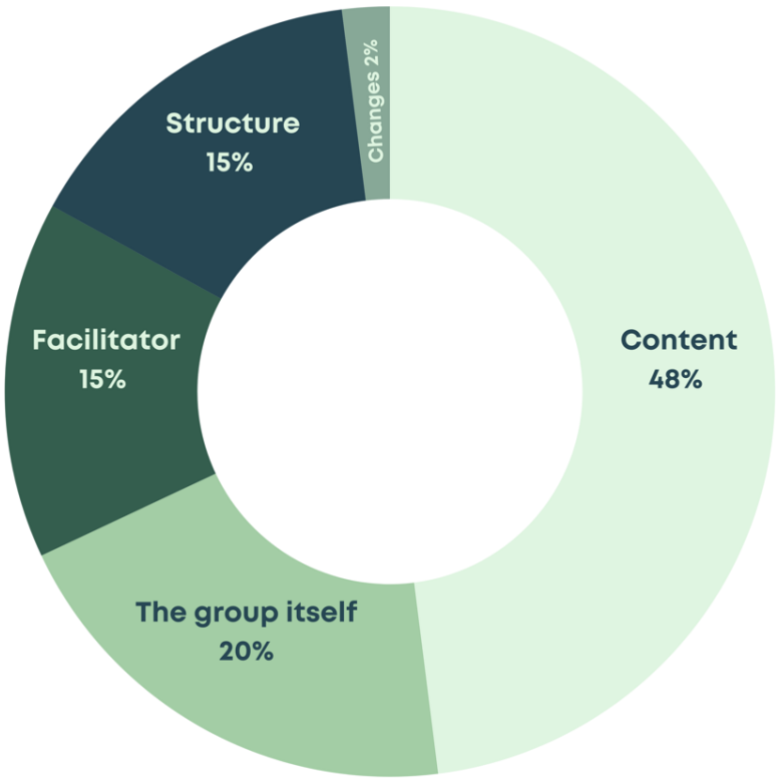


Figure 1 Relative percentage of coding references for each category

Program content

There were 110 coding references (48% of total), from 72 of the 109 respondents (66%), from all group styles, related to program content. Most (88%) were positive, indicating helpfulness, with 12% representing suggestions for improvement or not meeting expectations. Figure 2 shows contributions from the content related subcategories, with *strategies, tools and techniques*, and *pain science concepts* featuring.

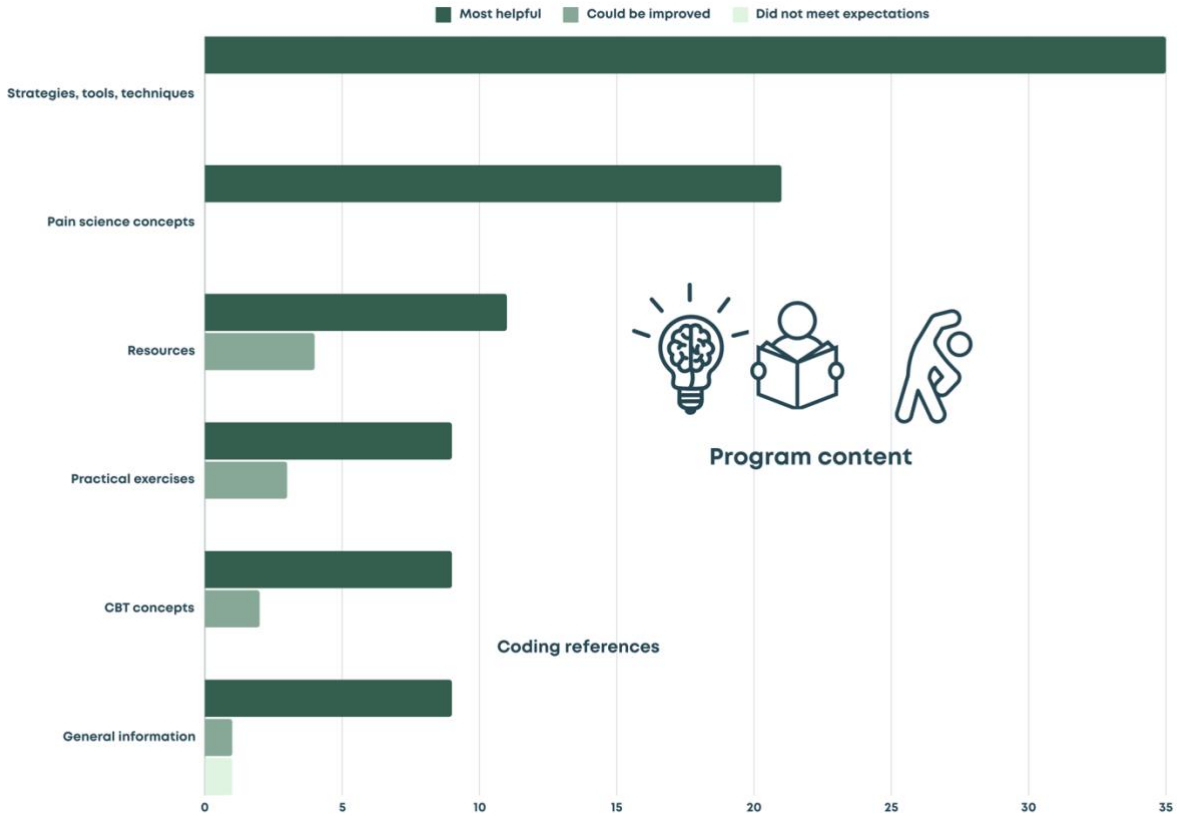


Figure 2 Frequency of coding references across *program content* subcategories

The *word frequency* clouds (Figs 3,6,8,10,11) are visual representations of the words that appeared directly in the feedback data, rather than code names applied by the authors. The size of each word indicates its prevalence, with larger words appearing more frequently in the responses. For program content, the words *exercise, manage, learning,* and *thoughts* were most frequent.



Figure 3 *Program content* word frequencies

The group itself

There were 48 coding references (20%), from 28 respondents (26%), from all group styles, related to the group itself. Forty-five (94%), were positive, indicating that respondents found the group itself helpful. As we were particularly interested in group-related findings, for this category only, we also calculated frequencies for each code in addition to the broader subcategories. The largest subcategory was related to *thoughts and feelings* (Fig 4), with *not alone* the most frequently applied code (Figure 5). Figure 6 shows that *people*, *understand*, and *experiences* were the words used most frequently by respondents.

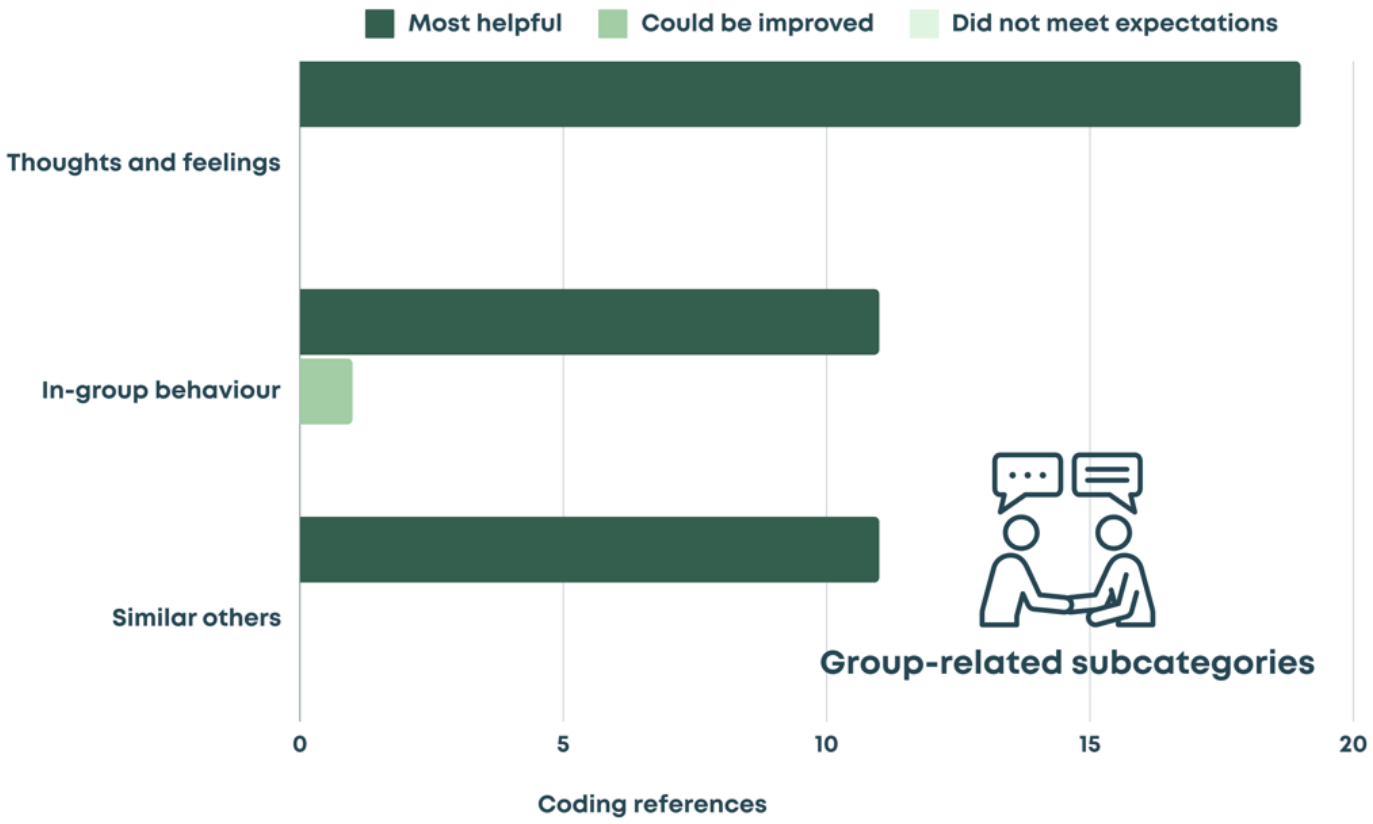


Figure 4 Frequency of coding references across *group-related* subcategories

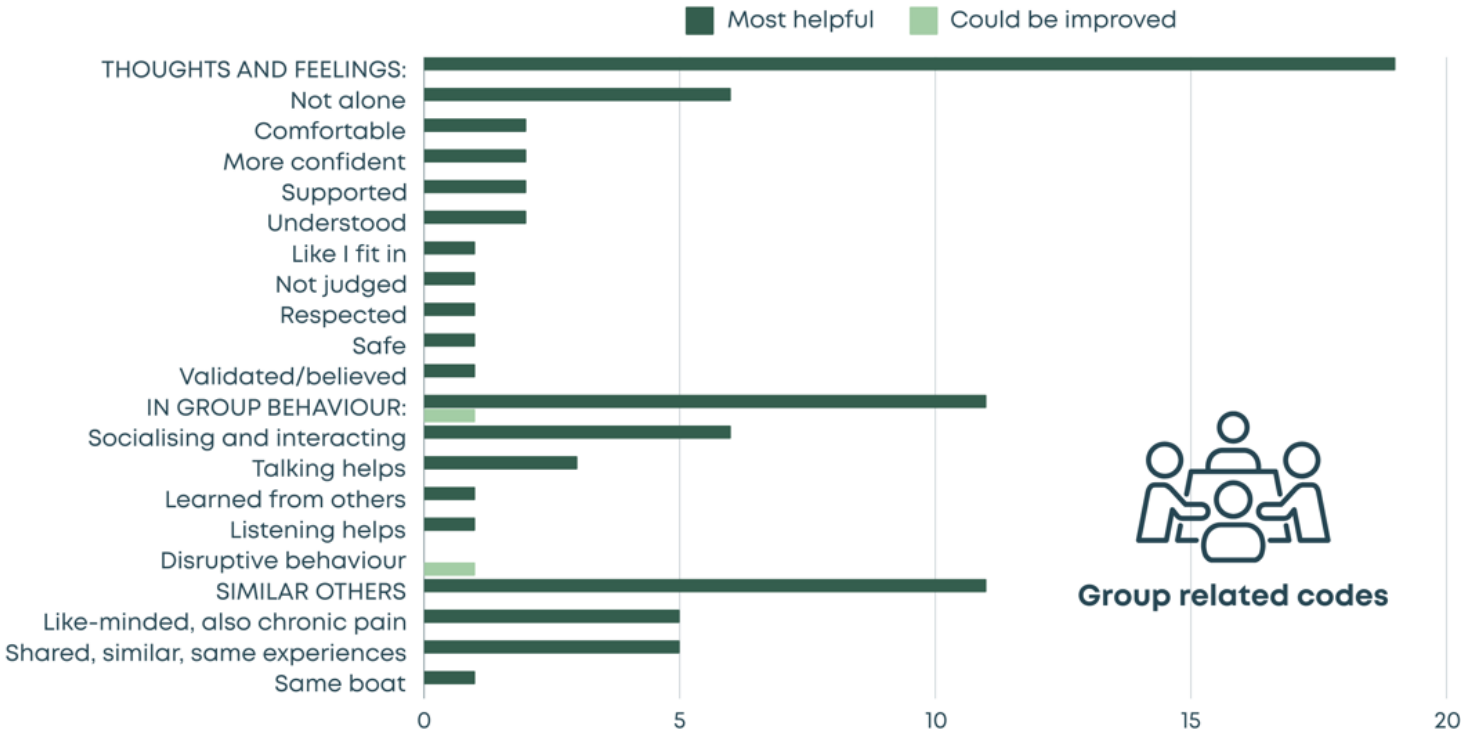


Figure 5 Frequency of coding references within the *group-related* codes



Figure 6 *Group-related* word frequencies

Program structure

There were 34 coding references (15%) from 34 respondents (31%), from all group styles, related to the program structure. Unlike the previous three themes, all (100%) related to the program structure not meeting expectations or were suggestions for improvement. Seventeen of these references (50%) related to the program length, with all wanting the program to be longer than six weeks (Fig 7). The most frequently used words related to program structure were *weeks*, *longer*, and *group* (Fig 8).

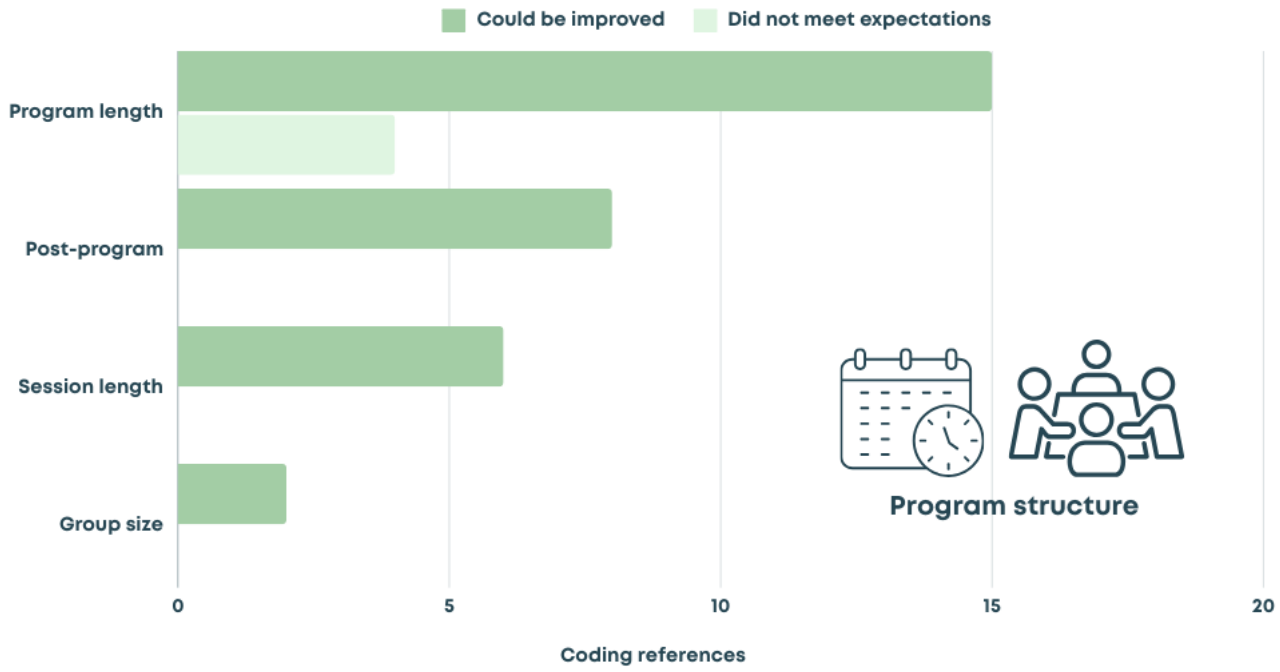


Figure 7 Frequency of coding references across *program structure* subcategories



Figure 8 *Program structure* word frequencies

Facilitator

Thirty-four coding references (15%) from 25 respondents (23%) from Embrace your Pace, Movement is Medicine, and Thinking Matters, related to the program facilitator. Of these, most (88%) were positive, with four (12%) suggestions for improvement (stay on schedule, include a psychologist, remove disruptive individuals). Most related to the facilitators style or skill, or their personal attributes (Fig 9). Words used by participants most frequently were *understanding*, *explain*, *follow*, and *easy* (Fig 10).

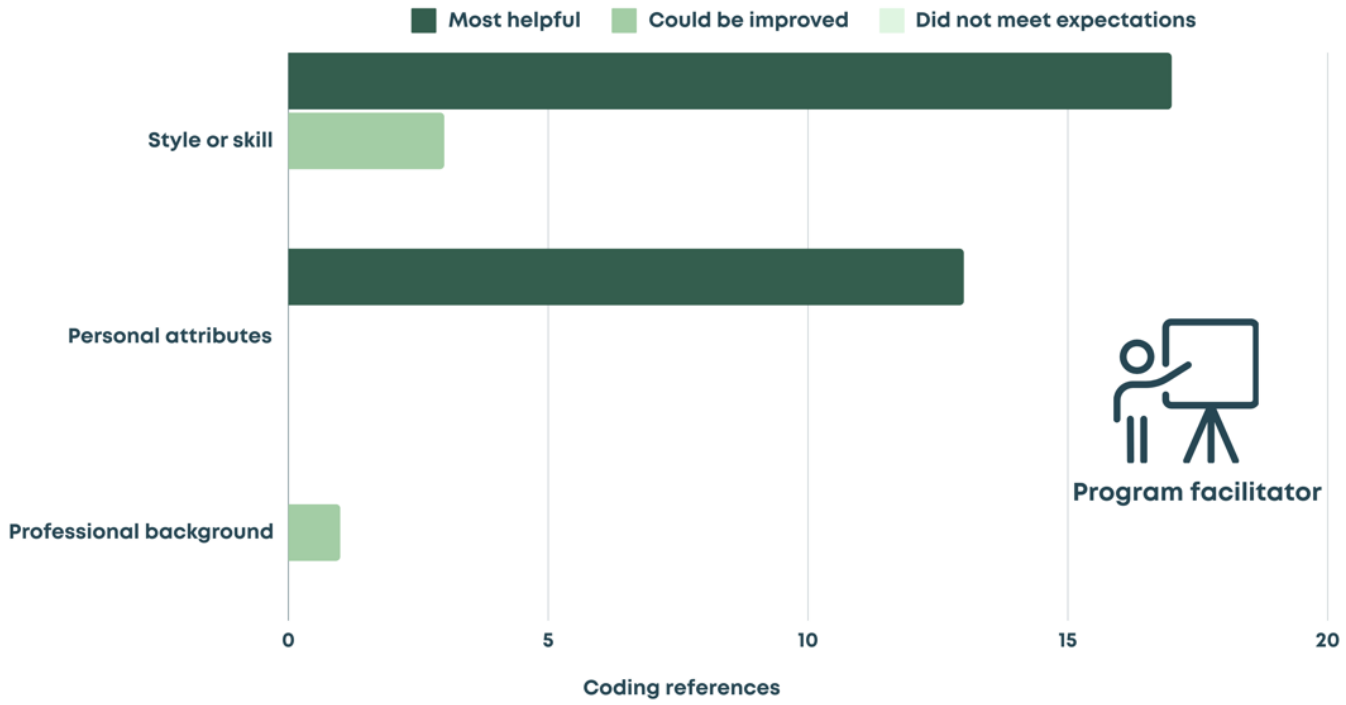


Figure 9 Frequency of coding references across *facilitator* subcategories



Figure 10 *Facilitator* word frequencies

Positive changes

Six coding references (2%), from 5 respondents (5%), from Movement is Medicine and Thinking Matters, related to changes they had noticed. Four of these (67%) were thinking or feeling related changes, and two (33%) described a behaviour change.

From the word frequencies *helped* appeared frequently and *house*, which referred to getting out of the house (Fig 11).



Figure 11 *Positive changes* word frequencies

Discussion

This qualitative content analysis explored consumer experiences with an emphasis on the importance of the group itself, from four group-delivered pain programs. Overall, the feedback was positive, with *program structure* the only category dominated by suggestions for improvement.

Participants appreciated the *program content*, practical strategies, and experiential learning opportunities. This highlights the value of contemporary pain science, [34] cognitive behavioural, [35, 36] and mindfulness concepts. [37] Moreover, it reflects the program's deliberate emphasis on education and the development of skills.

Previous Likert-type questions in the survey may have influenced responses to the open-ended questions. Ten out of seventeen prior questions related to learning, information, and strategies. It has been proposed that respondents may modify their answers due to context effects, and the sequence in which items are presented can affect how individuals respond. [38] Studies that explored similar programs[39-42] have also generated themes reflecting learning, information, skills, and strategies, indicating a consistent finding, with or without potential context effects.

The group itself was the second most prevalent category. This indicates that the group was highly valued by consumers and confirms the relevance of the group itself in a pain program context. There were 48 coding references related to the group itself, which is significant as there were no specific questions in the feedback form relating to the group, other than a single Likert-style item about whether *the presenters encouraged individual/group interaction*, and almost every response was positive. There have been congruent group-related findings in qualitative studies that explored similar programs. [39-42]

It has been acknowleged that group processes may be important predictors of improvement in group-based pain management programs, [10, 17-20] however specific connections between group process contributions and pain-related outcomes have only been examined relatively recently. [20, 43] Clinicians and researchers may be underestimating the significance of the group itself in a chronic pain program context.

Almost without exception, respondents who commented on the program structure expressed a desire for the FMC PMU program to be longer than six weeks, or to include some form of follow up. Program and session length were addressed in two Likert-style questions at the end of the survey which may have prompted participants to consider these aspects more carefully.

While decisions about program structure and intensity are multifactorial, findings from this study suggest that programs lasting longer than six weeks may be advantageous. In a study examining a program of similar intensity (12 hours total, with 8 sessions of 90 minutes each), 45% of respondents also expressed a desire for longer programs (either longer sessions or extended program duration), and 25% wanted additional follow-up. A recent meta-analysis of PMGPs found that 12–13 sessions were required to achieve optimal effect sizes for psychological health, while 10 sessions were necessary for a significant reduction in pain intensity. [17]

To extend program duration without requiring additional resources or limiting access, slightly larger group sizes could be considered. Research exploring group size and composition in pain programs identified no disadvantages in groups of eight to ten. [44, 45] One study that explored two PMGPs found groups of eight to twelve had more positive outcomes than smaller groups of five to eight [44], and a meta-analysis of 26 studies and 30 PMGPs identified eight to ten patients in a group might be optimal. [17] Given the likelihood of some participants dropping out of PMGPs, [46, 47] starting with ten participants may be a reasonable target, although factors such as program format, participant characteristics, venue size, and facilitator expertise are important practical considerations when determining the optimal group size and composition.

Respondents provided feedback on both the skill and personal attributes of the facilitator. While most responses were positive, one participant felt that more could have been done to limit the impact of a disruptive participant. The survey included three Likert-style items related to the facilitator: the presenters encouraged individual/group interaction, the presenters used effective teaching strategies, and the presenters demonstrated interest in the program, which may have influenced written responses. [38] As the feedback forms were collected as part of normal program procedure rather than specifically for this study, they were distributed and collected by the program facilitator, which may have additionally influenced the responses, as respondents might provide answers they believe are expected or favourable to the facilitator. [48] Similar findings related to the facilitator have been reported in studies exploring comparable programs. [39, 40] Therapeutic alliance (or working alliance) and connections to improved outcomes have been explored in other group-delivered programs[49] where therapeutic relationships were correlated with outcomes.

The final category, *positive changes*, reflects the small number of respondents who articulated changes resulting from the program. The survey did not include prompts to report on changes, which may explain the relatively few references.

Strengths and limitations

There are several strengths to this study. Included data were collected over three years and included four different program styles, with diverse allied health professionals. We used a systematic, consensus-based approach to the analysis, and included a quantitative element to also understand relative category and subcategory frequencies. The authorship team was composed of researchers with health professional and research expertise. Three authors were physiotherapists, not affiliated with the FMC PMU, and the research scientist connected to the FMC PMU was not involved clinically. This diversity contributed to the conduct of this study and interpretation of the results.

There are some limitations. The data were provided as a de-identified dataset, without respondent characteristics. We cannot determine whether the respondents were representative of the overall patient population at the site and may not be generalisable to participants of other pain programs. Additionally, as the survey was administered by team clinicians, social desirability, [50] hindsight bias, and other demand characteristics[51] may have influenced responses. Additionally, some responses were very short phrases, which may have required a degree of interpretation during the coding process. Some responses were omitted from the analysis due to an inability to attribute meaning.

Despite limitations, the study's strengths enhance the credibility of the findings, which contribute insights into the role of optimising program structure and group processes in pain programs for improved resource allocation, consumer acceptability and outcomes.

Clinical implications

Overall, the feedback was positive, except for that related to the program structure, with many respondents expressing a desire for the program to extend beyond six weeks. Clinicians and decision makers could consider increasing the program duration, with more participants per group if needed, and with additional attention to training and ongoing professional development for facilitators to effectively foster inclusive group environments.

Future directions and research recommendations

Research should look to optimising and exploring methods for measuring and evaluating group processes. The findings from this study could inform consumer driven program changes, the outcomes of which could be monitored and evaluated through standard pain-related patient reported outcome measures. [52-54]

Conclusion

This study reveals the positive impact of group-delivered pain programs from the perspective of the consumer, with participants valuing program content, group interactions, and skilled facilitators. The group itself was the second most prevalent theme, highlighting its importance to consumers. Future research should focus on optimising program structure and group processes and developing methods to evaluate these effectively in PMGPs.

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Conflicts of interest

None to declare

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CHAPTER FOUR

Discussion

No man is an island,
Entire of itself;
Every man is a piece of the continent,
A part of the main.

John Donne

This chapter opens with a brief review of the studies, the research questions, and two stages of triangulation. The first triangulation stage compares Study 2 findings with the synthesised, analytical themes from Study 1, including an exploration of inconsistencies. The second stage of triangulation compares the findings of Study 2 with thirteen individual studies from Study 1 that had shared study, or program characteristics. Congruent group-related themes from both studies are presented and findings connected with relevant literature and theoretical frameworks before proposing an integrated model. The chapter concludes with a summary of practice implications, the strengths and limitations of the research, directions for future studies, and the final conclusion.

4.1 OVERVIEW OF STUDIES 1 AND 2

Studies 1 and 2 explored the perspectives of consumers regarding the group component of group-delivered programs for people with chronic pain. Study 1 (Chapter Two) was a systematic review and meta-synthesis of 94 qualitative studies, investigating diverse group-delivered programs for participants (n = 1814) with chronic pain. Study 2 (Chapter Three) was a qualitative content analysis (QCA) of feedback from 109 participants of four group-delivered pain programs at a local South Australian tertiary pain management unit.

The research questions were:

What are the perspectives and experiences of consumers relating to the group itself, in group-delivered programs for people with chronic pain? (Study 1)

What can qualitative feedback from consumers of group-delivered, pain management programs tell us about what matters to them? (Study 2)

How frequently did participants highlight the group itself compared to other aspects of the program in group-delivered pain management programs? (Study 2)

How could group pain programs be structured to address consumer preferences, consider resource allocation, and optimise program outcomes? (Study 2 and Discussion)

There were five, group-related analytical themes generated from Study 1: (1) *comparison processes occur when there are opportunities to listen to and observe each other, and this is usually helpful*; (2) *a chance to experience feeling normal, not alone, and safe*; (3) *time for direct interaction between participants can be therapeutic and help learning*; (4) *group experiences can transform thinking, emotions, and social behaviours that have impact beyond the program*; and (5) *the group itself is valued, and its loss can be difficult* (Fig 1).

Findings highlighted that consumers valued being part of a group and clinical recommendations included promoting social interactions and leveraging positive outcome social comparisons within these groups.

Study 2 identified five categories: (1) *program content*; (2) *the group itself*; (3) *program structure*; (4) *facilitator*; and (5) *positive changes*. The group itself was the second most prevalent category, underscoring its importance to consumers. Group related subcategories were *thoughts and feelings*; *in-group behaviour*; and *similar others* (Fig 1).

Recommendations included extending their programs beyond six weeks, with additional attention to group processes.

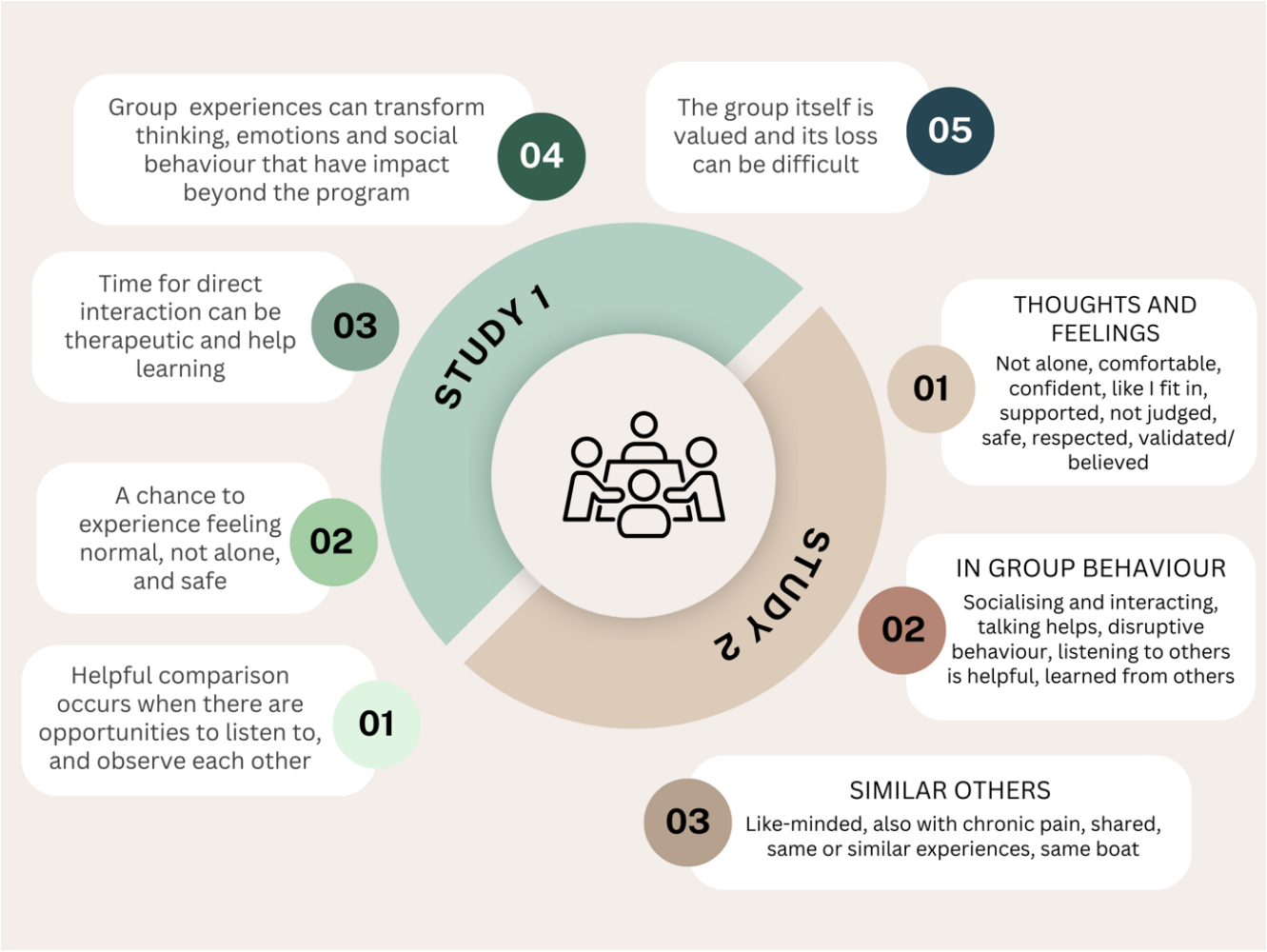


Figure 1 Analytical themes from Study 1 and group-related subcategories and codes from Study 2

The following sections compare findings of both studies in two stages of triangulation across multiple dimensions, to identify consistencies and discrepancies, explore trustworthiness, and facilitate a more comprehensive understanding and integration of findings.[1, 2]

4.2 TRIANGULATION STAGE 1

Synthesised, analytical themes from Study 1 were compared with group-related findings from Study 2. Despite the use of different analytical methods, group-related findings of both studies were largely consistent, although there were two synthesised findings from Study 1 not identified in Study 2. Specifically, comparison related findings from the systematic review were not clearly identified in Study 2, nor were changes in social behaviour beyond the group. These two findings are explored in depth in this section.

4.2.1 Social comparison

Social comparison was a prominent finding in the systematic review, but not clearly identified in Study 2. While the subcategory *similar others* from Study 2 could be conceptualised as a type of comparison (lateral comparison) [3] other forms of social comparison (upward and downward) were not identified. To explore this further, ten studies from the systematic review with distinct, comparison related, author-identified themes were selected for triangulation. [4-13] The ten studies, summarised in Table 1 (for complete study/program characteristics, refer Chapter 2, Tables 1 and 2), had no, or minor methodological concerns (Chapter 2, Table 3, CASP).

Characteristics in this group of studies were diverse. Group size was initially considered as a potential factor to explain the inconsistency, with the hypothesis that larger groups might have provided more opportunities for comparison. However, group sizes varied widely, ranging from as few as 4 participants to as many as 12.

All ten studies with comparison themes used interviews or focus groups for data collection so it is possible that comparison related data may not have emerged from surveys. Interview length was also considered, hypothesising that comparison may have only surfaced in longer interviews, but it was identified in both brief (6-18 minutes), and longer interviews (2-4 hours).

Table 1 Program and study characteristics of the ten studies with author-identified, social comparison-related themes (Study 1)

First Author/ Year	Comparison related theme (author identified)	Data collection	Interview length (mins)	Program	Facilitator	Group size	Program length	Group process component
Allen 2000[4]	Comparing self with other chronic pain patients	Interviews	30-60	PMP (CBT based)	Multi D team	10	4 wks (inpatient)	Not reported
Bradt 2016[5]	Repositioning oneself	Focus groups	60-90	Vocal music therapy	Music therapist	6-8	8 sessions over 8 wks	Circle songs: call-and-response interactions for emotional expression and creative connection. Vocal improvisations led to discussions on personal struggles and insights…
Bryl 2021[6]	Feeling motivated by others experiences	Interviews	30	PMP	Multi D team	4	Ongoing	Aimed for a supportive, respectful environment where all participants were heard and validated. Experienced patients mentored newcomers, creating a welcoming atmosphere and opportunity to serve in the role of helper and healer instead of just patient. Sessions were loosely structured for open discussion and sharing…
Larsen 2015[7]	Comparison	Interviews	120	Hope based positive psychology	Psych	5-8	6 sessions over 6 wks	Members were seated in a circle…facilitators first modelled their own responses and then supported group members to take turns sharing… group discussion ensued, largely in celebration…
Larsen 2018[8]	Comparison	Interviews	120	Hope based positive psychology	Psych	5-8	6 sessions over 6 wks	Facilitators first modelled collage debriefing by sharing their own collages. Participants then discussed each image on their collages, sharing hopeful stories. Facilitators encouraged elaboration on past, present, and future hopes, using prompts.
Ledingham 2020[9]	Monitoring	Interviews	28-61	Exercise	PT or exercise scientist	10	12 sessions over 6 wks	Participants rotated between exercise stations at their own pace while engaging with other participants
Pate 2021[10]	Benchmarking	Interviews	6-18	PMP	Multi D team	6-12	6 sessions over 6 wks	Not reported
Sallinen 2011[11]	Self-evaluation through comparison	Interviews	2-4 hrs	PMP	Multi D	10-12	17-20 days	Group discussions
Shim 2017[12]	Reframing through comparison	Interviews	Not reported	DMT	Dance movement therapist	4-6	10 sessions over 10 wks	Verbal check-in, shared movement practice, group discussion, closing with group movement ritual
Silva 2006[13]	Social comparison	Interviews	60-90	PMP	Multi D team	Not reported	8 sessions over 8 wks	Not reported

PMP = Pain management group program; CBT = Cognitive behavioural therapy; Multi D = Multidisciplinary; Psych = Psychologist; PT = Physiotherapist; DMT = Dance movement therapy

Other program and study variables were also considered. What stood out in this group of studies was the prevalence of detailed descriptions of social and group process facilitation methods. A notably higher percentage of these studies included this information than the overall set of studies. Six out of the ten studies (60%) reported detailed strategies for enhancing group processes in the programs, with descriptions of supportive environments, facilitator guidance, group rituals, shared practices, and strategies for encouraging interaction. In the larger sample of 94 studies from the systematic review, just eleven studies (12%) providing descriptions of strategies to enhance group interactions. Reporting the group process facilitation methods may indicate that this component was more carefully considered, or optimised.

It could be hypothesised that social comparison related findings identified in the systematic review were more connected to optimised group processes rather than program structure or group composition variables. It is possible that if group process interactions are optimised, then social comparison processes may be more likely.

4.2.2 Changes in social behaviour

The analytical theme *group experiences can transform thinking, emotions, and social behavior that have impact beyond the program* in Study 1 represented data that indicated changes specifically related to the group itself. While a small number of *positive changes* were identified in Study 2, these data were not clearly linked to the group itself, and there were no reported changes in social behaviour beyond the group environment.

In contrast, there were data very clearly linked to social behaviour changes in studies from the systematic review. To explore this inconsistency, six studies with the social behaviour-related code (*more social*) were selected for comparative analysis (Table 2).[5, 12, 14-17]

All studies in this group had no, or minor methodological concerns (refer Chapter 2, Table 3, CASP) and data collection methods were diverse.

The most consistent differences related to program structure, specifically group size and program length. The findings suggest that studies with larger groups (mean = 9 participants) lasting six to twelve weeks (mean = 8.7 weeks) yielded comments from participants related to changes in social behaviour. Perhaps larger groups and more time assisted with improving confidence in pursuing social participation outside of the pain management group program (PMGP). This highlights the need for further exploration and consideration of program structure and duration when aiming to achieve social outcomes in pain management.

Table 2 Program characteristics of the six studies with *more social* code

First Author/ Year	Social behaviour changes Code: more social	Data collection	Program	Facilitator	Group size	Session duration	Program length	Total hours	Group process component
Arfuch 2022[24]	*We have made very good friendships…we have had phone calls; we have met*	Interviews	PMP	Multi D team	10-12	2 hrs	12 sessions over 12 wks	24	Not reported
Bradt 2016[15]	*Before I was more isolated…but now I can go to work. I even had a date the other day.* *I was getting out. Enjoying people. I wanted to be around people again*	Focus groups	VMT	Music therapist	6-8	1 hr	8 sessions over 8 wks	8	Circle songs: call-and-response interactions for emotional expression and creative connection.
Bridgman 2021[5]	*Socially (the program) got me started! Woohoo!*	Survey	PMP	Multi D team	10	1 hr	6 sessions over 6 wks	6	Group discussion
Furnes 2014[8]	*One person told us that changes lie in how we deal with pain. I exercise more and am more social.*	Survey	CBT	Nurse, trained peer	10-12	2 hrs	8 sessions over 8 wks	16	Supervised dialogue
Harrison 2012[26]	*Since coming on the programme, I've been trying to socialise a bit more. But before that I used to be a hermit and I wouldn't, I wouldn't go out and spoil anybody else's fun you know. But I've been going out a bit now so, I go fishing even if I sit on the bank all day but I'm getting there*	Interviews	ACT	Multi D team	12-18	3.5 hrs	8 sessions over 8 wks, follow up 3 months	31.5	Not reported
Shim 2017[22]	*I've been saying good morning to my neighbors and people I don't know. I also ask people for help. It's because I gained confidence in being able to express how I feel and understood from being in this group. I don't used to do that because I stayed by myself. I am really coming along, inside and outside*	Interviews	DMT	Dance movement therapist	3-6	70 mins	10 sessions over 10 wks	12	Verbal check-in, shared movement practice, group discussion, closing with group movement ritual

PMP = Pain management group program; Multi D = Multidisciplinary; VMT = Vocal Music Therapy; CBT = Cognitive behavioural therapy ; ACT = Acceptance and Commitment Therapy; DMT = Dance Movement Therapy

4.3 TRIANGULATION STAGE 2

Findings from Study 2 were compared with findings of individual studies from Study 1 that (a) explored programs of similar format (intensity and group size), and (b) used similar data collection methods (surveys). Thirteen studies of group-delivered pain programs that had shared characteristics were identified:

a. Four studies that explored group-delivered pain programs with a similar intensity (total program hours) and group size [18-21]

b. Nine studies that explored diverse group-delivered pain programs using the same data collection method (surveys with open-ended questions) [15, 16, 22-28]

Comparisons focused on the group-related findings, and overall, group-related findings were congruent except for one study which identified the theme *got started socially*[15] (Appendix C: S1). This study explored a program with similar characteristics and survey questions to our QCA, but it involved a larger group size of ten participants. This aligns with the findings related to *becoming more social* in triangulation 1 (section 4.2.2), where changes in social behaviour may have been related to a larger group size.

The congruent, integrated findings from both studies are explored in the following section.

4.4 CONGRUENT, INTEGRATED GROUP-RELATED FINDINGS FROM STUDIES 1 AND 2

Both studies affirmed the central role of the group itself. Study 1 identified the group as highly valued, a finding echoed in the feedback surveys from FMC's PMU programs, where the group was the second most prevalent category despite no prompting questions in the survey (Appendix B: S3).

4.4.1 The significance of direct interaction

Findings related to the value of interaction were congruent. In Study 1, this was represented by the third analytical theme *time for direct interaction between participants can be therapeutic and help learning*, and in Study 2 by the group related subcategory *in-group behaviour*, with associated codes *socialising and interacting; talking helps; disruptive behaviour; listening to others is helpful;* and *learned from others*.

Exploration of the *social comparison* theme in triangulation stage 1 (section 4.2.1) indicated that optimised group process interactions may have been the key variable in those studies that reported social comparison themes.

Participants in both studies consistently reported the value of interacting with peers, except for isolated negative experiences of disruptive behaviour.

In Study 1, participants reported that they needed more time for direct interaction, with the time related code *we needed more time for discussion and group interaction* integrated into the analytical theme *time for direct interaction between participants can be therapeutic and help learning*. The characteristics of eight studies from the systematic review with the code *we needed more time for interaction* were explored. There was diversity in program structure factors such as session length, program duration, and total program hours (Table 3). Individual sessions ranged from 90 minutes to six hours, with program duration spanning from a single day to twelve weeks, and total program hours ranging from 6-24. The illustrative quotes consistently showed that participants wanted more time interacting with each other, suggesting that the perceived proportion of time dedicated to interaction, rather than absolute time, may have been critical.

Collectively, these findings may support enhancing and prioritising the interaction and social dimensions of group-delivered pain programs.

Table 3 Program characteristics of studies where the code we needed more time for interaction was identified

First Author/ Year	Program/ Facilitator	Session length	Program length	Total hours	Group process	Quotes
Ainsley 2021[29]	PMP/ Multi D team	3 hrs	8 sessions over 8 weeks	24	Guided group discussion	*" Talking as a group without anybody around, say in the break times, you can do, you know, you have a cup of tea, have a little chat and stuff like that and it becomes slightly more relaxed . . . having the time to start to bond and build relationships within the group . . . start to open up—to start to trust people and not feel ashamed and embarrassed and stuff like that—I think it is really important."*
Arfuch 2021[30]	PMP/ Multi D team	2hrs	12 sessions over 12 wks	24	Not reported	*"The problem was the lack of time to delve a little deeper into the different topics. Moreover, because each person had things to say and issues to share, and there was not enough time for everybody."*
Arfuch 2022[14]	PMP/ Multi D team	2 hrs	12 sessions over 12 wks	24	Not reported	*"The staff insisted that the program was not a psychotherapy group. That was crystal clear. But it would have been nice to have a little space for sharing worries in life. They cut us short in this sense."*
George 2017[31]	MBSR and matched control/MBSR teacher	2.5	8 sessions over 8 wks	20	Group discussion Interactive rather than didactic format	*"She kept saying: okay, be quiet." "It was the only thing that I didn't like." "Me, too." "Being told to be quiet." "We had a chance to not just hear what everybody has to say, but to talk to each other. And we were being curtailed from doing that."*
Goksor 2022[32]	PMP/ Multi D team	2 hrs	4 wks group education	8	Interactive group-discussions	*" Yes, it was a somewhat mixed group. But I think it was good. We did not have as much exchange among the participants as I would have liked to have."*
Salvo 2023[33]	Narrative therapy /Psychologist	6 hrs	1 full day	6	We ask about challenges young people face collectively to connect their experiences and give them the choice to speak individually or collectively	*"Gathering with the parents [was the most helpful part] so that they would get an understanding" as it was "more about the parents changing", and therefore would have liked "more active discussion between the parents and children."*
Silva 2006[13]	PMP/ Multi D team	2hrs	8 sessions over 8 wks	16	Not reported	*" I would have liked to have talked more to the people about their pain and how they you know whereas there wasn't really any... I mean ... of course like I say it started off with six and then there were three within a week or two, so I think six of us., it's like AA or any of those, when you get class participation you help each other whereas I think you know they need to do that more"*
Sloan 2018[27]	MBCT/ Psychologist	1.5hrs	4 sessions over 4 wks	6	Group discussion	*Prefer more open conversation*

PMP = Pain management group program; Multi D = Multidisciplinary; MBSR = Mindfulness Based Stress Reduction; MBCT = Mindfulness Based Cognitive Therapy

4.4.2 Changed feelings and social self-beliefs: more normal, not alone, and safe

Findings related to feelings and beliefs in the group environment were consistent across both studies. In Study 1, this was represented by the analytical theme *a chance to experience feeling normal, not alone, and safe,* and in Study 2 by the *thoughts and feelings* subcategory of the group-related category, with associated codes *not alone; comfortable; understood; more confident; like I fit in; supported; not judged; safe; respected; validated/ believed;* and *not embarrassed*.

In both studies, participants contrasted positive in-group experiences with prior experiences of feeling alone, isolated, excluded, embarrassed, guilty, ashamed, or misunderstood. Being part of a group helped participants realise they were not the only one dealing with chronic pain, with the group experience helping change perceptions that they should feel embarrassed or ashamed about having chronic pain or were 'alone in the world'.

Across the two studies, thoughts and feelings accounted for the highest number of group-related coding references. For example, in Study 1, there were 415 coding references in the *thoughts and feelings* category, compared to 227 related to *comparison,* and 215 related to *in-group behaviour*.

Given the prevalence of findings related to feelings and perceptions and affect across both studies, this was explored further to understand what factors might be important in group-delivered programs for individuals with chronic pain.

4.4.2.1 I am not alone

In both studies, the most significant group-related finding reported by participants was feeling *not alone*. The code *not alone* was identified in 55 out of 94 studies in the systematic review. To explore possible reasons for its absence in some studies, two complementary approaches were used. First, studies were grouped based on specific contextual factors such as third wave therapies, exercise only programs, gender homogeneity, stigmatised pain conditions, minority race/ethnicity, and small or large group sizes. Frequencies of the *not alone* code within these groups were calculated (Table 4).

Second, these findings were cross-checked by reviewing the characteristics of a subset of ten studies where *not alone* was explicitly identified as a theme or subtheme by the authors (Tables 5 and 6).

Table 4 Program/participant variables and frequencies of the code *not alone* (prevalence in total sample = 59%)

Variable	Not alone identified
'Third wave'[34] therapy-based programmes[17, 20, 22, 25-28, 31, 35-48]	16/21 (86%)
Exercise only groups[9, 49-54]	1/7 (14%)
Physiotherapist facilitator only[9, 49, 53, 55-58]	0/7 (0%)
Psychologist facilitator only[7, 8, 18-20, 25-28, 33, 35, 38, 39, 41, 44, 45, 59, 60]	14/19 (74%)
Gender homogeneity (100% women) [8, 11, 14, 21, 26, 30, 32, 59, 61-73]	13/21 (62%)
>50% of participants minority race/ethnicities [5, 6, 12, 19, 31, 51, 66, 74, 75]	8/9 (89%)
Homogeneous pain condition diagnosis (facial pain, fibromyalgia, headache, osteoarthritis, low back pain, vulvodynia, provoked vestibulodynia, sickle cell disease, unexplained chest pain, HIV related pain [9, 11, 14, 18, 21, 28-31, 38, 39, 50-53, 56-59, 61, 64, 66-68, 76, 77]	16/27 (59%)
Homogeneous stigmatised, or unexplained pain conditions (vulvodynia, provoked vestibulodynia, sickle cell disease, unexplained chest pain, HIV related pain) [31, 59, 64, 66, 68]	4/5 (80%)
Small groups (5 or less) [6, 12, 19, 21, 27, 38, 41, 53, 55, 78]	7/10 (70%)
Medium sized groups (6-11) [4, 5, 7, 8, 10, 11, 14-16, 18, 20, 23, 25, 26, 32, 33, 35, 36, 39, 43, 48, 57, 61-64, 66, 68-72, 74-76, 79-85]	25/42 (60%)
Large groups (12+) [17, 28, 31, 40, 44, 52, 56, 86, 87]	6/9 (67%)

Table 5 Program characteristics of the ten studies with author-identified, not alone related themes

First Author/ Year	Not alone related theme or subtheme (author identified)	Program	Facilitator	Group size	Session duration	Length of program	Group process component
Cattanach 2021 [18]	A feeling of not being alone	Mindfulness, MBCT, CT	Psych	5-6	2 hrs	8 wks	Guided inquiry into participants' experiences
Chen 2023 [37]	We are not alone!	Mindfulness-Based Chronic Pain Management	OT	8-10	2.5 hrs	12 wks	Not reported
Day 2011 [19]	Feeling of not being alone	CBT & education	Psych	3-4	90 mins	10 wks	Interactive group discussion
Goksor 2022 [32]	The value of participation: They felt less alone	PMP Education and exercise	Multi D team PT, OT	6-10	2 hrs	4 wks as a group	Interactive group-discussions
Jäger 2021 [43]	They felt that they were not alone	ACT	Psych & osteopath	9	2 hrs	6 sessions over 6 wks	Group activities and discussions
Lestequoy 2017 [74]	Group treatment contributes to feeling less alone and better coping	PMP based on MBSR	Meditation instructor	9	2.5 hrs	10 wks	Time for patients to connect and socialise
Mathias 2014 [65]	I'm not alone, others understand my pain	Acceptance based PMP-CBT, mindfulness, and ACT	Multi D team Clin psych, PT, nurse	6-12	6 hrs	8 wks	Not reported
Park 2020 [66]	Feeling not alone and validating the pain	Sickle cell PMP CBT, ACT, mindfulness, & compassion-focused approaches.	Multi D team Clin psych, PT	6	2 hrs	6 wks	Not reported
Sawdownik 2012 [68]	Not the only one	Education, Plus Mindfulness based CBT	Multi D team Gynaecologist, Psych, PT	11	3 x 2-hr group sessions, 2 x 1hr seminars	5 sessions over 12-16 wks	Not reported
Salvo 2023 [33]	Being with others with shared experiences - not feeling alone	Narrative therapy	Psych	10-11	6 hrs	1 day	We ask about challenges young people face collectively to connect their experiences and give them the choice to speak individually or collectively.

MBCT = Mindfulness Based Cognitive Therapy; CT = Cognitive Therapy; CBT = Cognitive Behavioural Therapy; PMP = Pain management group program; Multi D = Multidisciplinary; ACT = Acceptance and Commitment Therapy; Clin Psych = Clinical Psychologist; PT = Physiotherapist/Physical Therapist; OT = Occupational Therapist; Psych = Psychologist

Table 6 Study and demographic characteristics of the ten studies with author-identified, not alone related themes

First Author/ Year	Country	Gender (% F)	Mean age	Diagnosis	Race/ ethnicity	Data collection
Cattanach 2021 [18]	Australia	54	51.6	LBP	89% Caucasian	Interviews
Chen 2023 [37]	Canada	47	50.7	Not reported	Not reported	Individual interviews; Focus Groups
Day 2011 [19]	USA	80	53.25	Mixed	78% African American, 22% White American	Interviews
Goksor 2022 [32]	Sweden	100	Not reported	Mixed	Not reported	Interviews
Jäger 2021 [43]	UK	89	Not reported	Mixed	89% White	Interviews
Lestequoy 2017 [74]	USA	75	47	Mixed	50% Black, 25% White, 15% Latino/a	Focus groups
Mathias 2014 [65]	UK	100	Not reported	Mixed	White British	Interviews
Park 2020 [66]	UK	100	47.6	SCD	Black	Interviews
Sawdownik 2012 [68]	Canada	100	30.8	Vulvodynia	58% Caucasian, 32% South Asian, 10% Middle Eastern	Interviews
Salvo 2023 [33]	UK	Not reported	Not reported	Mixed	91% White British	Individual interviews; Survey

Distinct differences were noted between program styles. The code *not alone* was identified more frequently in studies that explored 'third wave' therapy-based programs (Mindfulness, ACT, MBSR, MBCT, DBT) and seven out of the ten studies with author identified *not alone* themes explored programs using 'third wave' style therapies. It appeared less frequently in studies that explored exercise programs, and not identified in seven studies that explored programs facilitated by a physiotherapist only (which included exercise only and multi-component PMGPs). It may be related to small group process interactions featured in third wave style group programs.

This finding was also identified frequently in studies of groups where there was a higher proportion (>50%) of participants from minority race/ethnicity populations, and in condition specific groups where the pain condition may have been more stigmatised, or unexplained. For those who experience racism, stigma and/or societal oppression, group composition characteristics related to race, ethnicity, or diagnosis may offer advantages in fostering belonging and feeling less alone.

'Third wave' program styles may offer advantages. It is unclear whether this is due to the program content or the emphasis on group processes and direct interaction between participants.

4.4.2.2 I feel more normal

In the QCA there was one reference to *not feeling embarrassed* from a participant in the mindfulness program. Codes related to *more normal* in the systematic review were identified in 23/94 studies and included *not weird, shamed, or embarrassed*; *didn't need to be embarrassed*; *more normal*; *the group has shown me that I'm actually OK, it's not in my head, I'm not weak or crazy*.

The code (more normal) appeared frequently in studies exploring programs with gender homogeneous groups (women only) and in studies of more potentially stigmatised, or unexplained pain conditions such as vulvodynia, sickle cell disease, unexplained chest pain, or HIV and AIDS related pain. It was not identified in studies where groups were facilitated by a physiotherapist only, or in large groups (more than 12). Unlike *not alone,* there were no clear links with program style. Table 7 provides a summary of the variables related to the code *more normal*.

Table 7 Program/participant characteristic variables and frequencies of the code *more normal* (prevalence in total sample = 24%)

Variable	More normal identified
'Third wave'[34] therapy-based programmes[17, 20, 22, 25-28, 31, 35-48]	4/21 (19%)
Exercise only groups[9, 49-54]	1/7 (14%)
Physiotherapist facilitator only[9, 49, 53, 55-58]	0/7 (0%)
Psychologist facilitator only[7, 8, 18-20, 25-28, 33, 35, 38, 39, 41, 44, 45, 59, 60]	5/19 (26%)
Gender homogeneity (100% women) [8, 11, 14, 21, 26, 30, 32, 59, 61-73]	11/21 (52%)
>50% of participants minority race/ethnicities [5, 6, 12, 19, 31, 51, 66, 74, 75]	3/9 (33%)
Homogeneous pain condition diagnosis (facial pain, fibromyalgia, headache, osteoarthritis, low back pain, vulvodynia, provoked vestibulodynia, sickle cell disease, unexplained chest pain, HIV related pain) [9, 11, 14, 18, 21, 28-31, 38, 39, 50-53, 56-59, 61, 64, 66-68, 76, 77]	10/27 (37%)
Homogeneous stigmatised, or unexplained pain conditions (vulvodynia, provoked vestibulodynia, sickle cell disease, unexplained chest pain, HIV related pain) [31, 59, 64, 66, 68]	4/5 (80%)
Small groups (5 or less) [6, 12, 19, 21, 27, 38, 41, 53, 55, 78]	2/10 (20%)
Medium sized groups (6-11) [4, 5, 7, 8, 10, 11, 14-16, 18, 20, 23, 25, 26, 32, 33, 35, 36, 39, 43, 48, 57, 61-64, 66, 68-72, 74-76, 79-85]	13/42 (31%)
Large groups (12+)[17, 28, 31, 40, 44, 52, 56, 86, 87]	0/9 (0%)

4.4.2.3 I feel safe

In the QCA there was one reference to feeling safe. Codes related to feeling safe in the systematic review were identified in 16/94 studies and included *safe; trust; feeling safe meant I could be honest; and safe atmosphere*. No clear patterns in group or participant characteristics were identified, although there were no large groups (12+) among the studies with codes related to *feeling safe* (Table 8).

Table 8 Program/participant characteristic variables and frequencies of the code *feeling safe* (prevalence in total sample = 17%)

Variable	Feeling safe identified
'Third wave' [34] therapy-based programmes[17, 20, 22, 25-28, 31, 35-48]	2/21 (10%)
Exercise only groups[9, 49-54]	1/7 (14%)
Physiotherapist facilitator only[9, 49, 53, 55-58]	1/7 (14%)
Psychologist facilitator only[7, 8, 18-20, 25-28, 33, 35, 38, 39, 41, 44, 45, 59, 60]	5/19 (26%)
Gender homogeneity (100% women) [8, 11, 14, 21, 26, 30, 32, 59, 61-73]	3/21 (14%)
>50% of participants minority race/ethnicities [5, 6, 12, 19, 31, 51, 66, 74, 75]	1/9 (11%)
Homogeneous pain condition diagnosis (facial pain, fibromyalgia, headache, osteoarthritis, low back pain, vulvodynia, provoked vestibulodynia, sickle cell disease, unexplained chest pain, HIV related pain) [9, 11, 14, 18, 21, 28-31, 38, 39, 50-53, 56-59, 61, 64, 66-68, 76, 77]	3/27 (11%)
Homogeneous stigmatised, or unexplained pain conditions Vulvodynia, provoked vestibulodynia, sickle cell disease, unexplained chest pain, HIV related pain[31, 59, 64, 66, 68]	1/5 (20%)
Small groups (5 or less) [6, 12, 19, 21, 27, 38, 41, 53, 55, 78]	1/10 (10%)
Medium sized groups (6-11) [4, 5, 7, 8, 10, 11, 14-16, 18, 20, 23, 25, 26, 32, 33, 35, 36, 39, 43, 48, 57, 61-64, 66, 68-72, 74-76, 79-85]	7/42 (16%)
Large groups (12+)[17, 28, 31, 40, 44, 52, 56, 86, 87]	0/9 (0%)

In summary, findings suggest that in 'third wave' style therapy programs, perhaps due to enhanced interaction, participants reported *I'm not alone* more frequently. When participants were from a minority race or ethnicity, or experienced stigma related their pain diagnosis, more homogeneous groups may have reduced their perceptions of being alone or feeling embarrassed/ashamed. In gender homogeneous groups (women only), *more normal* (not embarrassed or ashamed) was reported more frequently. In groups of more than 12 participants, comments about *feeling safe* were less prevalent.

4.4.3 Positive changes

Change related data were scant in Study 2, perhaps due to the survey questions not specifically prompting respondents to reflect on changes (Appendix B: S3), in contrast to some other studies that used surveys for data collection. [23, 25, 27] Changes in social behaviour (becoming more social) were identified in Study 1, but not Study 2. This inconsistency has been explored in a previous section (4.2.2)

4.4.4 Program ending

There were distinct findings in Study 1 related to off-boarding problems (group termination) represented by the theme *the group itself is valued and its loss can be difficult*. In Study 2, off-boarding difficulty was not as immediately evident, however subcategories related to *program structure* such as *program length* and *post-program*, with the associated codes *wanted the program to be longer than 6 weeks* and *need ongoing support or sessions*, could be conceptualised as indications that participants felt unprepared for the program to end.

4.5 CONNECTING MAIN FINDINGS WITH LITERATURE AND THEORETICAL FRAMEWORKS

4.5.1 The value of interaction in group-delivered programs

The value of peer interaction in group-delivered programs has been reported in various reviews, including a review of group cognitive-behavioural therapy (CBT) for chronic pain,[89] a synthesis of qualitative studies on self-management group programs for chronic conditions other than pain, [90] and a meta-analysis 30 group-delivered pain management programs.[91] There is evidence that the impact of chronic pain can be reduced with a greater sense of inclusion, and engagement with others.[92-94] Two reviews (published after our systematic review was conducted) explored the role of social support in reducing feelings of isolation and loneliness among individuals with chronic pain.[93, 94] Franqueiro et al.[93] highlighted how group-based social support fostered a sense of belonging and shared understanding, helping individuals feel less alone and alleviating emotional distress. Similarly, Gong et al.[94] emphasised the importance of emotional support from social networks in mitigating

feelings of isolation. Both reviews underscored that social support and interaction is essential for improving emotional well-being and overall quality of life for individuals with chronic pain.

Emphasising peer interaction over content is additionally supported by adult education research, particularly for low literacy learners, where social interaction and peer support in adult education programs significantly enhanced learning outcomes and created a supportive learning environment where learners felt more connected and engaged.[95]

Positive social interactions and emotional support from close relationships can improve coping capacity and influence pain outcomes by providing emotional and psychological buffers against distress.[96 97] Support from others may modulate pain by reducing its salience, influenced by emotional and cognitive regions in the brain that are also associated with pain processing, such as the prefrontal and insular cortices.[98, 99]

4.5.2 Social comparison in group-delivered programs

Social comparison has been explored in studies of group-delivered programs for chronic pain and other chronic health conditions,[3, 100, 101] and in studies of support groups for chronic conditions other than pain.[102, 103] It has been identified in syntheses of qualitative studies on group-delivered programs for chronic conditions,[90, 104] and a review of systematic reviews on peer support interventions for chronic conditions, including pain.[105]

Comparison related findings are consistent with social comparison theory[106] social cognitive theory's observational learning and modelling,[107] and social rank theory.[108, 109]

Social comparison theory suggests that individuals have an inherent drive to evaluate their own abilities, opinions, and values.[106] People tend to compare themselves to others to assess their standing, which helps them understand their strengths, weaknesses, and social position. Individuals with chronic illness are more likely to engage in comparison as a cognitive strategy when lacking information and facing uncertainty.[3, 110, 111] The Identification/Contrast model offers a framework for understanding how individuals compare themselves to others across various dimensions, including both the perceived similarity or dissimilarity with the comparison target (identification or contrast) and the direction of the comparison (upward or downward).[3, 112] Upward identification occurs when individuals see themselves as similar to someone better off, fostering optimism, hope, and motivation. Downward contrast occurs when individuals view themselves as dissimilar to someone worse off, typically leading to relief or reassurance by recognising their relatively better position. When social comparison is not possible due to significant differences between individuals and others, feelings of isolation may arise. In upward contrast, others' advantages seem unattainable due

to perceived dissimilarity, while in downward identification, decline may appear inevitable due to perceived similarity (see Fig 2).[3, 106, 112]

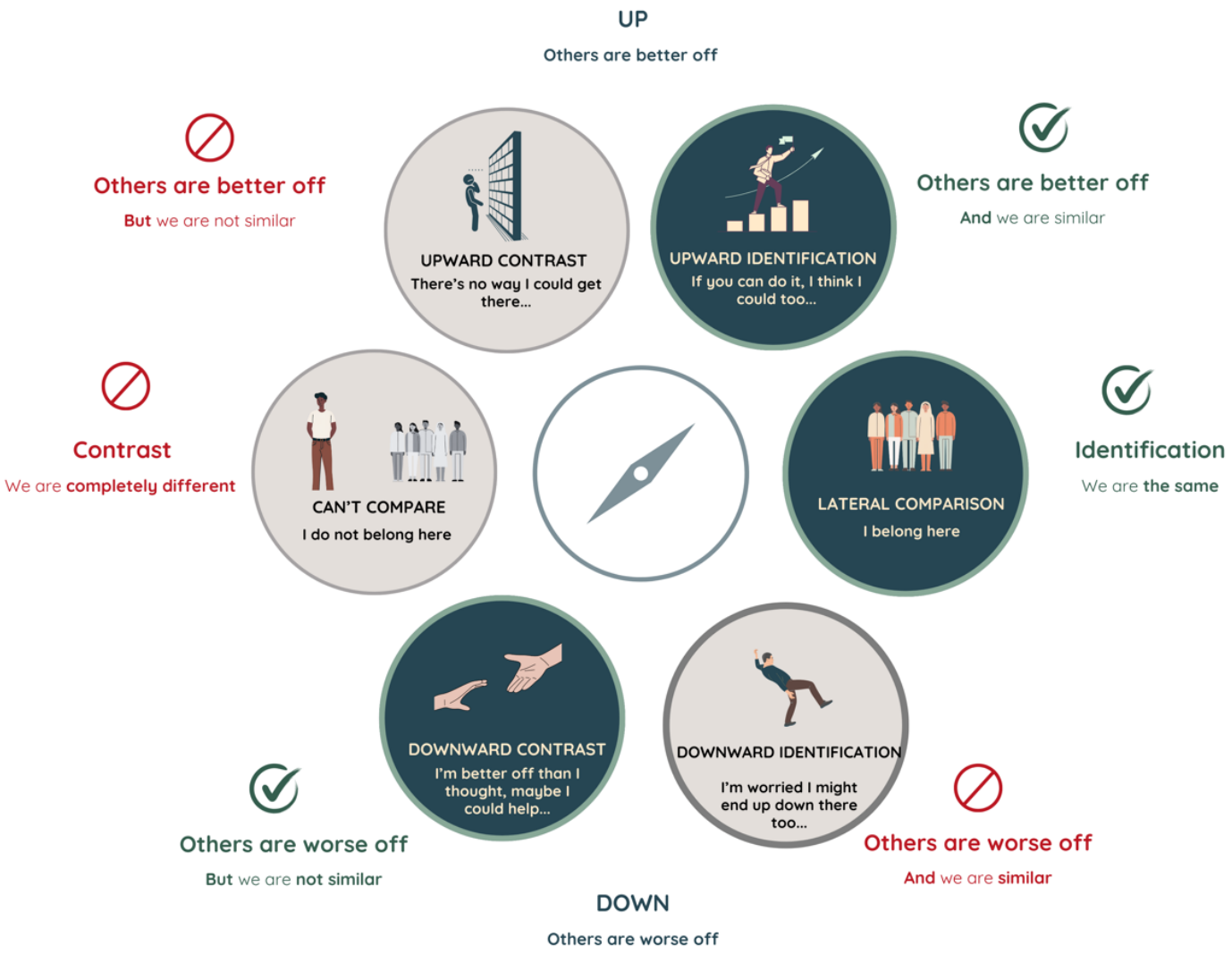


Figure 2 Social comparison theory and the identification/contrast model[106, 112]

In studies of women with fibromyalgia, negative outcome comparisons (upward contrast and downward identification) were more likely in those with higher pain perception, or psychological distress (higher levels of anxiety and depression).[3, 110, 111]

Exploration of social comparison in triangulation stage 1 (section 4.2.1) demonstrated that social comparison related themes were more prevalent in studies which reported group process methods.

This suggests that it may have been opportunities for direct interaction that supported, or enabled social comparison processes to occur, which is congruent with social cognitive theory.[107] According to social cognitive theory, social comparison is one way people learn and develop self-efficacy. People observe others' behaviours, successes, and failures, and compare themselves to these models. Comparison helps gauge one's own abilities and informs beliefs about what they can achieve, impacting a person's sense of self-efficacy, which then influences their motivation and behaviour.[107]

Social rank theory is a psychological theory that explores how individuals' perceptions of their social standing or rank within a group affect their emotions, behaviours, and mental health.[108, 109] The theory is grounded in evolutionary psychology and suggests that human emotions and behaviours are heavily influenced by hierarchical social structures, much like in other social animals.[113, 114] Perceived social rank refers to an individual's perceived position within a social hierarchy compared to others, which can influence mental and physical health outcomes. Perceived low social rank has been linked to increased stress, depression, and anxiety,[109] and may have additional pain related implications.[115]

Related to rank, subjective social status (SSS) is a person's self-assessment of their rank within a societal structure.[116] SSS has been shown to predict health outcomes independently of objective measures such as income or education. Individuals who perceive themselves as lower in the social hierarchy tend to experience higher levels of stress, poorer health outcomes[116, 117] and more somatic symptoms.[118] A study that explored the relationship between SSS and pain found that individuals with higher SSS were less likely to be prescribed analgesics, even when controlling for objective socioeconomic factors like education and occupation.[119]

These related theories describe the role of social comparison in shaping self-perception, emotion, and behaviour. Social comparison theory explores how comparisons with others influence self-esteem and behaviour, social cognitive theory focuses on learning and self-efficacy shaped by social interactions, and social rank theory emphasises the evolutionary and hierarchical aspects of social comparison.

4.5.3 Changed feelings and social self-beliefs: more normal, not alone, and safe

Feeling *not alone, understood, validated, normal, safe*, and may be conceptualised as inter-related within broader frameworks of belonging[120, 121] and social safety,[122] which were considered in the discussion section of Study 1(Chapter 2). There is additional congruence with Paul Gilbert's definition of social safeness: the warm, soothing emotional state experienced in the presence of close, trusted others, characterised by feelings of emotional security, belonging, and connection.[123, 124] Social

safeness has been conceptualised as a distinct, third affective dimension, separate from positive or negative affect, with unique contributions to emotional regulation, stress reduction, wellbeing and mental health.[124, 125] Social safeness is distinct from feeling safe, as it involves positive emotions that arise specifically from supportive relationships and compassionate interactions. Unlike safety-seeking, which focuses on avoiding harm, social safeness activates the parasympathetic nervous system and buffers against depression, shame, social anxiety, and self-criticism.[123]

Social comparison[106] and social rank theories[108, 109] (as discussed in section 4.5.2) also provide compelling explanations for how a group of similar others may reduce self-conscious emotions. According to social comparison theory, when individuals join a group where others share similar experiences, social comparisons are shifted to this new reference group. This shift can reduce feelings of shame or embarrassment, as individuals realise that their challenges are shared within this group. Instead of feeling alone or different, they feel understood, validated, and accepted.[106] Self-assessments of relative rank within this new reference group improves subjective social status (SSS), which in turn lowers negative, self-conscious emotions.[108, 109]

4.5.4 Positive changes beyond the program

Becoming more social was identified as the primary behavioural change associated with program participation, which aligns with the aims of group based psychotherapy programs such as Groups 4 Health (G4H), which encourages the formation of new and enduring group memberships.[126] The therapy group itself is presented as an active ingredient:

'an in vivo learning experience that allows people to scaffold from one positive experience of group membership to the formation of other positive and enduring group memberships' [127]

PMGPs with more people in each group, and over a longer period of time may offer more opportunities for participants to experience corrective, positive social experiences. When a social environment is experienced as positive, and with repeated practice, the likelihood of pursuing other social connections beyond the PMGP may be increased.

A recent meta-analysis of PMGPs found that 12-13 sessions were required to achieve optimal effect sizes for psychological health, while 10 sessions were necessary for a significant reduction in pain intensity. [91] Reviews of health behaviour change interventions have reported that 12 weeks to 6 months is required to achieve sustainable results, allowing sufficient time for individuals to establish new habits and integrate changes into their routines.[128, 129]

4.5.5 Program ending

The impact of group termination is well described in psychotherapy literature. [130-132] The significance of the group program ending in a pain management context is unexplored and may be underestimated. Having experienced a new reference group, it is it is understandable that participants may be reluctant for group programs to end. Ongoing support networks of similar others with a shared orientation towards knowledge, activity, and optimism may be helpful.

In G4H, the group termination phase is acknowledged and addressed. Participants are encouraged to maintain the social connections formed during the program to help mitigate feelings of loneliness and isolation after the group's official end and the program teaches participants how to apply the social skills they have learned in new environments, enabling them to build and maintain social networks outside the group. [126, 127]

4.6 PROPOSED INTERACTION AND SOCIAL COMPARISON-BASED MODEL

The findings of this thesis together with principles of social comparison theory, [106, 112] social rank-related theories, [108, 109, 113, 114] social safeness, [124] and social cognitive theory[107] have been integrated to propose an interaction and social comparison-based model of change in group-delivered pain programs (Fig 3).

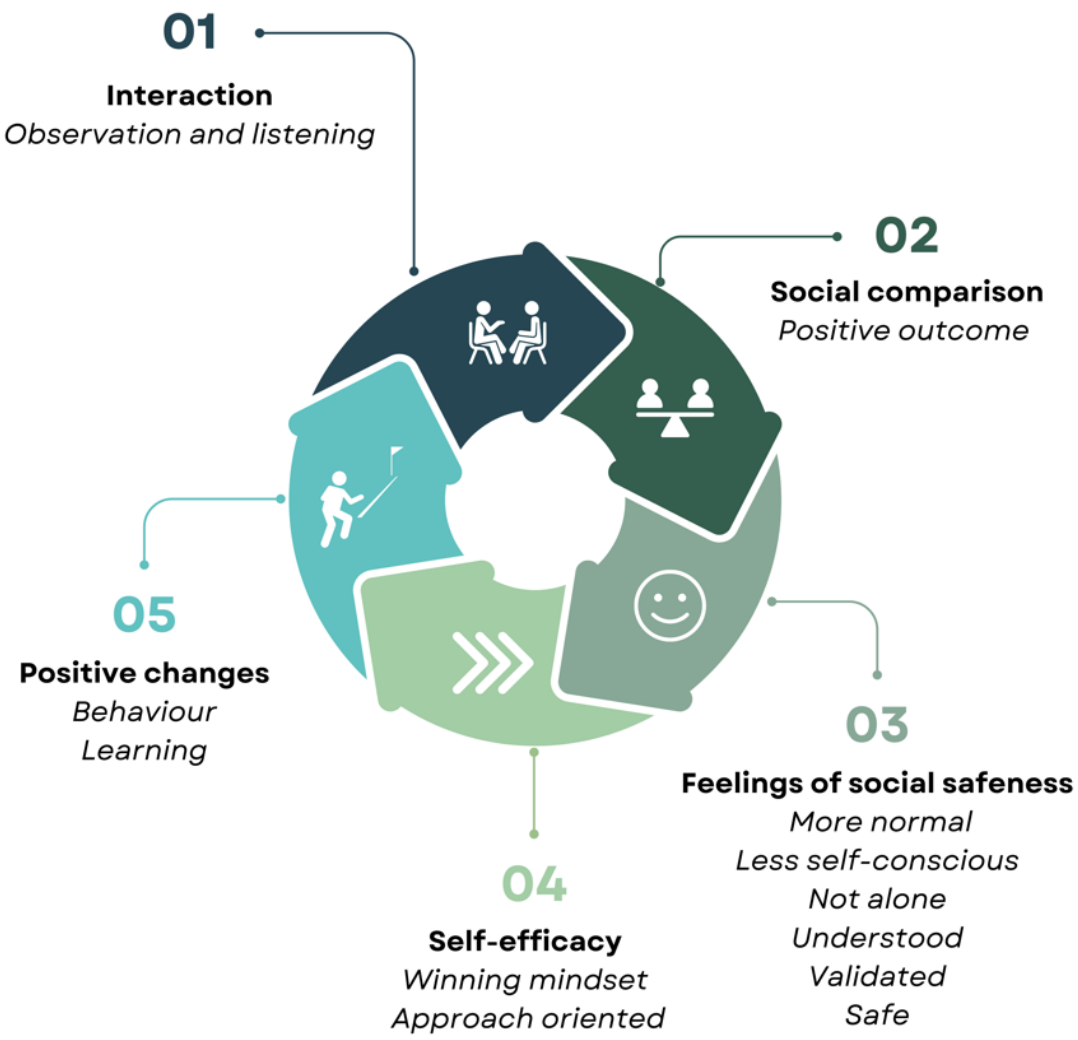


Figure 3 Interaction and social comparison-based model

When participants have opportunities to engage directly with similar others, these interactions provide opportunities for observational learning. [107] Through these interactions, participants may begin to engage in social comparison. [106] If comparison outcomes are positive, in a new reference group, where social rank is perceived as more equal, individuals may feel less threatened, less self-conscious, and more secure, and feelings associated with social safeness.[106, 124, 133, 134] This in turn, may improve self-efficacy[107] and the likelihood of approach behaviour, which researchers have termed a 'winning mindset'.[113] With this mindset, cognitive and behaviour changes are more likely.[106,107,133] When feeling secure, and oriented towards approach rather than withdrawal, interaction with others is more likely, creating a positive feedback loop between interaction, positive outcome comparison, social safeness, self-efficacy and behaviour that promotes further interaction.

The relationship between positive outcome social comparisons and feelings of social safeness is congruent with findings from a study by Gilbert et al.[135] Their factor analysis of a measure specifically designed to assess individuals' perceptions of feeling socially safe, connected, and cared for revealed that social safeness was positively associated with positive social comparison and negatively linked to feelings of shame and submissive behaviour.

4.7 CLINICAL AND PRACTICE IMPLICATIONS

4.7.1 Program planning

4.7.1.1 Group composition

Group composition has been explored in CBT and non-CBT groups (MBSR, ACT, and expressive-supportive approaches) for chronic pain.[136, 137] Two studies highlighted the potential benefits of more gender-homogeneous groups in certain contexts, particularly for female participants. Participants who experience racism or feel stigmatised due to their pain condition may also benefit from more homogeneous groups. While existing studies have highlighted the potential benefits of gender-homogeneous groups for female participants, our findings suggest that homogeneity based on other characteristics, such as minority race or diagnosis (if a stigmatised pain condition) may additionally reduce social distress.

In relation to group size, research by Wilson et al.[136] suggested that larger groups (up to 12) might lead to better outcomes than smaller groups of 5-8 participants in some contexts. The meta-analysis by Alldredge et al.[137] did not find group size to be a significant moderator of treatment outcomes overall, although the studies they reviewed primarily had groups of 5-10 participants. In our systematic review, we found that codes related to feelings of safety were less prevalent in groups larger than 12 participants, while a change in social functioning i.e. becoming more social was reported in groups with a mean of ten participants. Taken together, these findings suggest that groups of 8-12 participants may offer a balance, providing the social benefits of larger groups while providing a sense of safety for participants.

4.7.1.2 Program structure

In Study 1, participants who reported a change in social behaviour were more likely to have attended groups lasting eight to twelve weeks (mean = 9.3 weeks). Many participants in Study 2, the QCA, wanted the program to last longer than six weeks, which is congruent with findings of a study examining a program of similar intensity (12 hours total, with 8 sessions of 90 minutes each).[20]

In Study 2, participants valued program content components including pain science education, mindfulness, exercise, and CBT, with *program content* the most prevalent category, followed by the

group itself. This indicates that the group itself was important, but program content and learning outcomes were also valued by consumers. In Study 2, some participants felt that sessions were overly dense with content. Extending the program duration could provide opportunities to distribute the existing content more evenly, allowing for additional time to be spent on social interactions, particularly in early sessions. The end of program, or offboarding schedule should be considered to avoid group participants feeling abandoned or unprepared for the end of the program. Integrated findings suggest group programs should last 8-12 weeks. As noted in Study 2, participant characteristics, venue size, facilitator expertise, intake procedures and policies are important practical considerations when determining program length, group size and composition.

4.7.2 Program implementation

4.7.2.1 Prioritise interaction

Converging evidence supports the inclusion of group process components, including direct, peer to peer interaction within PMGPs. Inadequate time for interaction may limit opportunities for positive outcome social comparisons, and the development of later stages of the proposed model (Fig 4).

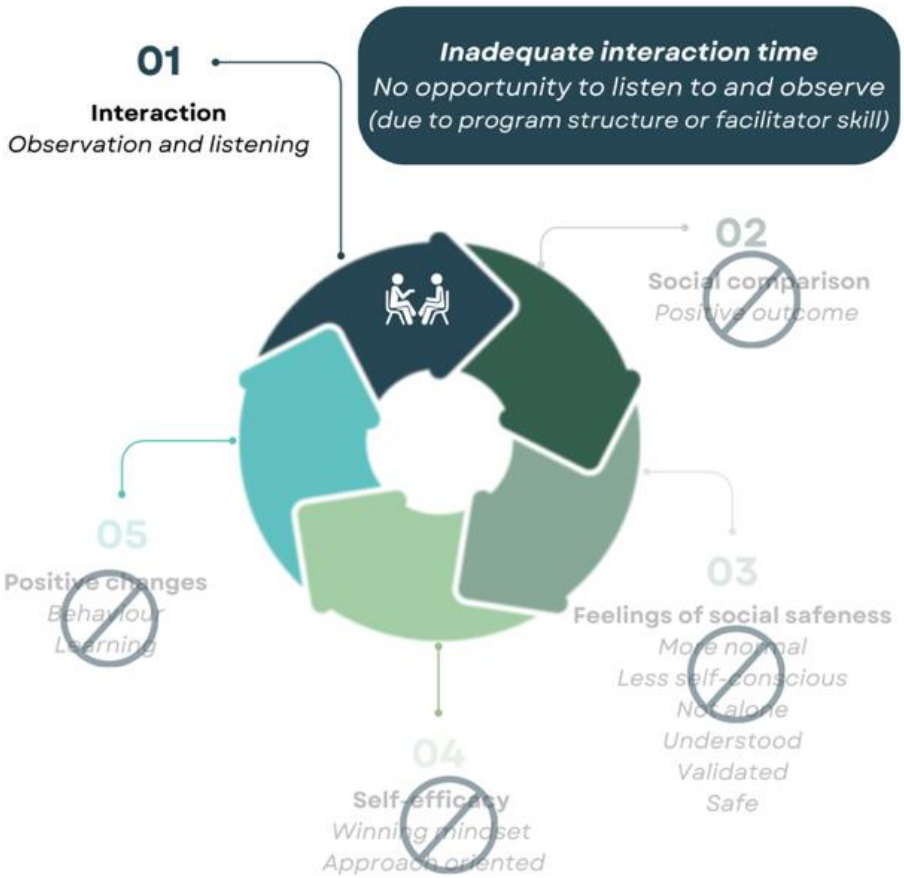


Figure 4 Hypothesised impact of inadequate interaction time

Positive outcome, social comparison-related themes were identified in studies where group process components were reported in detail (section 4.2.1). A summary of the methods described in those studies[4-13] are presented in Table 9.

Table 9 Methods for facilitating group processes in the studies with *comparison* related themes

Group participation and interaction	Active participation and interaction among group members, such as discussions, sharing, and taking turns *Vocal improvisations led to discussions on personal struggles and insights* [5] *Sessions were loosely structured for open discussion and sharing* [6] *Group members take turns sharing… group discussion ensued* [7] *Participants then discussed each image on their collages, sharing hopeful stories* [8] *Participants rotated between exercise stations at their own pace while engaging with other participants* [9]
Supportive environment	A supportive, respectful, and welcoming atmosphere where participants feel heard, validated, and encouraged *Sometimes evolving into spontaneous singing to affirm group discussion ideas* [5] *Aimed for a supportive, respectful environment where all participants were heard and validated. Experienced patients mentored newcomers, creating a welcoming atmosphere and opportunity to serve in the role of helper and healer instead of just patient* [6] *Members were seated in a circle…*[7] *Group discussion ensued, largely in celebration…*[7] *This approach helped group members learn to be curious and supportive* [8]
Facilitator guidance	Facilitators or experienced members played a role in guiding the activities i.e. modelling behaviour, leading discussions, or encouraging participation *Facilitators first modelled collage debriefing by sharing their own collages. Facilitators encouraged elaboration on past, present, and future hopes, using prompts* [8] *Facilitators first modelled their own responses and then supported group members to take turns sharing* [7] *Sessions were loosely structured* [6] *Experienced patients mentored newcomers, creating a welcoming atmosphere and opportunity to serve in the role of helper and healer instead of just patient.* [6]
Group rituals or shared practices	Rituals or shared practices, such as group movement or closing rituals, were used to create a sense of unity and closure *Circle songs: call-and-response interactions* [5] *Closing with group movement ritual* [12]

Physiotherapists, and other allied health professionals with undergraduate programs that do not include group facilitation skills as a core component (as distinct from program facilitation i.e. delivering exercise or pain science components), may require additional training to effectively implement these methods in PMGPs. It is unclear how much time should be allocated to interaction, however findings suggested that the perceived proportion of session time dedicated to interaction, rather than absolute time, may have been critical (section 4.4.1).

4.7.2.2 Monitor social comparison

If interaction opportunities are optimised (4.7.2.1), comparison processes are likely to occur naturally for many people (Fig 3, stage 2). In Study 1, although positive comparison outcomes were reported far more frequently, negative comparison outcomes should be monitored. Negative outcome comparisons could lead to negative affect, such as feeling excluded, more anxious, or depressed (Fig 5).

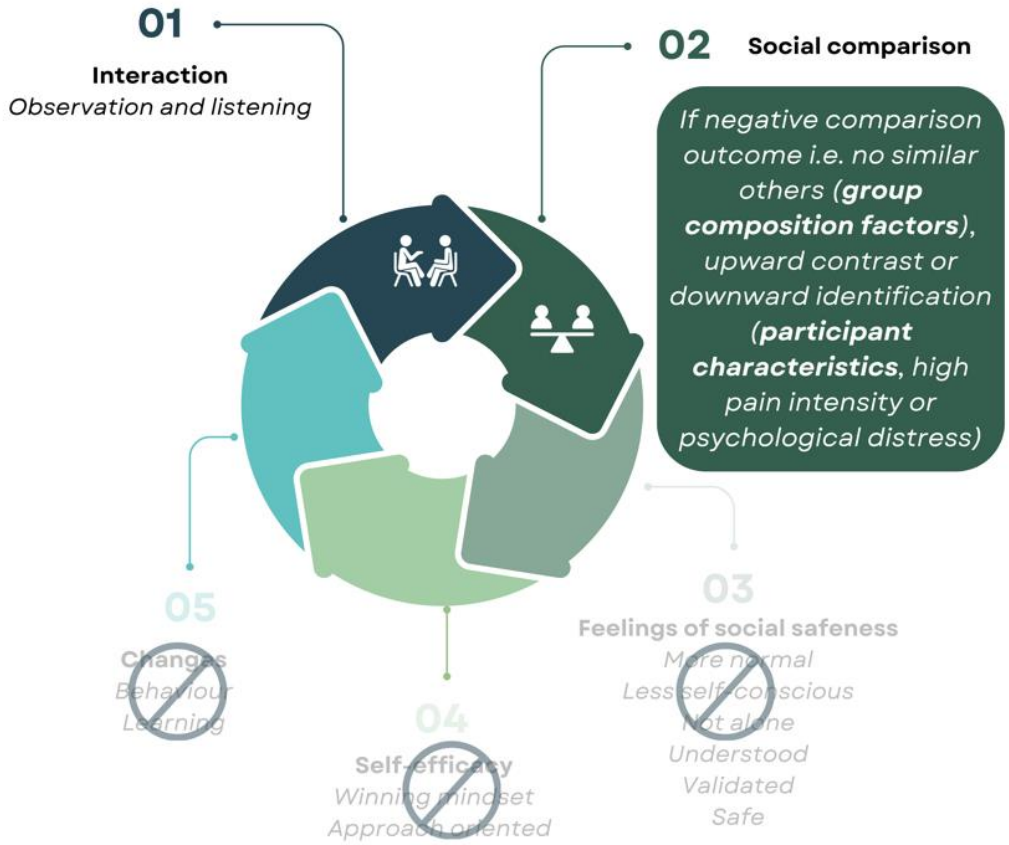


Figure 5 Hypothesised impact of negative comparison outcome

Studies from the systematic review indicated that when participants lacked similarity in group settings, they felt like the 'odd one out'[13, 18] based on factors such as diagnosis, [66] pain severity, [49] or age. [78] Those with higher levels of pain intensity or psychological distress may be more likely to use negative outcome comparisons. [110, 111] For monitoring, subjective social status (SSS) could be considered. SSS is typically measured using a single item visual analogue scale with a picture of a ladder, asking individuals to place themselves on one of the ten possible rungs reflecting their position in a defined social group.[116] Other tools for measuring social comparison outcomes could

also be considered as part of future research. Social outcomes related to loneliness and social connectedness could be evaluated, as supported by recent literature. [138, 139]

4.8 STRENGTHS AND LIMITATIONS

This thesis draws on the strengths of both a systematic review (Study 1) and a qualitative content analysis (Study 2), providing a comprehensive exploration of group processes in group-delivered pain programs. Study 1 used a rigorous, transparent synthesis method, allowing analysis of a large and diverse set of studies. The inclusion of high-quality studies across different contexts strengthened the generalisability of findings. Study 2 examined feedback from participants in four distinct program styles over three years, incorporating both qualitative and quantitative methods to highlight how often the group itself was mentioned relative to other program aspects. The diversity of the research team, with both clinical and research expertise, further enhanced the credibility of the findings.

There are several limitations to this thesis. Both studies lacked representation from program non-completers, which introduces potential self-selection bias. Limited representation of participants who may have discontinued the program, had less favourable experiences, or were deemed unsuitable for inclusion in group programs may have skewed the findings towards more positive outcomes. In Study 1, limited reporting of researcher reflexivity in 53% of included studies may have introduced bias into the synthesis. In Study 2, the de-identified nature of the data restricted the ability to assess participant demographics, limiting the generalisability of the findings, and the ability to analyse how specific subgroups may have experienced the program. Additionally, as the survey was administered by clinicians, responses may have been influenced by social desirability or hindsight bias. The clinician-researcher lens across both studies may have impacted interpretation and synthesis of the findings.

Despite these limitations, the consistent and congruent themes across both studies reinforce the robustness of the findings. The triangulation of data from two complementary studies strengthens the overall validity of the thesis and provides a practical model, with recommendations for improving the structure and delivery of group-delivered pain programs with the specific aim of improving outcomes.

4.9 FUTURE RESEARCH DIRECTIONS

1. Consumer and expert participation and co-design could be considered to establish group process and interaction components i.e. time needed, dyads, small groups, rituals, other activities.

2. Consumer and expert participation and co-design could be used to establish whether directly addressing and providing social comparison related psychoeducation in pain groups would be helpful.

3. Consumer and expert participation and co-design could help identify skill requirements and knowledge gaps for those facilitating PMGPs in order to develop structured training programs to improve skills in delivering group process and interaction components of PMGPs.

4. Consumer and expert participation and co-design could assist in establishing appropriate evaluation tools for each stage of the model.

5. Standard and optimised group process delivery of PMGPs or pain education programs could be compared in relation to pain and social outcomes, with an assessment of whether optimising peer interactions and addressing and monitoring social comparison improves patient outcomes.

6. The interaction and comparison model could be tested in other group contexts, including programs for other chronic health conditions, and in videoconferencing formats.

4.10 CONCLUSION

This thesis highlights the importance of social factors and the group itself in group-delivered programs for people with chronic pain. Consumers valued peer interactions, the opportunity to compare themselves with others, and the feeling of connection and social safeness the group setting provided. Triangulating findings from two studies provided a more complete understanding of how programs might be structured and implemented to improve experiences and outcomes. The interaction and social comparison-based model provides a framework for understanding the significance of peer interactions, positive outcome comparisons, and feelings of social safeness. This may then support self-efficacy, learning, and behaviour change within group-delivered programs. Future research could focus on refining the social components of group-delivered programs, developing facilitator training, and establishing evaluation tools to assess whether optimising social factors and the group itself improves patient experiences and outcomes.

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APPENDICES

Appendix A: Supplementary material for Chapter Two

Appendix B: Supplementary material for Chapter Three

Appendix C: Supplementary material for Chapter Four

Appendix A Supplementary material for Chapter Two

Supplementary 1 (S1): Pre-registered protocol 144

Supplementary 2 (S2): Protocol amendments 147

Supplementary 3 (S3): Search strategies 148

Supplementary 4 (S4): Full text exclusion reasons 152

Supplementary 5 (S5): Codebook 158

Supplementary 6 (S6): Early development of categories 169

Supplementary 1 (S1): Pre-registered protocol

UNIVERSITY of York
Centre for Reviews and Dissemination

Systematic review

1. * Review title.
Exploring the perspectives and experiences of consumers relating to the group itself, in group-delivered pain management programmes: A systematic review and meta-synthesis of the qualitative literature

2. Original language title.
English

3. * Anticipated or actual start date.
15/01/2023

4. * Anticipated completion date
31/12/2023

5. * Stage of review at time of this submission.
The review has not yet started: Yes

Review stage	Started	Completed
Preliminary searches	No	No
Piloting of the study selection process	No	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Provide any other relevant information about the stage of the review here.

6. * Named contact.
Marelle Wilson

7. * Named contact email.
marelle.pocock@mymail.unisa.edu.au

8. Named contact address
University of South Australia
Allied Health and Human Performance
Innovation in Implementation And Clinical Translation (IIMPACT) in Health
City East Campus
GPO Box 2471
Adelaide SA 5000

9. Named contact phone number.
+61 409282540

10. * Organisational affiliation of the review.
University of South Australia

Organisation web address:
https://www.unisa.edu.au

11. * Review team members and their organisational affiliations.
Ms Marelle Wilson, University of South Australia
Professor Shylie Mackintosh, University of South Australia
Dr Dianne Wilson, University of South Australia
Dr Amelia Searle, Flinders Medical Centre

12. * Funding sources/sponsors.
This research is supported by an Australian Government Research Training Program (RTP) Scholarship

13. * Conflicts of interest.
None

14. Collaborators.

15. Review question.
What are the perspectives and experiences of consumers relating to the group itself, in group-delivered, pain management programmes?

16. * Searches.
MEDLINE (via Ovid), Emcare (via Ovid), APA PsycINFO (via Ovid), CINAHL complete (via EBSCOhost), and Scopus.

17. URL to search strategy.
https://www.crd.york.ac.uk/PROSPEROFILES/382447_STRATEGY_20221214.pdf

18. * Condition or domain being studied.
The experience of consumers related to the group itself in group-delivered, pain management programmes. These programmes can vary in content but typically include education, exercise (in any form) and/or mindbody techniques such as relaxation or meditation and are delivered in a group, either in person or via Telehealth.

19. * Participants/population.
Adults (aged 18 or over) with persistent pain defined as pain lasting 3 months or more, as defined by the International Association for the Study of Pain (IASP) (Treede et al., 2015).

20. * Intervention(s), exposure(s).
Inclusions: Any pain management programmes where the programme consisted of four or more sessions, conducted in a group, delivered either face to face (in-person) or virtually/telehealth/digitally.

Exclusions: Studies will be excluded if the group did not include a facilitator i.e. support groups

21. * Comparator(s)/control.
Not required

* Types of study to be included.
-Included: Qualitative studies that explore patient/consumer experiences in depth via interviews or focus groups

- Mixed method studies with the qualitative data only extracted
Excluded: Quantitative only studies

23. Context.
Participants must be community swelling adults (aged 18 or over), with persistent/chronic pain and attended a group-delivered, pain management programme where the programme consisted of 4 or more sessions.
Participants from any country will be considered in this analysis but the study must be written in English.

24. * Main outcome(s).

This review will centre on the perspectives and experiences of consumers relating to the group itself in group-delivered pain management programmes. Studies have qualitatively explored the entire programme, including content and facilitator/ therapeutic alliance, in addition to the role of the others in the group. In this review, we will be focussing on the consumer's perspective and experiences of the role of the group itself.

Measures of effect.

NA

25. * Additional outcome(s).

None

Measures of effect

NA

26. * Data extraction (selection and coding).

Data extraction will be conducted by two reviewers, using a customised data extraction form with categories including publication specific details (title, year of publication and author, details about participants and the intervention itself), qualitative data including consumer comments, the interview guide and a summary of the themes and findings. Disagreements between reviewers will be resolved by discussion, or if required, consultation with a third reviewer.

27. * Risk of bias (quality) assessment.

The Critical Appraisal Skills Programme tool (CASP International Network, 2013) will be used to assess the methodological quality of each study. The CASP checklist includes 10 criteria based on research aims, methodology, design, recruitment, data collection, consideration of reflexivity, ethical issues, data analysis, a clear statement of findings, and demonstrating the value of the research.

28. * Strategy for data synthesis.

The qualitative data, themes and findings of included studies will be imported to NVivo 12/14 software and synthesised using a thematic synthesis approach as described by Thomas and Harden (2008): coding text, developing descriptive themes and then generating analytical themes. The analytical themes generated will aim to ‘go beyond’ the results of individual studies with an aim to provide an interpretive and integrated perspective of the experiences of consumers relating to the group itself in group-delivered, pain management programmes.

Supplementary 2 (S2): Protocol amendments

1. Inclusion criteria expanded: remove 18+ age limit to include the experiences of children and adolescents; include qualitative surveys in addition to interviews and focus groups; replace ‘four or more sessions’ with ‘six hours or more’ to include single full day programs in addition to multi-day programs. Reason: increase the inclusivity of the review.

2. Restricted the definition of group to mean a single cohort, rather than a ‘rolling intake’ with participants changing each week. Reason: to limit our focus to the relationships within the group (the group itself).

Supplementary (S3): Search strategies

Medline
Chronic Pain/
exp Back Pain/
exp Osteoarthritis/
Fibromyalgia/
Central Nervous System Sensitization/
Medically Unexplained Symptoms/
(pain adj3 (chronic or recur* or persist* or ongoing or widespread)).ti,ab,kf.
(back pain or low* back pain).ti,ab,kf.
(osteoarthr* or degenerative arthriti* or arthros*).ti,ab,kf.
(fibromyalgia* or muscular rheumatism or fibrositi*).ti,ab,kf.
(((Central adj3 sensitisation) or central) adj3 sensitization).ti,ab,kf.
(Medically unexplained pain or somatic symptom* or somatoform*).ti,ab,kf.
or/1-12
Pain Clinics/
Pain Management/
Cognitive Behavioral Therapy/
Mindfulness/
(((center* or centre* or service* or unit*) adj2 pain) or pain clinic or pain clinics).ti,ab,kf.
((pain management or pain self management) adj2 (program* or group* or session*)).ti,ab,kf.
((cognitive adj3 (therap* or psychotherap*)) or acceptance or cbt or mindfulness or self compassion).ti,ab,kf.
or/14-20
Qualitative Research/
"Interviews as Topic"/
"Surveys and Questionnaires"/
Focus Groups/
Patient Satisfaction/
(qualitative or ((patients or patient or consumer or consumers or participant* or client) adj2 (satisf* or perception* or experience*)) or interview* or focus group* or survey* or questionnaire* or perspective* or mixed method* or thematic analysis).ti,ab,kf.
or/22-27
13 and 21 and 28
((therap* or treatment or program* or interdisciplin* or multidisciplin*) adj3 (course or deliver* or pain or intervention or model or service or group)).ti,ab,kf.
29 and 30

Embase/Emcare
Chronic Pain/
exp Musculoskeletal Pain/
exp Osteoarthritis/
Fibromyalgia/
Central Nervous System Sensitization/
Medically unexplained symptom/
(pain adj3 (chronic or recur* or persist* or ongoing or widespread)).ti,ab,kf.
(back pain or vertebrogenic pain or lumbar pain or backache or back ache).ti,ab,kf.
(osteoarthr* or degenerative arthriti* or arthros*).ti,ab,kf.
(fibromyalgia* or muscular rheumatism or fibrositi*).ti,ab,kf.
(central adj3 (sensitisation or sensitization)).ti,ab,kf.
(unexplained pain or somatic symptom* or somatoform*).ti,ab,kf.
or/1-12
Pain Clinic/
exp Cognitive Behavioral Therapy/
Mindfulness/
Mindfulness-based stress reduction/
Self compassion/
(((center* or centre* or service* or unit*) adj2 pain) or pain clinic or pain clinics).ti,ab,kf.

(pain management or pain self management).ti,ab,kf.
((cognitive adj3 (therap* or psychotherap*)) or acceptance or cbt or mindfulness or self compassion or (cognitive adj2 (refram* or restructur*))).ti,ab,kf.
or/14-21
(pain adj3 (program* or group*)).ti,ab,kf.
(group adj3 (treatment* or intervention* or therap* or program* or based or deliver* or session* or course* or program or participa* or effort or sharing or approach or model or service)).ti,ab,kf.
((meeting or sharing) adj3 others).ti,ab,kf.
or/23-25
Qualitative Research/
Interview/
Patient Satisfaction/
(qualitative or ((patients or patient or consumer or consumers or participant* or client) adj2 (satisf* or perception* or experience*)) or interview* or focus group* or survey* or questionnaire* or perspective* or mixed method* or thematic analysis).ti,ab,kf.
or/27-30
13 and 22 and 26 and 31

CINAHL
MH "Chronic Pain"
MH "Back Pain+"
MH "Osteoarthritis+"
MH "Fibromyalgia"
MH "Medically Unexplained Symptoms"
(pain n3 (chronic or recur* or persist* or ongoing or widespread)).TI OR AB
(back pain or vertebrogenic pain or lumbar pain or backache or back ache).TI OR AB
(osteoarthr* or degenerative arthriti* or arthros*).TI OR AB
(fibromyalgia* or muscular rheumatism or fibrositi*).TI OR AB
(central n3 (sensitisation or sensitization)).TI OR AB
(unexplained pain or somatic symptom* or somatoform*).TI OR AB
or/1-11
MH "Pain Clinics"
MH "Pain Management"
MH "Cognitive Therapy+"
MH "Mindfulness+"
(((center* or centre* or service* or unit*) n2 pain) or pain clinic or pain clinics).TI OR AB
(pain management or pain self management).TI OR AB
((cognitive n3 (therap* or psychotherap*)) or acceptance or cbt or mindfulness or self compassion or (cognitive n2 (refram* or restructur*))).TI OR AB
or/13-19
MH "Group Exercise"
(pain n3 (program* or group*)).TI OR AB
(group n3 (treatment* or intervention* or therap* or program* or based or deliver* or session* or course* or participa* or effort or sharing or approach or model or service)).TI OR AB
((meeting or sharing) n3 others).TI OR AB
or/21-24
MH "Qualitative Studies+"
MH "Interviews+"
MH "Narratives"
MH "Surveys"
MH "Focus Groups"
MH "Patient Satisfaction+"
MH "Patient Attitudes"
(qualitative or ((patient* or consumer or consumers or participant* or client*) n2 (satisf* or perception* or experience*)) or interview* or focus group* or survey* or questionnaire* or perspective* or mixed method* or thematic analysis).TI OR AB
or/26-33
12 and 20 and 25 and 34

PSYCINFO
Chronic Pain/
Somatoform Pain Disorder/
exp Back Pain/
exp Arthritis/
Fibromyalgia/
Somatoform Disorders/
(pain adj3 (chronic or recur* or persist* or ongoing or widespread)).ti,ab.
(back pain or vertebrogenic pain or lumbar pain or backache or back ache).ti,ab.
(osteoarthr* or degenerative arthriti* or arthros*).ti,ab.
(fibromyalgia* or muscular rheumatism or fibrositi*).ti,ab.
(central adj3 (sensitisation or sensitization)).ti,ab.
(unexplained pain or somatic symptom* or somatoform*).ti,ab.
or/1-12
Interdisciplinary Treatment Approach/
Pain Management/
Cognitive behavior therapy/
Mindfulness/
Mindfulness-Based Interventions/
Self-compassion/
(((center* or centre* or service* or unit*) adj2 pain) or pain clinic or pain clinics).ti,ab.
(pain management or pain self management).ti,ab.
((cognitive adj3 (therap* or psychotherap*)) or acceptance or cbt or mindfulness or self compassion or (cognitive adj2 (reframe* or restructur*))).ti,ab.
or/14-22
(pain adj3 (program* or group*)).ti,ab.
(group adj3 (treatment* or intervention* or therap* or program* or based or deliver* or session* or course* or program or participa* or effort or sharing or approach or model or service)).ti,ab.
((meeting or sharing) adj3 others).ti,ab.
or/24-26
Qualitative Methods/
Interviews/
Surveys/
Focus Group/
Client Satisfaction/
(qualitative or ((patient* or consumer* or participant* or client*) adj2 (satisf* or perception* or experience*)) or interview* or focus group* or survey* or questionnaire* or perspective* or mixed method* or thematic analysis).ti,ab.
or/28-33
13 and 23 and 27 and 34

Scopus
(pain w/3 (chronic or recur* or persist* or ongoing or widespread))
(back pain or vertebrogenic pain or lumbar pain or backache or back ache)
(osteoarthr* or degenerative arthriti* or arthros*)
(fibromyalgia* or muscular rheumatism or fibrositi*)
(central w/3 (sensitisation or sensitization))
(unexplained pain or somatic symptom* or somatoform*)
(((center* or centre* or service* or unit*) w/2 pain) or pain clinic or pain clinics)
(pain management or pain self management)
((cognitive w/3 (therap* or psychotherap*)) or acceptance or cbt or mindfulness or self compassion or (cognitive w/2 (reframe* or restructur*)))
(pain w/3 (program* or group*))
(group w/3 (treatment* or intervention* or therap* or program* or based or deliver* or session* or course* or program or participa* or effort or sharing or approach or model or service))
((meeting or sharing) w/3 others)
(qualitative or ((patients or patient or consumer or consumers or participant* or client) w/2 (satisf* or perception* or experience*)) or interview* or focus group* or survey* or questionnaire* or perspective* or mixed method* or thematic analysis)

Google Scholar
("chronic pain" OR "persistent pain" OR "fibromyalgia") AND ("cognitive" OR "acceptance" OR "mindfulness") AND ("group program" OR "group programme" OR "group delivery") AND ("qualitative" OR "interviews")

Digital theses
("chronic pain" OR "persistent pain" OR "fibromyalgia") AND ("cognitive behav*" OR "acceptance" OR "mindfulness" OR "compassion") AND ("group program*" OR "group deliver*" OR "group") AND ("qualitative" OR "interviews")

Supplementary 4 (S4): Full text exclusion reasons

1st Author/Year	Exclusion reason
Abbey 2013	Abstract only available
Abbey 2013	Abstract only available
Abbott 2017	Abstract only available
Ahmed 2020	Program facilitator, not participant interviewed
Andersson 2012	Not a group intervention
Arman 2016	Not a group intervention
Armitage 2017	Abstract only available
Asprey 2012	Group or intervention does not satisfy criteria i.e. less than 6 hours or less than 4 people
Bendelin 2020	Not a group intervention
Bhatti-Ali 2019	Not a group intervention
Biguet 2015	Abstract only available
Borghuis 2020	Wrong study design
Boschen 2010	Abstract only available
Bostrom 2022	Not a group intervention
Bronson 2017	Abstract only available
Bruger 2020	Not a group intervention
Bujak 2019	Group not part of evaluation
Bull 2023	Group not part of evaluation
Campbell 2022	Abstract only available
Carnes 2013	Group not part of evaluation
Caron-Trahan 2022	Group or intervention does not satisfy criteria i.e. less than 6 hours or less than 4 people
Carr 2017	Not a group intervention
Casey 2019	Group not part of evaluation
Cave 2020	Abstract only available
Chapin 2014	Wrong study design
CheHasan 2021	Program facilitator, not participant interviewed
Chow 2020	Group not part of evaluation
Chuang 2018	No clear description of group intervention
Cooper 2009	Not a group intervention
Craner 2016	Rolling intake-not a cohort
Davies 2011	Abstract only available
DeGroef 2023	Not a group intervention

Dnes 2021	Not a group intervention
Donovan 2017	Not a group intervention
Dourlens 2015	Not in English
Dresner 2014	Abstract only available
Dresner 2016	Mixed chronic conditions+/-chronic pain
Druett 2015	Abstract only available
Duberg 2016	Mixed chronic conditions+/-chronic pain
Dunbar 2019	Abstract only available
Dunham 2022	No clear description of group intervention
Edey 2016	Wrong study design
Ehlebracht-Konig 2004	Not in English
Eskander 2019	Wrong study design
Finlay 2016	Group or intervention does not satisfy criteria i.e. less than 6 hours or less than 4 people
Finlay 2018	Support group-no defined intervention/program or facilitator
Finlay 2022	Wrong study design
Francio 2017	Abstract only available
French 2023	No clear description of group intervention
Furness 2022	Group not part of evaluation
Gardiner 2016	Abstract only available
Goksor 2017	Abstract only available
Goodall 2022	Group not part of evaluation
Gorman 2021	Abstract only available
Greenberg 2019	Group not part of evaluation
Gurny 2009	Not in English
Hall 2019	Wrong study design
Hallstam 2015	Not a group intervention
Hapidou 2016	Rolling intake-not a cohort
Hapidou 2022	Rolling intake-not a cohort
Haun 2022	Abstract only available
HocaogluUzunkaya 2021	Not in English
Holowaty 2017	Abstract only available
Hopper 2016	No clear description of group intervention
Huet 2009	Group not part of evaluation
Hurley 2010	Intervention included both group and individual delivery methods
Hurley 2020	Group not part of evaluation

Hurstak 2017	Abstract only available
Hurstak 2019	Wrong study design
Igwesi-Chidobe 2020	Group not part of evaluation
Inoue 2014	Wrong study design
Jarrett 2022	Abstract only available
Jenkins 1999	No clear description of group intervention
Joern 2022	Group not part of evaluation
Joseph 2020	Wrong study design
Jyung 2022	Not a group intervention
Kalsi 2016	Not a group intervention
Kempert 2020	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
King 2015	Abstract only available
King 2018	Group or intervention does not satisfy criteria i.e. less than 6 hours or less than 4 people
Knight 2011	Abstract only available
Kobus 2000	Wrong study design
Korsch 2020	Not in English
Kuemmel 2013	Abstract only available
Kuss 2016	Not a group intervention
Larsson 2016	Wrong study design
Lee 2017	Group not part of evaluation
Lee 2020	Abstract only available
Lestoquoy 2017	Abstract only available
Libbrecht 2021	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Lin 2017	Support group-no defined intervention/program or facilitator
Lind 2014	Mixed chronic conditions+/-chronic pain
Lindahl 2022	Mixed chronic conditions+/-chronic pain
Lindgreen 2016	Not a group intervention
Linssen 1984	Group not part of evaluation
Love 2017	Abstract only available
Luiggi-Hernandez 2018	No clear description of group intervention
Lynch 2018	Group not part of evaluation
Macgregor 2017	No clear description of group intervention
Maher-Edwards 2020	Abstract only available
Majore-Dusele 2021	Wrong study design

Mariano 2021	Wrong study design
Martin 2000	Wrong study design
McAnulty 2020	Abstract only available
McIlroy 2022	Abstract only available
McLaughlin 2023	Abstract only available
McLoughlin 2019	Abstract only available
McQuade 2015	Abstract only available
Merlin 2017	Not a group intervention
Miazga 2022	Abstract only available
Miletich 2018	Program facilitator, not participant interviewed
Miller 1991	Not a group intervention
Moore 2016	Abstract only available
Munday 2021	Group not part of evaluation
Nicosia 2021	Not a group intervention
Nizza 2022	Not a group intervention
Nkhoma 2021	No clear description of group intervention
Nkhoma 2021	Not a group intervention
Outlaw 2017	Not a group intervention
Pajo 2008	Wrong study design
Park 2003	Group not part of evaluation
Parker 2009	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Patel 2019	Group not part of evaluation
Pearson 2018	Abstract only available
Pearson 2018	Group not part of evaluation
Pearson 2021	Abstract only available
Pearson 2022	No clear description of group intervention
Pitsillidou 2013	Abstract only available
Popert 2016	Abstract only available
Prior 2019	Abstract only available
Purtill 2016	Wrong study design
Ralph 2012	Abstract only available
Ree 2014	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Reneman 2018	No clear description of group intervention
Roach 2004	Abstract only available
Sagula 2000	Group not part of evaluation

Saw 2016	Group not part of evaluation
Schenk 2023	Not in English
Sharpe 2009	Abstract only available
Sherman 2000	Wrong study design
Sil 2021	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Silberg 2022	Abstract only available
Singh 2016	Not a group intervention
Skipper 2021	Abstract only available
Skuladottir 2020	Group not part of evaluation
Smith 2021	No clear description of group intervention
Soole 2001	Abstract only available
Steen 2000	Wrong study design
Steihaug 1996	Not in English
Strozewski 2013	Abstract only available
Subramaniam 1999	Support group-no defined intervention/program or facilitator
Tan 2009	Wrong study design
Taube 2021	Wrong study design
Tetlow 2022	Wrong study design
Thompson 2018	Group not part of evaluation
Thorn 2006	Wrong study design
Tiedt 2021	Abstract only available
Torres 2016	Abstract only available
Toye 2009	Abstract only available
Toye 2010	Group not part of evaluation
Tse 2020	Not a group intervention
Tul 2011	Group not part of evaluation
Turner 2018	Not a group intervention
Turner 2020	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Twiddy 2015	Wrong study design
Twumasi 2019	Wrong population
VanDerMerwe 2018	Abstract only available
Vaserman 2007	Not in English
Vass 2017	Abstract only available
Victor 2004	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people

Wallace 2021	Wrong study design
Wallace 2022	Abstract only available
Walsh 2014	Abstract only available
Walters 2021	Abstract only available
Watson 2014	Rolling intake-not a cohort
Wegener 2018	Abstract only available
Wehrmeyer 2020	Abstract only available
Whitten 2013	Program facilitator, not participant interviewed
Wideman 2016	No clear description of group intervention
Willcocks 2023	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Williams 2022	Wrong study design
Wilson 2017	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Wilson 2020	Group or intervention does not satisfy criteria ie less than 6 hours or less than 4 people
Wimmer 2018	Abstract only available
Wong 2019	Abstract only available
Yu 2021	Wrong study design
Zangi 2019	Abstract only available
מרגלית 2019	Not in English

Supplementary 5 (S5): Codebook

Name	Files	References
1. AUTHOR IDENTIFIED THEMES	65	194
1. COMPARISON	19	31
ALL OF US ARE IN DIFFERENT PLACES	1	1
FEELING MOTIVATED BY OTHERS	1	1
MONITORING	1	1
REFRAMING THROUGH COMPARISON	1	1
REPOSITIONING ONESELF-status change	1	1
SIMILAR OTHERS	14	19
CONNECTION	8	9
A SENSE OF TOGETHERNESS WITH A SHARED GOAL	1	1
SHARED EXPERIENCE	8	9
SHARED HOPE OR STRENGTH, BANDING TOGETHER	1	1
UNITED BY THE EXPERIENCE OF PAIN	1	1
2. FEELING	45	73
BELONGING	3	3
EMPATHY	3	3
GROUP CLIMATE	12	12
FEELINGS OF COMMUNITY	8	8
TOGETHERNESS	2	2
LIKE A FAMILY	1	1
HOPE	4	5
JOY AND HAPPINESS	3	4
FUN	2	2
JUDGED IN NON-SPECIFIC GROUP	1	1
NORMAL	8	8
COMMON HUMANITY	2	2
UNIVERSALITY	2	2
NOT ALONE	12	12
FROM LONELINESS TOWARDS TOGETHERNESS	1	1
THERE'S SOMEBODY OUT THERE WHO UNDERSTANDS	1	1
SAFE	3	3
UNDERSTOOD	10	10
VALIDATION	11	11
3. BEHAVIOUR	31	40
COHESION	2	2
INTERACTION	2	2

Name	Files	References
FROM EDUCATION TO INTERACTION	1	1
LEARNING TOGETHER	2	2
LISTENING	6	6
LEARNING FROM PEERS	3	3
NEED FOR EXPERIENTIAL KNOWLEDGE	1	1
OTHER PEOPLE'S TIPS	1	1
RECIPROCITY and HELPING EACH OTHER	21	23
EXCHANGE OF KNOWLEDGE AND PERSONAL STRATEGIES	1	1
MUTUAL SUPPORT	1	1
PROBLEM SOLVING	1	1
GROUP SOLVING EFFECT	1	1
SHARED HOPE OR STRENGTH, BANDING TOGETHER	1	1
SKILLS DISTRIBUTION	1	1
SUPPORTING	16	16
GIVING ADVICE AND HELPING OTHERS	1	1
ALTRUISM	1	1
RECEIVING SUPPORT	1	1
SUPPORT BY THE PATIENT GROUP	5	5
WE TRADE WAYS OF DOING THINGS THAT HELP US	1	1
TALKING	5	5
EXPRESSION OF DIFFICULT THOUGHTS AND FEELINGS THROUGH GROUP SUPPORT AND THERAPEUTIC WRITING ALLEVIATES SUFFERING	1	1
PEER SUPPORT THROUGH DIALOGUE	1	1
PERMISSION TO TALK	1	1
SHARING DIFFICULTIES	1	1
TALKING ABOUT MY EXPERIENCES	1	1
4. CHANGE	29	44
CHANGE IN FEELINGS	20	22
FEELING DIFFERENT	1	1
FROM SHAME TO RESPECT	1	1
LESS GUILTY	1	1
MORE CONFIDENT	3	3
READINESS TO CONNECT WITH OUTSIDE WORLD	1	1
SELF EFFICACY	1	1
NOT ALONE	15	16
FROM LONELINESS TOWARDS TOGETHERNESS	1	1
REDUCING ISOLATION	3	4
REDUCED LONELINESS	1	1
THERE'S SOMEBODY OUT THERE WHO UNDERSTANDS	1	1

Name	Files	References
CHANGES IN THINKING OR CORE BELIEFS	20	21
ACCEPTANCE	6	6
CHANGE IN PERSPECTIVE	4	4
IT CHANGES YOUR MINDSET	1	1
REFRAMING THROUGH COMPARISON	1	1
DISCOVERING A NEW ROLE	1	1
NOT ALONE	10	10
FROM LONELINESS TOWARDS TOGETHERNESS	1	1
THERE'S SOMEBODY OUT THERE WHO UNDERSTANDS	1	1
PAIN RELIEF THROUGH FRIENDSHIPS AND CAMARADERIE	1	1
5. STRUCTURE	6	6
GROUP SESSIONS ARE PREFERRED	1	1
OFFBOARDING-end of group process	3	3
FEELING DEJECTED	1	1
THE LEAVERS	1	1
TIME	1	1
FEELING OF NOT BEING ALONE~~Participants tended to believe they were the only ones suffering from the ramifications of living with chronic pain and that their thoughts, emotions, and behavioral responses were inappropriate in some way.	1	1
1st order (from direct quotes)	117	1079
1. COMPARISON	75	230
Downward contrast (+ve)	16	24
'I don't want to be like that' prompting behaviour change	4	5
I feel better knowing my pain is not as severe as others	11	13
I feel better realising I am coping better than others	4	4
To meet others worse off gave me a new perspective and helped me to stop feeling sorry for myself	2	2
Downward Identification (-ve)	3	3
Felt different to the others	6	8
Felt judged and less understood in non-condition specific group	1	1
I don't want to be a part of this	1	1
I felt different to others in the group, couldn't relate	5	6
General comparison	3	3
Similar others	61	144
A place to talk to similar others was helpful	2	2
Being with similar others is helpful	13	15
Boosts confidence	6	6
Helped me open up which made me feel more connected to a world of people like me	1	1
Helped the pain	1	1

Name	Files	References
Made me more comfortable to talk	2	2
Their ideas made me think	1	1
Common goal	6	7
I could recognise or see myself in others	4	6
Same boat	8	12
Shared or same experience	18	24
Someone to identify with	4	4
We could relate to each other	8	11
Being able to relate leads to empathy and camaraderie	1	1
Upward contrast-negative outcome	3	3
Upward identification	23	45
Being with those with high levels of motivation is good	1	1
It's important to find people that understand and inspire	1	1
Seeing evidence of improvement in others	3	3
Upward Mirroring	7	9
2. THOUGHTS AND FEELINGS	89	416
Inner experiences	89	384
Abandoned at the end of the programme	4	4
Accepted-by others	3	3
Accountable	4	5
Annoyed	2	2
Belonging	3	3
Care and concern	5	5
Comfortable	8	9
Being with similar others made it more comfortable to talk	1	1
Feeling able to speak out	3	3
I felt more comfortable to have a go since we were all in the same boat	1	1
Comforted	6	6
Connected	2	2
Empathy	5	6
Being able to relate leads to empathy and camaraderie	1	1
Excluded	10	12
Felt different to the others	8	10
Felt judged and less understood in non-condition specific group	1	1
I don't want to be a part of this	1	1
I felt different to others in the group, couldn't relate	5	6
Others are worse which makes me feel guilty	1	1
Others are worse which makes me feel like a fraud	1	1
Happy or joyful	4	5

Name	Files	References
Hopeful or optimistic	4	6
Other oriented hope	3	3
More confident	9	12
Being with similar others boosts confidence	6	6
Making new connections in the group leading to confidence in being able to do this outside of the group	4	4
Motivated	10	16
Not alone	55	87
Not judged	12	12
Not weird, shamed or embarrassed	23	41
Didn't need to be embarrassed	3	3
More normal	15	17
The group has shown me that I'm actually OK, it's not in my head, not weak or crazy	13	14
Overwhelmed	3	3
Pity	1	1
Proud	2	2
Reassured	7	8
Relieved	5	6
Feeling safe meant I could be honest which felt like a release	1	1
Good	1	1
Relaxed	1	1
Respected, appreciated, valued	4	4
Rushed	5	7
Safe	19	28
Feeling safe meant I could be honest which felt like a release	1	1
I could let my true self be seen	7	8
Safe Atmosphere	9	9
Trust	4	4
Trust took time	2	2
Self-conscious emotions- guilt, embarrassment	4	4
Embarrassed	3	3
Guilty	1	1
Uncomfortable	3	3
Some things I didn't want to say in front of the group	1	1
Understanding and feeling understood	35	61
Heard	8	13
Being listened to was helpful	6	10
I know they are listening when they look at me and ask questions	1	1

Name	Files	References
When I talk, I can see they understand by their body language and what they say	1	1
No need to explain yourself	1	1
Telling someone that I was actually suffering made me feel more positive that I could get through it	1	1
They knew what I needed	1	1
Wanted to talk to someone who could understand	1	1
Upset	2	2
Validated and believed	19	24
Descriptions of group climate	24	32
Camaraderie	2	2
Community feeling	2	2
Easier to learn in relaxed, playful mode	1	1
Happy or fun climate	4	6
Interactions less formal and serious than in group therapy, able to speak more freely	1	1
Like a family	6	7
Safe Atmosphere	9	9
Warm bond	1	1
We are all as one unit	1	1
We gelled together	2	2
3. IN-GROUP BEHAVIOUR	72	217
Accepting each other	2	2
Be social and interact	1	2
Open up and come out of our shell	1	1
Having a go	2	3
Because we felt belonging, we had a go	1	1
I felt more comfortable to have a go since we were all in the same boat	1	1
I wanted to fit in which meant having a go	1	1
Having fun	6	9
Banter	1	1
Having a great time together meant you could be honest and still be accepted	1	1
Laughing	4	7
Including everybody	2	2
Learning	30	40
Discussions can lead to insight	3	3
Learning together	1	1
Similar others were helpful-their ideas made me think	1	1
Talking through what I've learned helps	1	1
We learned from each other	28	33

Name	Files	References
Compare notes	1	1
Learning from peers-info was more accessible	1	2
Pooling ideas	1	1
Listening	32	40
Did not like listening to others pain stories	2	2
Listening to others is helpful	30	38
Reciprocity-helping each other	31	43
Encouraging each other	7	8
Because we felt belonging we encouraged each other	1	1
I received encouragement from group members	2	2
We all encouraged each other	4	4
We celebrated wins	1	1
Support	5	5
We could share our difficulties	9	11
We took responsibility	1	1
Respecting each other	2	2
Talking	29	52
Talking did not help	2	2
People talked too much	1	1
Talking about pain may make it worse	1	1
Talking helps	27	50
Feeling heard	8	13
Being listened to was helpful	6	10
I know they are listening when they look at me and ask questions	1	1
When I talk, I can see they understand by their body language and what they say	1	1
Opening up to each other is good	4	6
Releasing thoughts and feelings felt good	7	11
Talking through what I've learned helps	1	1
We could be honest	2	2
Feeling safe meant I could be honest which felt like a release	1	1
Having a great time together meant you could be honest and still be accepted	1	1
Watching others	13	22
I didn't like watching others in pain or showing emotion	2	2
I liked being able to see them	2	2
Seeing evidence of improvement in others	3	3
When I talk, I can see they understand by their body language and what they say	1	2
4. CHANGE	47	99
Behaviour change	15	21

Name	Files	References
Able to talk about it	5	5
Don't often get to talk to similar others	1	1
I didn't talk about pain (outside the group)	4	4
You can't complain	1	1
I used to blame myself	1	2
More active	3	3
The group effect helped me exercise even when I didn't feel like it	1	1
We may not continue with exercise once the group is over	1	1
Willing to try	2	2
More social	8	10
Change in feelings	40	74
Changes in self-conscious emotions	13	17
I used to be embarrassed	4	4
I used to feel abnormal	3	3
I used to feel guilty	2	2
I used to feel like a bad person	3	3
I used to feel weird and ashamed	3	4
Happier	1	1
I used to feel alone	17	23
I couldn't relate to anyone	1	1
I used to feel isolated	2	2
I used to feel lonely	2	2
I've never met someone like me before	1	1
I used to feel sorry for myself	1	1
More confident	12	16
Being with similar others boosts confidence	6	6
I felt like I had to prove something to others	1	1
Making new connections in the group leading to confidence in being able to do this outside of the group	6	6
More positive	1	1
More empathic	1	1
More understood (people without chronic pain can't understand)	10	15
Family members don't understand	2	2
Family members don't have shared experience	1	1
My partner doesn't know what it's like	2	2
Partners are not always understanding	1	1
Nobody else gets it	1	1
People can't understand the extent of the loss	1	1
People without chronic pain don't have that deep level of empathy	1	1

Name	Files	References
Changes in thinking or core beliefs	1	2
Discussions can lead to insight	3	3
I used to think I was alone	43	73
I used to think I was the only one	26	38
I used to think there must be something 'wrong' with me	17	28
I felt as though I was stupid or had done something wrong	1	1
I felt like some freak of nature	1	1
I used to think I was going mad	5	6
The group has shown me that I'm actually OK, it's not in my head, not weak or crazy	11	12
Pain reduced by being with similar others	2	2
5. STRUCTURE	53	99
FACILITATOR	8	9
Program facilitation skills	2	2
Led by example	1	1
What could have been better	4	4
Need to include family members	1	1
One person dominated too much	1	1
People talked too much	1	1
SIZE	7	8
Group was too big	4	4
Group was too small	2	2
Large group is good	2	2
STABILITY AND PREDICTABILITY	11	14
Disconcerting when people left the group or were absent	3	3
Offboarding problems	8	11
Feeling abandoned at the end of the programme	5	5
STYLE	6	7
Discussions	2	2
Discussions were important	1	1
Group discussions were positive	0	0
Dyads offers the opportunity for reciprocal support	1	1
Easier to learn in relaxed, playful mode	1	1
Interactions less formal and serious than in group therapy, able to speak more freely	1	1
People wanted more time together away from clinical sessions	1	2
Talking in break times is more relaxed	1	1
The group itself was very important or the most important aspect	30	39
A place to talk to similar others was helpful	3	3
TIME	15	22
It takes time	4	4

Name	Files	References
Allowing people time to talk or share	1	1
Feeling comfortable took time	2	2
Getting to know people takes time	1	1
We needed more time	12	18
More time for discussion and peer interaction	11	13
Not enough time	1	1
People wanted more time together away from clinical sessions	1	1
Wanted more time to share worries	1	1
Wanted the group to be longer	2	2
MECHANISMS	14	18
Being with people like me meant..	10	12
Being able to relate leads to empathy and camaraderie	1	1
Being with similar others boosts confidence	6	8
What helped with speaking out was all being there for the same reason	1	1
Being with similar others helps the pain	1	1
I felt more comfortable to have a go since we were all in the same boat	1	1
Similar others were helpful-their ideas made me think	1	1
Feeling a sense of belonging meant..	2	3
Because we felt belonging we encouraged each other	1	1
Because we felt belonging, we had a go	1	1
I wanted to fit in which meant having a go	1	1
Feeling safe meant..	1	1
Feeling safe meant I could be honest which felt like a release	1	1
Having a great time together meant you could be honest and still be accepted	1	1
Listening, relief, similarity, speaking, feeling connected	1	1
NEGATIVE ASPECTS (also included elsewhere)	16	23
afraid talking about pain make it worse	1	1
Did not like listening to others pain stories	2	2
Didn't really belong-lacking perceived similarity	5	5
Felt excluded	2	2
I'm too shy for groups	1	1
Negative influence from others in the group	2	2
Not always comfortable showing emotion to others	2	2
One person dominated too much	1	1
Overwhelmed by other's experiences	3	3
People talked too much	1	1
Sharing is difficult or uncomfortable	2	2
Some things I didn't want to say in front of the group	1	1
ACTION (or CHANGE) FOLLOWS FEELINGS	8	9

Name	Files	References
Advice being taken seriously helps self-esteem and competence	1	1
Being understood and recognised may be necessary to change your image of self in a positive direction	1	1
Comparison	17	50
Comparison is universal when there is uncertainty and an information gap and is especially frequent among chronic illnesses	1	1
Darker side of comparison	4	5
Downward	5	9
Others may remind you of strong sides you were not aware of	1	1
People showed a tendency to compare themselves with peers	1	1
Upward	10	14
Discussions led to insight	3	3
Listening and interacting with similar others changed thinking	1	1
Homogenous findings relating to the group	3	3
Mutual experiences made it much easier to understand each other	1	1
Proposed mechanisms	14	19
Belonging and shared humanity lead to acceptance and self-compassion	1	1
Positive emotions helped explore new ways of interacting with others	1	1
Similar struggles reduced isolation and norrmalised their situation	1	1
Social connection is the catalyst for openness to change	2	3
Taking responsibility increased feelings of competence	1	1
Talking openly helped depression	1	1
Warm interactions activate soothing system which can alter pain threshold	1	1
Without reciprocity the feeling of 'otherness' cannot be overcome	1	1
Providing and receiving suggestions was rewarding	1	1

Supplementary 6 (S6): Early development of categories

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
1. THOUGHTS AND FEELINGS (broad, capturing feelings before, during and after)	**81**	**425**	
Abandoned at the end of the programme	4	7	*To belong in a group is of great importance to me. Therefore, it really scares me being thrown out into the blue when the group ceased. You find a place where you feel you're taken into the warmth, and **then you are pushed out to the desolate cold again**. This can be pretty tough. (Werner, 2003)*
Accepted (by others)	3	3	*There were 2 or 3 people there I really hit it off with, you know people in the same boat…**I felt this acceptance** of **people accepting me as I am**, you know. (Harrison, 2012)*
Accountable	4	5	*Well, it's a commitment, and if you don't show up, **then the group notices**. (Ledingham, 2020)*
Annoyed	2	2	*I don't think all the group were completely…into the group. I don't believe they all, some of them didn't believe it was going to work right from the very beginning. I got the feeling from some of them that it wasn't helping them, but they were going to do it anyway and **ruined the experience for some of us**. (Harrison, 2012)*
BELONGING	**26**	**35**	
Because we felt belonging, we encouraged each other	1	1	*I think the group we're in, cos we're all supportive of each other and that's helped actually participating, cause if you feel that you're not, you don't feel you belong in that group, you wouldn't really do that much, **but you all felt belonging, we all encouraged each other** so that was like a really good thing. (Aymerich, 2022)*
Did not feel belonging	8	10	
Felt judged and less understood in non-condition specific group	1	1	***There was a bit of judgement around it**, about pain, the tablets or medication that we were on. Because they're very very major, you know, medications. And quite, a few people were sort of, gasp, stunned, and 'how come you're…'. People made comments and things. They were negative comments. (Park, 2020)*
I don't want to be a part of this	1	1	*For my part, I think they were much, much more ill than I was, and that's fair enough, **but they just weren't the kind of people I wanted to be around**, and I didn't want to hear about their sickness stories. (Andersen, 2014)*
I felt different to others in the group, couldn't relate	5	6	*I sometimes wish that the group had a different match of people, because I didn't relate too much to anyone except for one person, **everyone else in the group was so different to me** and it would've been good that I had established more of a relationship with some of them, that it'll be a contact for you in the future. (Cattanach, 2021)*
Others worse off makes me feel guilty	1	1	*I feel guilty because **it seems like other people are suffering with more pain than me**. (Simm, 2022)*
Others worse off makes me feel like a fraud	1	1	*I saw some people that were in much more pain than I am and makes me feel a bit like a fraud, you know**, what am I doing here? Is it really something for me?** Maybe I'm taking the place of someone else? (Harrison, 2012)*
Excluded	2	2	*Just in terms of the individual attention, sometimes that was missed I think when they concentrated on those people that were quite active, and those that were sort of maybe sat down for one reason or another we couldn't do it, **we weren't approached just to say, yeah, 'are you okay?'**, 'what's happening?' (Aymerich, 2022)*
Feeling part of a community	10	11	*It felt good to open up (to thoughts and feelings). There **was a nice feeling of community** in the group. It was good to share my own thoughts with the others. (Furnes, 2015)*
Like there was someone there for me	2	3	*But here you know **there was always someone here for you** and that to give you that little bit of encouragement and that. And I think that made a lot of difference. (Allen, 2000)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
I wanted to fit in	1	1	*Because you want to participate in the group, **you don't want to be the odd one out** and say I can't do it. So, you have to at least try to do it. (Ernstzen, 2022)*
Included	3	3	*I think I derived much benefit from the group sessions. **Really just feeling inclusive**, valued, not feeling alone, the fact that there are other women who can identify with a similar problem that I've got. (Sadownik, 2012)*
Like a family	6	7	*I mean, like I said, the group was just like sitting around with friends and just so homely, I mean, especially on Friday. We all looked forward to coming on Friday to sit around, **so it just felt like a big family.** (Day, 2011)*
Care and concern	5	5	*In class we were all one. **We looked out for each other** and when someone wasn't there, we'd ask about them. (Joyce, 2022)*
Comfortable	8	9	*We'd sort of come to bond more towards the end of the group and felt more comfortable talking within the group. (Gooding, 2020)*
Being with similar others made it more comfortable to talk	1	1	*It seems that it made it **more comfortable** to talk around **other people just going through what you're going through**. (Bryl, 2021)*
Felt able to speak out	3	3	*Again, for me, the **being able to speak out**. (Day, 2011)*
I felt more comfortable to have a go since we were all in the same boat	1	1	*Like, at home [. . .] I would not have tried to get on the floor, cause I know I couldn't do it. But everyone here is in the same boat. So**, I can't believe that I even tried to do it cause I wouldn't do at home in front of my own family**. (Aymerich, 2022)*
Comforted	7	7	*Knowing that I wasn't the only one . . . just being able to relate to others and hear their anxiety and their pain and to realize you're not the only one, **that's comforting to know**. (Beal, 2009)*
Connection	3	4	*But **you feel like the connection** because you know that the person is going through a similar thing like you. And with the class and everything, I mean it seems like it helped. (George, 2017)*
Empathy	5	6	***It helps me understand other people** because you're not thinking of other people, you only think of yourself. You know "Just get out of my way, I'm in pain. Hurry up, I gotta sit down'' or something, you know. So, I've been looking at other people and I think I'm being a better person by kinda understanding what they're going through and not being so impatient, I guess. (Bruns, 2019)*
Being able to relate leads to empathy and camaraderie	1	1	*She commented that individuals in pain share a "brotherhood or sisterhood of camaraderie" that is based upon empathy. Amanda also thought that empathy existed because members were able to "relate." (Ostroff, 2009)*
Enlightened	1	1	*I'm like: Okay, I'm gonna get myself together and I'm gonna calm down and I'm gonna be around these people who share the same issues that I have. And I leave the group feeling a little **enlightened**. (George, 2017)*
Happy or joyful	7	13	***Being with the group, I was happy**. And I haven't felt that way in a long time. (Bradt, 2016)*
Hopeful	3	5	*Yeah, if I can do this, maybe I can do other things" and that's a **hopeful** thought, that, you know, here I've made these connections with these people. Maybe I can make more connections. (Larsen, 2018)*
More confident	9	12	*But in a group where everyone else was like in pain and they were getting up and they were walking around, laying on the floor wherever they were comfortable, **it gave me more confidence** to say well I'm in pain and I'm just going to have to get comfortable and move around and they didn't mind at all (Harrison, 2012)*
Being with similar others boosts confidence	6	6	*… I gained more **confidence** I guess just being surrounded by other people that were going through **the same thing**.(Chen, 2023)*
New connections in the group leading to confidence in being able to do this outside of the group	4	4	*Oh, you know what? Yeah, if I can do this, maybe I can do other things" and that's a hopeful thought, that, you know, here I've made these connections with these people. **Maybe I can make more connections**. (Larsen, 2018)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
Motivated	11	17	*After I started coming, **it motivated me** to want to come back even more. Like, getting the feedback, and just listening to other people, their experience, and how I can take whatever they say, and put it into action in my daily life. (Bryl, 2021)*
Not alone	**55**	**87**	*It's just good to have someone to talk to and let you know **that you're not alone**. (Day, 2011)* *When you're with a group of people that are all the same ... all trying to be the same, when of course when you are all on your own, **you think you are the only one**. (Gooding, 2020)* *Being with others that are having problems helps you realize **you are not alone** in how you feel. (Bryl, 2021)*
Not judged	12	12	*[You] have a safe place to kind of open up and share what's going on. You **don't feel judged**. (Chen, 2023)*
Overwhelmed by other's experiences	3	3	*In my case, I have many health issues. Therefore, listening to my partners' problems make it worse for me. [...] Sometimes, the group could make me **feel overwhelmed** due to the emotional burden it entails. (Arfuch, 2021)*
Pity	1	1	*My mood has improved since I had the opportunity to interact with people who experience the same condition as me or even more seriously. **I feel sorry for them**. (Arfuch, 2022)*
Positive	1	1	*It made me **much more positive** that I was going to get through this, that I was going to get over this and just being able to tell somebody else that was actually suffering, ermm helped a lot. You know, you felt supported and actually understood. (Paul, 2005)*
Proud	2	2	***a little bit of pride"** for having discovered and used strategies, unlike the other women in her group, to cope with her symptoms. (Beal, 2009)*
Reassured	1	1	*It's just speaking to people who have the condition. They know like I know that it's always there and you've got to be able to get on with it and when I ring up one of them and we have a chat and they'll say well I wasn't very good today, or I 've been better than usual, I find that **reassuring t**o be honest. (Silva, 2006)*
Relaxed	1	1	*I think it's important to be able to play. People do learn easier when it is in a **relaxed**, playful mode. (Shim, 2017)*
Relieved	3	3	*Let's see ... when you know that people are feeling worse than you ... you know? Be aware of it **relieves you**. (Arfuch, 2021)*
I could be honest which felt like a release	1	1	*I think **I felt a bit of a release**. I felt that I was in a safe environment where I could be honest about it. (Larsen, 2015)*
Respected, appreciated, valued	4	4	*It was just the fact that they listened, **you feel as if you're important**. (Dargan, 2014)*
Rushed			*The professionals had so little time that they had to explain everything very quickly, and there was no time for letting us express a little more about how we felt about the topic that was being discussed. (Arfuch, 2022)*
Safe	**18**	**32**	*When you're sitting in a group of eight other people and they go through the same thing, you're **able to let your guard down.** (Park, 2020)*
Feeling safe meant I could be honest	1	1	***I felt that I was in a safe environment** where I could be honest about it. Because I don't think I could say to a friend, "Oh when I cancelled on you, it wasn't that my back was so bad that day, it was that I feared you would judge me. (Larsen, 2015)*
I could let my true self be seen	9	10	*you're able to let your guard down. Do you know, **the mask is able to come off**, you're allowed to take your jacket off, you're allowed to loosen up. (Park, 2020)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
			In this group, I don't need to be a big, strong boy. Here I can be myself. I have played lots of roles, both at work and at home. ***Here I dare to be the one I am****. (Steen, 2001)*
Safe Atmosphere	8	8	***I felt very safe*** *inside those walls. (Steen, 2001)*
Trust	5	6	*We soon* ***gained trust*** *in each other when it was totally clear that what was being said in the group, remained in the group. (Haraldseid, 2014)*
Trust took time	2	2	***Having the time*** *to start to bond and build relationships within the group . . . start to open up—to start to* ***trust people*** *and not feel ashamed and embarrassed and stuff like that—I think it is really important. (Ainsley, 2021)*
Self- conscious emotions-shame, embarrassment, guilt	**25**	**45**	
Embarrassed	3	3	*I* ***was embarrassed*** *about myself—that I didn't have the discipline and take the responsibility to change the things that needed to change... (Hutting, 2017)*
Guilty	1	1	*I* ***feel guilty*** *because it seems like other people are suffering with more pain than me. (Simm, 2022)*
Feeling normal, not shamed, weak, or embarrassed	**23**	**41**	*Suddenly you* ***don't feel*** *like "OK, I'm just some freak of nature'' . . . I don't feel damaged anymore, but I do feel complicated. (Brotto, 2013)* *This program has helped me to* ***not be ashamed and embarrassed*** *that I hurt and have pain. (Ley, 2018)*
The group has shown me that I'm actually OK	13	14	*I don't feel so guilty about the things I can't do anymore when my pain is bad. I am starting to realise that it is not just me who experiences these issues, which means that* ***it's not about me being weak****. (Penlington, 2019)* *I blamed myself for having it [FMS] . . . because I'm fat, but after the trial did* ***not feel 'so bad and so useless****. (Beal, 2009)*
The illness grew smaller when I noticed others are the same and I could talk about it	1	1	*You know, it is so hard to have this illness. . . but* ***it kind of grew smaller when I noticed that others have it too*** *and that I may talk about it. . . you see. . . earlier when I had severe pains I just kind of shrank into myself. . .but there you were finally allowed to talk about it aloud with others. . . (Sallinen, 2011)*
More normal	3	3	*I felt I am not alone. People really opened up about things they wouldn't probably share with anyone else because we are going through the same thing. You realize that it's* ***kind of normal****. (Shim, 2017)*
Uncomfortable	3	3	*... to me, saying things it brings out emotions in me and I usually well up and have tears.* ***You don't always want to show that*** *to people that you don't know. (Gooding, 2020)*
Some things I didn't want to say in front of the group	1	1	*Sometimes there were things that you wanted to say that were very personal to you, but you* ***felt you couldn't say it****. (Harrison, 2012)*
Understanding and feeling understood	**36**	**62**	*We've all varying degrees of disability but we've all got the same chronic pain. So,* ***everyone understands one another****. (Allen, 2000)*
Heard	8	13	*Every week he would – before we started the program – he gave us a platform to basically speak about how we feel, how we are dealing with our pain, how we are dealing with our thoughts, so he gave us the, ja – he gave us a platform for us* ***to be heard."*** *(Ernstzen, 2022)}*
Being listened to was helpful	6	10	*Really* ***helped to be listened to*** *and believed, felt validated (Brown, 2022)*
I know they are listening when they look at me and ask questions	1	1	*I know they are listening when they look at me, give me time, hear me, and ask questions. (Steihaug, 2002)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
When I talk, I can see they understand by their body language and what they say	1	1	*I noticed that the others understand and can put themselves in my position, I can see this by what they say, and by body, language, and attitude. (Steihaug, 2002)*
No need to explain yourself	1	1	*So, you **didn't have to explain** yourself, they knew exactly what the pain is. (Park, 2020)*
Telling someone that I was suffering made me feel more positive that I could get through it	1	1	*It made me much more positive that I was going to get through this, that I was going to get over this and just being able to tell somebody else that was actually suffering, ermm helped a lot. You know, you felt supported **and actually understood**. (Paul, 2005)*
They knew what I needed	1	1	*If you 're not well, you just want to flop down or do something you just do it. Everybody knows what's happening to you, or they can see it, but they also know, with the vast amount of experience in years of the group, **they know to sit back** and just let you get on with it. (Allen, 2000)*
Wanted to talk to someone who could understand	1	1	*I wanted to be able to talk about it as well with somebody that was going to be able to listen and **understand** and with other people that knew what the condition was like. (Silva, 2006)*
Upset	2	2	*Talking sometimes about being ill, and not dealing with it, does make me **upset** sometimes. (Nanke, 2017)*
Validated	**22**	**28**	*I actually would hear other women have the same experiences…sort of a **validation**. It made me feel a lot more like this is something, but it is okay and I am not the only one (Sadownik, 2012)*
Being believed	8	9	*We knew we were believed. I think **being believed** is the biggest thing. Being understood and being believed that pain, chronic pain, does exist. And that is a big, big thing-the first step coming to acceptance. (Egan, 2017)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
2. COMPARISON	**71**	**245**	
Downward contrast (positive outcome)	17	**25**	*I realise that I 'm **not as bad as most of them** which has pleased me. (Allen, 2000)*
'I don't want to be like that' prompting behaviour change	5	6	*The only person in the control group who reported a change in health behaviour after the trial had **started lifting weights** because the women in her group were: " such a lot of whiners that **I don't want to be like that**. (Beal, 2009)*
I feel better knowing my pain is not as severe as others	11	13	*Many times, you feel bad, but maybe next to you there is another person who is feeling worse than you. And then you think: 'well, **maybe my situation is not so terrible'**. And this strengthens you and gives you a little more encouragement.(Arfuch, 2022)*
I feel better realising I am coping better than others	4	4	*Sharing your views, hearing what other people had to say and understand how people deal with stuff. You **might be coping better with things than you had thought**, and I felt quite proud of that. (Salvo, 2023)*
To meet others worse off helped me to stop feeling sorry for myself	1	1	*This group changed my perspective on my pain; realising that there are others who struggle (often a lot more than myself) helped me to **stop feeling sorry for myself**. It also helped me realise that I can accomplish all my dreams, I might just have to work a little harder than most people, and that's okay. (Salvo, 2023)*
When I hear others are worse off, it makes me wonder why I'm complaining and what I am so worried about	1	1	*[When] you are in the group and hear what others are going through is much worse than your own problems, and you ask yourself, **how can I be complaining** if this other person is still alive and smiling? I am dying just being anxious when this other person has much worse problems than me. (Cornelio-Flores, 2018)*
Downward contrast (negative outcome)	5	**7**	*For my part, I think they were much, much more ill than I was, and that's fair enough, but they just weren't the kind of people I wanted to be around, and I didn't want to hear about their sickness stories. (Andersen, 2014)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
Others worse off made me feel guilty	1	1	*I feel guilty because it seems like **other people are suffering with more pain than me**. (Simm, 2022)*
Others worse off made me feel like a fraud	1	1	*I saw some people that were **in much more pain than I am** and makes me feel a bit like a fraud, you know, what am I doing here? Is it really something for me? Maybe I'm taking the place of someone else? (Harrison, 2012)*
Downward Identification (negative outcome)	3	3	*. . . There were many who were in really bad condition and who had problems with mental health. . .I **could not help thinking if that is to be my destiny**, too. . (Sallinen, 2011)*
General comparison	4	5	*It's like a connection. So many people. When you got back pain, you got back pain. You say, "ooh I can't do that because of my back." But then you get in the class and there are 6 or 7 other people that got back pain. And **I thought I was doing more than them, or they were doing more than me**. (Joyce, 2022)*
Similar others (positive outcome)	**58**	**154**	*. . . spending time with people who happen to have **the same conditions**. That is great. (Sadownik, 2012)*
A place to talk to similar others was helpful	2	2	*What was most helpful for me was having the place to talk to people **like myself**. (George, 2017)*
All in the same place	1	1	*We were in this room to connect and to tell each other what was going on because **we are all basically in the same place**. (George, 2017)*
Being with similar others is helpful	13	15	*I think the **most helpful** aspect was being able to spend so much time with **other people in chronic pain who fully understand what it's like** and the chance to be in the educational classes with them. (Ley, 2018)*
Being with similar others boosts confidence	6	6	*… I gained **more confidence** I guess just being surrounded by other people that were going through the **same thing**. I didn't feel alone anymore. (Chen, 2023)*
Being with similar others helped me open up, making me feel more connected to a world of people like me	1	1	*I was very to myself in the beginning, just listening, I was saying, 'Wow, there are a lot of people out here feeling just like I feel'. And I started opening up. **It helped me open up** and I started speaking and getting more involved when we talk…And **I felt more connected**. I felt that there is a world out there that connects with me. (Kruer-Zerhusen, 2015)*
Being with similar others helps the pain	1	1	*Sometimes there'd be days I'd go in there so upset and I was able to just go in there and just lay it all. Just tell them everything that was going on with me and transform that into feeling better and I felt that about the group too, it helped me feel better. Talking about what was going on with me, **being around other people that were experiencing pain** and hearing other people's experiences, getting treatment, that **helped with the pain**. (Bruns, 2019)*
Being with similar others made it more comfortable to talk	1	1	*[…]it seems that it made it **more comfortable to talk** around other people just going through what you're going through. (Bryl, 2021)*
Similar others were helpful-their ideas made me think	1	1	*Others with **similar experiences were of great help**. The group members often suggested several ways of handling different problems. Hearing their stories about handling the situation was **thought provoking**. (Furnes, 2014)*
Helped with speaking out	1	1	*I **didn't know if I would speak out** but if you're with the right kind of group, you are all there for **one common reason** and I find that's what's **helpful**. (Harrison, 2012)*
Common goal	6	7	*I felt the group discussions were very important, listening to a lot of people, allowing them time to share their thoughts and also to contribute and learn what they've been doing over time and that's . . helpful as **we're all discussing common goals**. (Cattanach, 2021)*
I could recognise or see myself in others	6	9	***I recognized myself in everything he said**! Everything! It was like: 'Yes! Yes! Yes!' (Haraldseid, 2014)* *…it's like an open window, **I'm seeing somebody's life that is like mine**. (Park, 2020)*
Same boat	7	11	*We're all in the **same boat** aren't we one degree or another, so you've got a common bond. (Clarke, 2017)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
Shared experience	25	29	*Everyone's story is the same no matter whether itis a pain in their leg, pain in their arm whatever. It doesn't matter what age, gender or anyone who was speaking. Everyone had the same fears…everyone had the **same experiences**…It was the common denominator. (Egan, 2017)*
It was helpful to realise others had shared interests and values	2	2	*Not only was the similarity in the illness process identified, but also **similarities in life events in general**. (Sallinen, 2011)*
Shared difficulties gave a sense of unity	2	2	*We are all walking our own path, but we have been **united in our struggles**. (Simm, 2022)*
Someone to identify with	3	3	*I think I derived much benefit from the group sessions. Really just feeling inclusive, valued, not feeling alone, the fact that there are **other women who can identify** with a similar problem that I've got. (Brotto, 2013)*
We are all as one unit	1	1	*All of our spirits was coming together you know, that was the good part. Cause we are **all as one unit**. (Bradt, 2016)*
We could relate to each other	8	11	*It became **possible to relate** to the other individuals participating in the program. The small number of people, I got to know them almost every single one, personally. (Pate, 2021)*
Being able to relate leads to empathy and camaraderie	1	1	*She further commented that individuals in pain share a "brotherhood or sisterhood of camaraderie" that is based upon empathy. Amanda also thought that empathy existed because members were able to "relate." (Ostroff, 2009)*
Upward contrast (negative outcome)	3	**3**	*…when **she says she is an awesome mom**, which I can just picture her being an awesome mom, I thought to myself, 'I think that **I'm the worst mother** in the whole wide world.' (Larsen, 2015)*
Upward identification (positive outcome)	26	**48**	*I was thinking that if she can do it then **I can do it too**. (Kashikar-Zuck, 2016)*
Being with those with high levels of motivation is good	1	1	*But it was also having a course where a **lot of people are strongly motivated makes it good** because people sort of want to make it a success and they contribute more and generally people who've done that must have some sort of motivation at the start otherwise they wouldn't have done that if you know what I mean? (Pike, 2014)*
It's important to find people that understand and inspire	1	1	*…finding people who not only understand, but also **inspire** me to keep going. (Salvo, 2023)*
Mirroring others	8	11	*…there was one lady that said she couldn't…she wasn't going to be able to swim and then she did. I said, **'well if she can do that then I can do the gardening, and that's what I did**; so that's where transformation came about. I thought, well I've got to be positive, and I've got to do something. I can't just sit here and just fester, I've got to go out and do something, and that's what I did. (McCracken, 2014)*
Others showing their feelings helps me connect to my own	2	3	*When **others show their feelings, they help me**. (Steen, 2001)*
Seeing evidence of improvement in others	4	4	*Seeing myself and the other people in the class and **watching them grow** in terms of being able to do something. (Lee, 2020)*

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3. IN-GROUP BEHAVIOURS	**58**	**124**	
Accepting each other	2	2	*. . . because we had such a great time together . . . and you could sort of say what you felt and such . . . and **everybody somehow accepted everybody else**. (Bremander, 2009)*
Being social and interacting	1	2	*I got out of it that I can still **be around people and interact**. I don't have to close myself off like I've been doing. (Bradt, 2016)*
Coming out of your shell	1	1	*Working as a group, it seems to **bring people out of their shell** a little more and **be more open**. (Bradt, 2016)*
Encouraging	7	8	*We were able to see how they were doing [the exercises] and **encourage each other**. (Kashikar-Zuck, 2016)*
Because we felt belonging, we encouraged each other	1	1	*I think the group we're in, cos we're all supportive of each other and that's helped actually participating, cause if you feel that you're not, you don't feel you belong in that group, you wouldn't really do that much, but **you all felt belonging**, **we all encouraged each other** so that was like a really good thing. (Aymerich, 2022)*
I received encouragement from group members	2	2	***I was encouraged** and supported by the group. (Furnes, 2014)*
We all encouraged each other	4	4	*We could really talk to each other openly and ask advice. **We encouraged** and strengthened each other. Our biggest role was to support each other. We did not know each other personally, but we understood each other. (Ernstzen, 2022)}*
We celebrated wins	1	1	*But here. . .I mean we've got a special group, we were really gelled together, you know. And at the end of the day, **people would congratulate**, say 'oh you did this, you did that'. " "Proud of you doing it! (Aymerich, 2022)*
Participating/trying things	2	3	
Because we felt belonging, we participated	1	1	*I think the group we're in, cos we're all supportive of each other and **that's helped actually participating**, cause if you feel that you're not, you don't feel you belong in that group, you wouldn't really do that much, but you all felt belonging, we all encouraged each other so that was like a really good thing. (Aymerich, 2022)*
I felt more comfortable to try something hard since we were all in the same boat	1	1	*Like, at home[. . .] I would not have tried to get on the floor, 'cause I know I couldn't do it. But everyone here is in the same boat. So I **can't believe that I even tried to do it** 'cause I wouldn't do at home in front of my own family. (Aymerich, 2022)*
I wanted to fit in which meant trying something	1	1	*Because you want to participate in the group, you don't want to be the odd one out and say I can't do it. So, you have to at least **try to do it**. (Ernstzen, 2022)}*
Having fun	6	9	
Banter	1	1	*...that sense of acceptance and humour, and ... **a little kind of banter** that was – to me felt positive. (Larsen, 2018)*
Having a great time together meant you could be honest and still be accepted	1	1	*. . . because we had such a **great time** together . . . and **you could sort of say what you felt** and such . . . and everybody somehow accepted everybody else. (Bremander, 2009)*
Laughing, being silly	4	7	*[It] wasn't stressful, always fun environment, non-judgmental**, we could laugh**, **being silly, we could sing. It was nice**. (Irons, 2020)*
Including everybody	2	2	*Everybody had a good time and if there was anyone who was quiet or shy, **we didn't let them**. (Ostroff, 2009)*
Listening	**32**	**40**	
Did not like listening to others pain stories	2	2	*For my part, I think they were much, much more ill than I was, and that's fair enough, but they just weren't the kind of people I wanted to be around, and **I didn't want to hear about their sickness stories**. (Andersen, 2014)*

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Listening to others is helpful	**30**	**38**	*It's **good to hear about other people's experiences**. I didn't know anyone who had this problem before. (Jerlock, 2012)*
Reciprocity-helping each other	**23**	**24**	*'You would get so involved, and when you'd get stuck in a spot it looked like everybody knew what you were going through and we'd just kind **of help each other** to work through the different scenarios and just tell some of the things that we were going through. (Day, 2011)*
Supporting	5	5	*I think it's the **support of the group**, you know, and all being sort of offloading and having other people that know how you feel because in your everyday life, nobody else "gets it".... I think, the support aspect was one of the best aspects for me. (Sharma, 2022)*
Taking responsibility	1	1	*Suddenly like, there's no one there to keep an eye on you. **But we all did it**! You know, we were sort of **taking it in turns to be at the front of the class** and we carried on. All right we might have counted, did our counting to whatever number it was, a bit faster than the actual physios and that but as I say we did it. (Allen, 2000)*
Respecting each other	2	2	*We soon gained trust in each other when it was totally clear that what was being said in the group, remained in the group. (Haraldseid, 2014)*
Talking	**28**	**33**	
Shared pain helps with speaking out	1	1	*I didn't know if I would **speak out** but if you're with the right kind of group, you are all there for one common reason and I find that's what's helpful. (Harrison, 2012)*
Talking did not help	3	4	
People talked too much	1	1	***People talked too much**. (Nanke, 2017)*
Talking about pain may make it worse	1	1	*.... Should one keep on talking about one's pain?.... I felt it became.... or I was **afraid that it would become, some sort of self-fulfilling prophecy.** (Pietilä Holmner, 2018)*
Talking helps	**15**	**16**	*I don't know anyone that has the [pain] problems that I have and I am not someone that talks about having pain or wants to share it, so that's why it was somewhat **good to come to a group where you could talk about [your pain experience].** (Goksor, 2022)*
Opening up to each other is good	4	6	*Over time I did start to **open up more myself and I think that's good**. (Gooding, 2020)*
Releasing thoughts and feelings felt good	7	11	*you come here and it's in a group and you can all speak about your injuries and if you can just **get that off your chest** and if you can speak about it as well then definitely **you got to feel better about it** without a doubt. (Silva, 2006)*
We could be honest	2	2	*. . . because we had such a great time together . . . and **you could sort of say what you felt** and such . . . and everybody somehow accepted everybody else. (Bremander, 2009)*
Feeling safe meant I could be honest which felt like a release	1	1	*I think I felt a bit of a release. I felt that I was in a safe environment where I could be honest about it. Because I don't think I could say to a friend, "Oh when I cancelled on you, it wasn't that my back was so bad that day, it was that I feared you would judge me." I just can't do that. **But I think I needed to talk about it**, to get it out. And so I felt a certain amount of release when I talked about it. (Larsen, 2015)*
We could share our difficulties	10	12	*We **shared so intimately about our pain and how it consumes us** through creative movement. It's like you feel the person's heart inside of your body and make your body to connect to their feelings. You are in both sides of seeing and being seen that felt very validating. You feel understood and accepted. (Shim, 2017)*
Watching others	**14**	**23**	*I **like watching my group do their exercises** too, as opposed to just the teachers because I learned from my group. (Lee, 2020)*

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I didn't like watching others in pain or showing emotion	2	2	*I also found it **challenging watching other people, who are obviously struggling** hugely, the one who in particular was in agony all the time, terrible headaches. (Harrison, 2012)*
I liked being able to see them	2	2	*So, I **really liked being able to see people** and hear them, yeah being together, and seeing everybody else's experience. (Glynn, 2020)*
Seeing evidence of improvement in others	3	3	*. . . Some of them obviously had more injuries than others . . . You can **see** by the end of that program how much they had **progressed**. (Pate, 2021)*
When I talk, I can see they understand by their body language and what they say	1	2	***I know they are listening** when they look at me, give me time, hear me, and ask questions. (Steihaug, 2002)*

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4. STRUCTURE	**47**	**106**	
Program facilitator	9	10	
Group facilitation skills	2	2	*He was **very good at managing the group** because you very quickly learn that there's one or two that maybe are going to take over and dominate and there's one or two that are not going to give anything. (Clarke, 2017)*
They led by example	2	2	*The way they set it up, and **the way they spoke to people and listened to people I think helped other people to do the same**. (Dargan, 2014)*
Need to include family members	1	1	*I need someone to explain to my husband, to make him understand what I have because he doesn't. That's why **it would help if at least one day we could invite our couples to the session**. I would sign up right away for that because this is my biggest burden. (Arfuch, 2022)*
One person dominated too much	1	1	*One person took up a lot of space. Probably needed it, but it should somehow not have affected the rest of us, because it became very much, was a lot about that person then. (Nost, 2022)*
People talked too much	1	1	*People talked too much. (Nanke, 2017)*
Size	6	8	
Group was too big	4	4	*It is intimidating at first because I feel if I could have verbally participated a bit more, had that confidence, I would have got a little bit more out of it, but **I don't feel confident enough in a group that is so big**. (Harrison, 2012)*
Group was too small	2	2	*It was **a shame there were not more people** in the group. (Scriven, 2019)*
Large group is good	2	2	*But the **good thing with large groups** is that you can find plenty of different scenarios. (Arfuch, 2021)*
Stability and predictability	**11**	**17**	
Disconcerting when people left the group or were absent	4	4	*The remaining participants noted that group cohesiveness was disturbed when a fellow traveler, with whom they*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
			*started their journey, **left the group prematurely**. (Ernstzen, 2022)*
Offboarding problems	**7**	**13**	*...we had the weekly session and then we went from that to pretty much nothing. I think it would've been nice[...] once that was over, if we could have a session maybe once every two weeks, and then maybe once every three weeks, and you know, **maybe not cut it off completely**. So that we can kind of regroup and stay connected and have that schedule time maybe, you know, once a month so that it's more at the forefront. (Glynn, 2020)*
Felt abandoned at the end of the programme	4	7	*But **I felt abandoned**. So the end of the eight weeks, there was a sense of abandonment because I felt that the course really served as a pre-course to something else. There had to be something else. (Glynn, 2020)*
Interaction style	6	8	
Discussions	3	3	
Discussions were important	1	1	*All the information I got was good, of course. . . but I think it was **this talking with others**. . . you see, I had said earlier [before diagnosis] that fibromyalgia is an "illness'' in inverted commas, not a real one. . . and it was difficult for me to change this perception. . . but there I began to understand better. . .**discussions with the others. . .those were really important**. . . these symptoms are real, and not just something imaginary. . .(Sallinen, 2011)*
Group discussions were positive	1	1	*Several participants said that they found talking about their pain with other people in everyday life to be a negative experience but found participating in the **program's group discussions to be a positive experience**.(Goksor, 2022)*
Dyads offers the opportunity for reciprocal support	1	1	*And then you get **each other to talk to now and again individually** and support one another. (Harrison, 2012)*
Easier to learn in **relaxed, playful mode**	1	1	*I think it's important to be able to play. People do learn easier when it is in a **relaxed, playful mode**. (Shim, 2017)*
Interactions were less formal and serious than in group therapy, able to speak more freely	1	1	*During the focus group, participants compared the ceramics activity group with group therapy, a service offered by the tertiary hospital's pain management program. Participants felt the two differed considerably. After Fred brought up the social aspect of the ceramics group, Deborah stated that group therapy was "totally different" and that it was on a "different level. She elaborated saying that group therapy was "much more serious" and "less personal."...Amanda agreed and said she thought different subjects were discussed in the ceramics group because it was "**more social"** and members could speak **"more freely**." Deborah added to Amanda's thoughts saying that the ceramics group offered a "**bigger story" of the positive direction of member's life**. Furthermore, she said that they didn't "get from each other" in group therapy and stressed that it was a "different world" in the ceramics group. (Ostroff, 2009)*
We wanted more time together away from clinical sessions	2	4	*. . it would have been nice because we were a good group that **if we had more time together without anybody,** so we could talk about the conditions . . .(Ainsley, 2021)*
Talking in break times is more relaxed	1	1	*Talking as a group without anybody around, say in the break times, you can do, you know, you have a cup of tea, **have a little chat** and stuff like that and **it becomes slightly more relaxed** . . (Ainsley, 2021)*
The group itself was very important or the most important aspect	**29**	**38**	*So having the sessions and meeting other women – that was **the biggest thing**. (Brotto, 2013)* *I think it's the support of the group, you know, and all being sort of offloading and having other people that know how you feel because in your everyday life, nobody else "gets it"…. **I think, the support aspect was one of the best aspects for me**. (Sharma, 2022)*
Time	**16**	**25**	
It takes time	4	4	

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Allowing people time to talk or share	1	1	*The fact that we have been **allowed so much time** has made it possible for me to start a process involving quite fundamental matters...(Steihaug, 2001)*
Feeling comfortable took time	2	2	*We'd sort of come to bond **more towards the end of the group** and felt more comfortable talking within the group. (Gooding, 2020)*
Getting to know people takes time	1	1	*If the class had gone longer, like on-going, it would have been nice, because **you barely get to know people just a little**. (Brintz, 2020)*
We needed more time	**12**	**21**	
More time for discussion and peer interaction	**12**	**14**	*'She kept saying: "okay, be quiet." It was the only thing that I didn't like.' 'Me, too. Being told to be quiet. We had a chance to not just hear what everybody has to say, but **to talk to each other**. And we were **being curtailed from doing that**.' (George, 2017)*
Not enough time	1	1	*The problem with large groups is that ... if all the members of the group talk, then you are suddenly **run out of time**. (Arfuch, 2021)*
We wanted more time together away from clinical sessions	2	3	*...we are put together as a group and we share things as a group in the sessions, but you **don't have time outside the sessions** to talk about various things. (Ainsley, 2021)*
Wanted more time to share worries	1	1	*The staff insisted that the program was not a psychotherapy group. That was crystal clear. But it **would have been nice to have a little space for sharing worries in life.** They **cut us short** in this sense. (Arfuch, 2021)*
Wanted the group to be longer	2	2	*When asked about suggestions for future groups, ... those in the control group either had no suggestions or expressed a desire for groups to be **longer than four weeks**. (Sloan, 2018)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
5. CHANGES	**56**	**260**	
Behaviour change	**20**	**31**	*The people that come to the group… I'm really grateful that they started that because it has **helped me with the way I manage myself** and **the way I look at situations and pain**. (Bryl, 2021)*
Able to talk about it-contrasting with outside the group	8	8	
You can't complain	3	3	*The women explained that they were not able to tell about their pain and other symptoms at home or at work, because it was seen as '**whining for nothing**'… they did not want to burden their family and colleagues by constant pain-talk but kept it to themselves. (Sallinen, 2011)*
I used to blame myself	1	2	***I blamed myself** for having it [FMS] . . . because I'm fat" but after the trial did not feel "so bad and so useless. (Beal, 2009)*
More active	6	7	*..there was one lady that said she couldn't…she wasn't going to be able to swim and then she did. I said, 'well if she can do that then I can do the gardening, and that's what I did; so that's where transformation came about. I thought, well I've got to be positive, and I've got to do something. I can't just sit here and just fester, **I've got to go out and do something, and that's what I did**. (McCracken, 2014)*
The group effect helped me exercise even when I didn't feel like it	1	1	*The effect of the group stayed even when I was home. That is **why I exercised even when I wasn't in a mood** to do so. (Bourgault, 2015)*
We may not continue with exercise once the group is over	1	1	*Like even **now the group is finished** if they would still like, just now and then, just do a check-up and maybe have a group exercise again, because like you know, **some of us may not continue**. (Ernstzen, 2022)*
Not hiding	8	12	
More social	7	11	
I used to isolate myself	3	4	*Before, I was more isolated. I've been for about eight years that way **isolating myself** and I pretty much didn't do anything, but **now I can go to work. I even had a date** the other day. (Bradt, 2016)*
I used to shrink into myself	1	1	*You know, it is so hard to have this illness. . . but it kind of grew smaller when I noticed that others have it too and that I may talk about it. . . you see. . . earlier when I had severe pains I just kind of **shrank into myself**. . .but there you were finally allowed to talk about it aloud with others. . .(Sallinen, 2011)*
Change in feelings	**37**	**71**	
Changes in self-conscious emotions	13	17	
I used to be embarrassed	4	4	*This program has helped me to **not be ashamed and embarrassed** that I hurt and have pain. (Ley, 2018)*
I used to feel abnormal	3	3	*Suddenly you **don't feel like "OK, I'm just some freak of nature"** . . . I don't feel damaged anymore, but I do feel complicated. (Brotto, 2013)*
I used to feel guilty	2	2	*I **don't feel so guilty** about the things I can't do anymore when my pain is bad. I am starting to realise that it is not just me who experiences these issues, which means that it's not about me being weak. (Penlington, 2019)*
I used to feel bad	3	3	*It felt like I grew as a person; that I dared to take up more space afterward, because, yes but [the pain school] was such a kick-starter **when I had been feeling bad**. (Goksor, 2022)*
I used to feel weird and ashamed	3	4	*However, discussing with people who are going through the same thing, make you feel **not so weird and shamed**.*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
			Because this disease is incomprehensible. The program has helped me understand that I am not the only person who is going through it. (Arfuch, 2022)
Happier about myself	1	1	*Then I be able to talk to a group of people that you know, the same as you, kinda **makes you a little happier about yourself** like, 'this is not me I'm not alone in this world.' You have someone to talk to that knows that you are not lying. (Bryl, 2021)*
I used to feel alone	**17**	**25**	*"**I was feeling like I was so alone**, and I found out better, that other people were going through it, too." (Day, 2011)*
I couldn't relate to anyone	1	1	*" Before the intervention, I was closed in on myself. **There was a time when I practically did not relate to anyone**." (Arfuch, 2022)*
I used to feel isolated	3	3	***I was really isolated before**, no friends, so now I feel like I'm not alone, that's huge for me." (Bruns, 2019)*
I used to feel lonely	3	3	*" I didn't know that so many people suffered from FMS, **now I feel less lonely**" (Bourgault, 2015)*
I've never met someone like me before	1	1	*" You meet people with the odd aches and pains but **I've never met anyone in the same situation as myself**" (Allen, 2000)*
I used to feel sorry for myself	1	1	*" This group changed my perspective on my Pain; realising that there are others who struggle (often a lot more than myself) **helped me to stop feeling sorry for myself**. It also helped me realise that I can accomplish all my dreams, I might just have to work a little harder than most people, and that's okay" (Salvo, 2023)*
More confident	12	16	
Being with similar others boosts confidence	6	6	*... I **gained more confidence** I guess just being surrounded by other people that were going through the same thing. I didn't feel alone anymore. (Chen, 2023)*
I felt like I had to prove something to others	1	1	*So I think I wanted to put pressure on myself to become, well, I don't know, **to prove something (in a gym), not even to myself, but to others,** and we weren't supposed to out here, it wasn't about doing anything for other people, only doing things for ourselves. (Andersen, 2014)*
Making new connections in the group leading to confidence in being able to do this outside of the group	6	6	*I am socializing more and being better at communicating how I feel. I've been saying good morning to my neighbors and people I don't know. I also ask people for help. It's because I gained confidence in being able to express how I feel and understood from being in this group**. I don't used to do that because I stayed by myself**. I am really coming along, inside and outside. (Shim, 2017)*
More positive	1	1	*It made me **much more positive** that I was going to get through this, that I was going to get over this and just being able to tell somebody else that was actually suffering, ermm helped a lot. You know, you felt supported and actually understood. (Paul, 2005)*
More empathic	1	1	*It helps me understand other people because you're not thinking of other people, you only think of yourself. You know "Just get out of my way, I'm in pain. Hurry up, I gotta sit down" or something, you know. So I've been looking at other people and I think I'm being a better person by kinda **understanding what they're going through** and not being so impatient, I guess. (Bruns, 2019)*
I now feel more understood (in contrast to before , ie people without chronic pain can't understand)	9	10	
Family members don't understand	3	6	*The **family does not understand fibromyalgia, and we are not understood either**. The person who has it does understand though. We support each other. (Arfuch, 2021)*
Family members don't have shared experience	1	1	*Members of your family, they **haven't experienced what you're going through**... (Allen, 2000)*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
My partner doesn't know what it's like	2	2	*I mean they know more about what pain is than what your loved one does. You know, I mean my wife knows I'm in pain but **she doesn't know what it's like**. (Allen, 2000)*
Partners are not always understanding	1	1	*You know, you felt supported and actually understood and whilst we all have partners, **they're not always so understanding**. (Paul, 2005)*
Nobody else gets it	1	1	*...having other people that know how you feel because in your everyday life, **nobody else "gets it"**. (Sharma, 2022)*
Other people can't understand the extent of the loss	1	1	*People outside of pain sufferers **can't empathise with the loss** we actually experience in terms of identities, career, family, sports that form a person. (Casey, 2020)*
People without chronic pain don't have that deep level of empathy	1	1	*...unless you're a fellow person in pain, it doesn't matter how much someone loves you, there is a **level of empathy they just can't get to**. (Ostroff, 2009)*
Changes in thinking or core beliefs	51	106	
Discussions can lead to insight	3	3	*And the people from the class helped out [...] it was just cool to first get in a class with people who is going through the same thing and then once we get start talking amongst each other, **getting a better understanding of your pain** and how you coping and dealing with it. (Bryl, 2021)*
I used to think I was alone	43	71	*It wasn't just you, it was everybody in the group, they've all experienced the same feelings at some time or another ... It was good because for once, for one day a week you got somebody who understood what you were going through ... The best thing for the lot of us was finding that [...] there was somebody else going through it, **you weren't just on your own**. (Mathias, 2014)*
I used to think I was the only one	26	38	*When you're with a group of people that are all the same ... all trying to be the same, when of course when you are all on your own, you think you are the only one. (Gooding, 2020)*
I used to think there must be something 'wrong' with me	17	28	*Many talked about previous experiences where **they felt that there was something wrong with them**, their symptoms were not accepted. (Steihaug, 2001)*
I felt as though I was stupid or had done something wrong	1	1	*Several of them felt that they had been accepted by being given an acceptable explanation of the pain – an explanation that **did not imply that they were stupid or had done something wrong**. This came as a revelation to many. (Steihaug, 2002)*
I felt like a freak of nature	1	1	*Suddenly you don't feel like "OK, I'm just some freak of nature'' (Brotto, 2013)*
I used to think I was going mad	5	6	*You do think sometimes '**am I going mad**?' But **now I know I 'm not** because there are other people.. who have got it. (Silva, 2006)*
The group has shown me that I'm actually OK, it's not in my head, not weak or crazy	11	12	*The reassurance of knowing it is **not in your head** and that other people are experiencing the same thing. (Salvo, 2023)*
Learning	**35**	**49**	
Discussions can lead to insight	3	3	*It's better to talk about it in a group and how each, everybody feels, you know. Until then, you know, I didn't know how I was feeling until I heard all the other ladies tell about their stories and how their pain affects their daily life and stuff. So **I understood it then**. (Day, 2011)*
Learning together	2	2	*Because the sessions allowed women to meet others with the same stresses, symptoms and consequences, it*

CATEGORY/ SUBCATEGORY / codes	Studies with this category or code	Number of coding references	Example of narrative from primary study chosen to illustrate descriptive theme or code
			*encouraged them to **explore together** ways of coping.*
Similar others were helpful-their ideas made me think	1	1	*Others with similar experiences were of great help. The group members often suggested several ways of handling different problems. Hearing their stories about handling the situation was thought provoking. (Furnes, 2014)*
Talking through what I've learned helps	1	1	*...and I learned new things each week, and I'm looking forward to **share the experiences with everybody and how what I've learned has helped**, and we talk about the cases like what we've one, like the case like I'm putting in different terms...I liked that. **It helps me identify things**. (Cattanach, 2021)*
We learned from each other	32	40	*It is better group-based because it enables you to see other people having the condition and **learn from other people**. (Igwesi-Chidobe, 2019)*
Compare notes	1	1	*The interaction with other people that were in the same situation as me, it was just helpful to be able to confide and to talk with them and to hear about their experiences and **to compare notes** with each other. That was very helpful. (Cattanach, 2021)*
Learning from peers-info was more accessible	1	2	*Although information given by professionals was highly appreciated, the experiential knowledge of peers was perceived as essential to make the **information easier to understand and digest**. (Sallinen, 2011)*
Pooling ideas	1	1	*...because you are still a group (telehealth), and you're still **pooling ideas** and listening to other people. (Scriven, 2019)*
Pain reduction	1	1	*Sometimes there'd be days I'd go in there so upset and I was able to just go in there and just lay it all. Just tell them everything that was going on with me and transform that into feeling better and I felt that about the group too, it helped me feel better. Talking about what was going on with me, being around other people that were experiencing pain and hearing other people's experiences, getting treatment, **that helped with the pain**. (Bruns, 2019)*

Appendix B Supplementary material for Chapter Three

Supplementary 1 (S1): Selection of a qualitative methodology 186

Supplementary 2 (S2): Standards for Reporting Qualitative Research (SRQR) 187

Supplementary 3 (S3): Pain Management Unit feedback survey 189

Supplementary 4 (S4): Ethics approvals 191

Supplementary 5 (S5): Combined categories hierarchy chart 193

Supplementary 1 (S1): Selection of a qualitative methodology (adapted from Bellamy et al) [1]

Qualitative approaches/methodologies			
Term	**Definition/description**	**Selected?**	**Reason/s**
Grounded theory	The generation or discovery of a theory which is grounded in data from participants who have experienced a process.[2]	No	Not developing a theory
Ethnography	The investigation of a culture through a detailed study of its members involving systematic collection, description, and analysis of data to develop theories of cultural behaviour.[2]	No	Not investigating culture
Phenomenology	The investigation of the "lived experience" of various phenomena. Studies the inner dimensions, textures, qualities, and essences of cognitive processes.[2]	No	Not exploring the "lived experience". The survey questions relate to *experiences of the programme* rather than focussing on inner experiences
Ethnomethodology	The study of rules, norms, codes and patterns that people use in making social life understandable to themselves and others.[2]	No	Not a study of the norms people use in understanding social life
Case study	An in-depth study of a case or cases (a 'case' can be a program, an event, an activity, an individual), studied over time using multiple sources of information.[2]	No	Not an in-depth study of a case
Narrative inquiry	The process of collecting information for research purposes through storytelling, where the researcher subsequently composes a narrative of the experience.[2, 3]	No	Not gathering data through storytelling, or presenting a narrative of the experience
Qualitative Description	Provides a comprehensive summary of an event in the everyday terms. It is particularly useful when researchers aim to stay close to the data and describe participants' experiences and perceptions as accurately as possible. This approach is grounded in naturalistic inquiry and is often considered less interpretive than other qualitative methodologies such as grounded theory or phenomenology.[4, 5]	Yes	Exploring and describing consumer perspectives and experiences of consumers of a group-delivered pain management programme (the event). Well-suited to programme evaluations.

1. Bellamy K, Ostini R, Martini N, et al. Seeking to understand: using generic qualitative research to explore access to medicines and pharmacy services among resettled refugees. *Int J Clin Pharm* 2016; 38: 671-675. DOI: 10.1007/s11096-016-0261-1.
2. Liamputtong P. *Qualitative Research Methods*. 5th edition. ed. Melbourne, Australia: Oxford University Press, 2019.
3. Connelly FM and Clandinin DJ. Stories of Experience and Narrative Inquiry. *Educ Res* 1990; 19: 2-14. DOI: 10.3102/0013189X019005002.
4. Patton MQ. *Qualitative research & evaluation methods : integrating theory and practice*. Fourth edition. ed. Thousand Oaks, California: SAGE, 2015.
5. Stanley M. Qualitative descriptive: a very good place to start. *Qualitative research methodologies in occupational science and therapy*. US: Routledge, 2015, pp.21-36.

Supplementary 2 (S2): Standards for Reporting Qualitative Research (SRQR)

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

Title and abstract

1. **Title** - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended
2. **Abstract** - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions

Introduction

3. **Problem formulation** - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement
4. **Purpose or research questio**n - Purpose of the study and specific objectives or questions

Methods

5. **Qualitative approach and research paradigm** - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**
6. **Researcher characteristics and reflexivity** - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability
7. **Context** - Setting/site and salient contextual factors; rationale**
8. **Sampling strategy** - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**
9. **Ethical issues pertaining to human subjects** - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security is
10. **Data collection methods** - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**
11. **Data collection instruments and technologies** - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study
12. **Units of study** - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)
13. **Data processing** - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts
14. **Data analysis** - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**
15. **Techniques to enhance trustworthiness** - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**

Results/findings

16. **Synthesis and interpretation** - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory
17. **Links to empirical data** - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings

Discussion

18. **Integration with prior work, implications, transferability, and contribution(s) to the field -** Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field
19. **Limitations** - Trustworthiness and limitations of findings

Other

20. **Conflicts of interest** - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed
21. **Funding** - Sources of funding and other support; role of funders in data collection, interpretation, and reporting

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388

Supplementary 3 (S3): Pain Management Unit feedback survey

Government of South Australia
SA Health

Pain Management Unit
Program Feedback Form

FLINDERS MEDICAL CENTRE

Name: _____ Date: _____

Program attended (please tick the correct box):

☐ Movement is Medicine ☐ Mindfulness ☐ Embrace your pace ☐ Thinking Matters

To help us improve, please complete both sides of this sheet, and return to staff as you leave.

	Nothing/ none		Some		A great deal
How much did you learn from this program?	O	O	O	O	O
How much of the information from this program will you use?	O	O	O	O	O
How much improvement in your pain management do you think would occur from using the information from this program?	O	O	O	O	O

	Not at all		Moderately		Very
How important is it to you to learn new ways to manage your pain?	O	O	O	O	O
How confident do you feel in using some of the strategies presented in this program?	O	O	O	O	O
How likely are you to use some of the strategies presented in this program in the next 3 months?	O	O	O	O	O

	Strongly disagree	Disagree	Agree	Strongly agree
I could easily understand the information presented	O	O	O	O
The information presented will be useful in helping me manage my pain	O	O	O	O
The resources/handouts provided were helpful	O	O	O	O
I am satisfied with how this program has been conducted	O	O	O	O
I would recommend this program to a friend with chronic pain	O	O	O	O

	Strongly disagree	Disagree	Agree	Strongly agree
The presenters encouraged individual/group interaction	O	O	O	O
The presenters used effective teaching strategies	O	O	O	O
The presenters demonstrated interest in the program	O	O	O	O

	Worse than expected		As expected		Better than expected
Did this program meet your expectations?	O	O	O	O	O

	Too short		About right		Too long
How did you find each session length (i.e., 2 hours)?	O	O	O	O	O
How did you find the program duration (i.e., 6 sessions)?	O	O	O	O	O

What did you find most helpful about this program?

If the program did not meet your expectations, why was this?

What could be improved about this program?

Your responses will be de-identified (i.e., no name or identifying information will be attached, only your hospital UR number) and added to our existing database of Pain Unit patient data. Ethical approval will be sought if we wish to use these responses in any future research projects.

☐ I do not want my responses added to this database and used in future Pain Unit research.

As part of our patient care and service improvement, we may wish to contact you in several months to ask you how your pain management journey is going.

☐ I do not wish to be contacted further regarding my pain management

Thank you for helping us improve our service

Supplementary 4 (S4): Ethics approvals

Subject: Human Research Ethics Application ID 205439 - Application approved
Date: Thursday 30 March 2023 at 8:42:21 AM Australian Central Daylight Time
From: humanethics@unisa.edu.au
To: Human Ethics, Wilson, Marelle Kate - pocmk001, Marinda.rothmann@sa.gov.au, Searle, Amelia (Health), Dianne Wilson, Shylie Mackintosh

Dear Applicant

Re: Protocol Title: 'Exploring group-delivered, pain management programmes from the perspective of the consumer: A qualitative analysis of retrospective data' (Application ID: 205439)

Thank you for submitting your ethics Application for consideration. Your protocol has been considered by the E1 Committee Review Group.

I am pleased to advise that your protocol has been granted ethics approval and meets the requirements of the *National Statement on Ethical Conduct in Human Research*. Please note that the E1 Committee Review Group's decision will be reported to the next meeting of the Human Research Ethics Committee for endorsement.

Please regard this email as formal notification of approval.

Ethics approval is always made on the basis of a number of conditions detailed at https://i.unisa.edu.au/staff/research/research-ethics/human-research-ethics/ethics-management-for-research-projects/ (under the heading `What are the Standard Conditions of Approval?'). It is important that you are familiar with, and abide by, these conditions. It is also essential that you conduct all research according to UniSA guidelines, which can be found at https://i.unisa.edu.au/staff/research/research-ethics/human-research-ethics/ethics-policies-guidelines/.

Please note, if your project is a clinical trial you are required to register it in a publicly accessible trials registry prior to enrolment of the first participant (e.g. Australian New Zealand Clinical Trials Registry http://www.anzctr.org.au/) as a condition of ethics approval.

Best wishes for your research.

Human Research Ethics Officer
UniSA Human Research Ethics Committee

This is an automated email and cannot be replied to. Please direct your query to humanethics@unisa.edu.au.
Please refer to our FAQ page: https://i.unisa.edu.au/staff/research/research-ethics/human-research-ethics/human-ethics-help-and-training/online-faq/ for any system-related queries.

CRICOS provider number 00121B

Office for Research

Flinders Medical Centre
Ward 6C, Room 6A219
Flinders Drive, Bedford Park SA 5042
Tel: (08) 8204 6453
E: Health.SALHNOfficeforResearch@sa.gov.au

Government of South Australia

Health
Southern Adelaide
Local Health Network

Final Approval for Ethics/Governance: Low and Negligible risk research

21 March 2023

Dr Amelia Searle
Pain Management Unit
Flinders Medical Centre

Email contact: amelia.searle@sa.gov.au; marelle.pocock@mymail.unisa.edu.au

Dear Amelia,

OFR Number: 40.23
LNR Reference number: HREC/20/SAC/200
Project title: Exploring group-delivered, pain management programmes from the perspective of the consumer: A qualitative analysis of retrospective data
Chief Investigator: Dr Amelia Searle
Associate Investigators: Marelle Wilson, Marinda Rothmann, Dr Dianne Wilson, Professor Shylie Mackintosh
Ethics approval dates: 21 March 2023 – 21 March 2024
Public health sites approved under this application: Flinders Medical Centre
The annual review is due: 21 March 2024

The Southern Adelaide Clinical Human Research Ethics Committee (SAC HREC) (EC00188) and the SALHN Manager, research Governance and Ethics have reviewed and approved this application out of session, through the low and negligible risk pathway, and provided approval for this research to commence, as it meets the requirements of the *National Statement on Ethical Conduct in Human Research (2007, updated 2018)* and the SALHN Research Governance policy.

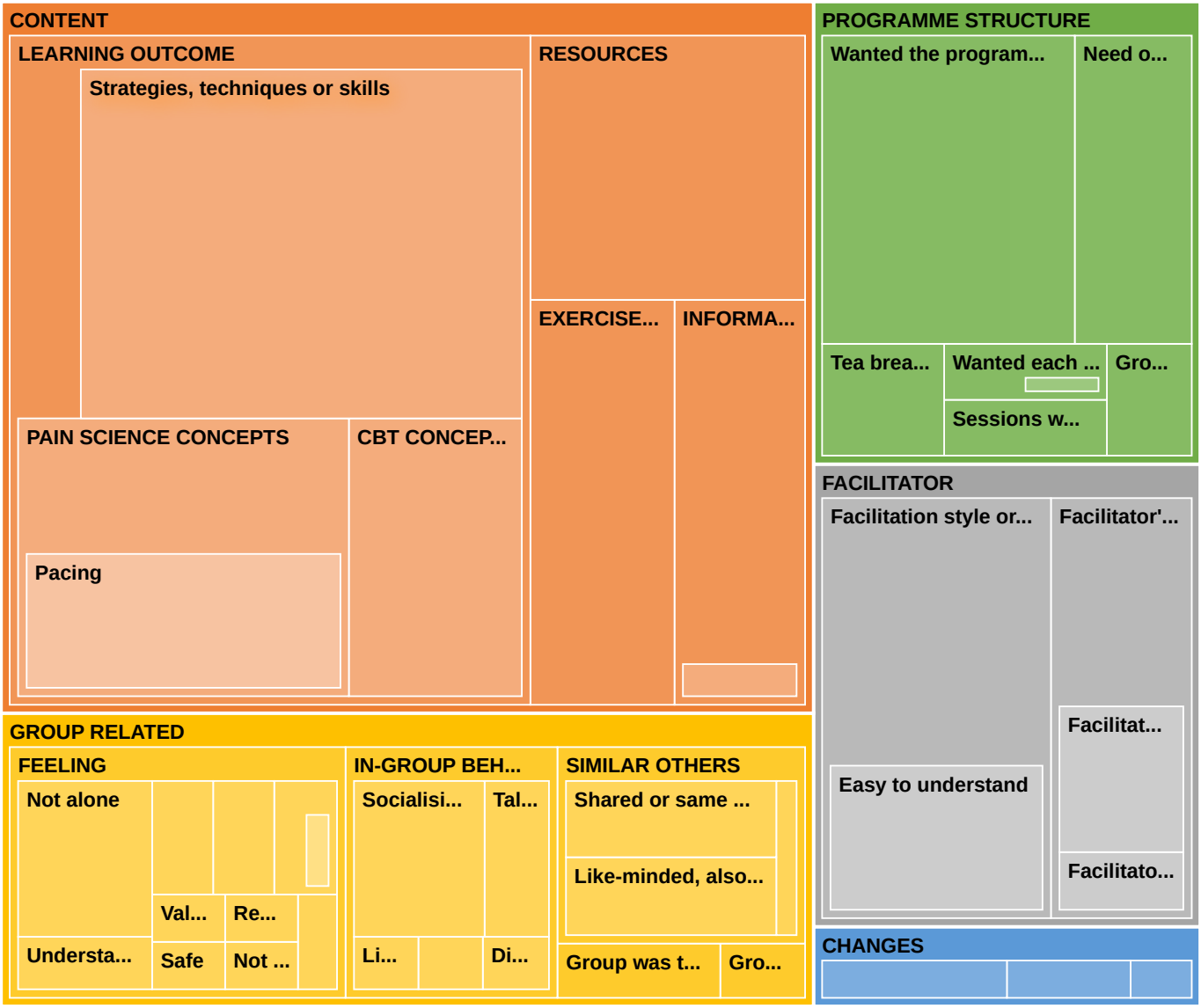
Please note that only those investigators listed above are authorised for this study based on the nature of duties performed; types of clients/patients; and the ability to access certain work locations#. The following arrangements apply to data and/or site access for non-SALHN researchers#:

Non-SALHN Access to De-identified Data only (no site access)	DCSI Screen	Confidentiality Deed
Professor Shylie Mackintosh, Dr Dianne Wilson, Marinda Rothman,	NA	NA
Marelle Wilson	Yes	Yes

The below documents have been reviewed and approved:

Document	Version	Date
Low and negligible risk application form	-	21.03.2023
Protocol	1.0	14.02.2023

Supplementary 5 (S5): Combined categories hierarchy chart



Generated using NVivo™ (Lumivero™, version 14, 2023)

Appendix C Supplementary material for Chapter Four

Supplementary 1 (S1): Triangulation stage 2 195

Supplementary 1 (S1): Triangulation stage 2

Table 1 Themes/subthemes reported by studies with similar program intensity and group size

First Author/ Year	Group related themes	Data collection	Program/Facilitator	Intensity	Group size	Group process
Cattanach 2021	Interaction Not alone Listening Group learning environment	Interviews	Mindfulness, MBCT, CT/Psych	8 x 2hr sessions over 8 wks (16 hrs)	5-6	Guided inquiry into participants' experiences
Day 2011	Feeling of not being alone Learning together/sharing Feeling like a family	Interviews	CBT & education/Psych Low income, low literacy African American individuals, from a similar rural location	10 x 90 min sessions over 10 wks (15 hrs)	3-4	Interactive group discussion
Huestis 2017	Not alone	Interviews and survey	ACT, CBT, family therapy/Psych	8 x 90 min sessions over 9 wks (12 hrs)	5-7	Not reported
Kashikar-Zuck 2016	Supportive environment Program adherence	Interviews	CBT & exercise for adolescents with juvenile fibromyalgia /Psych, EP	16 x 1hr sessions over 8 wks (16 hrs)	Not clear	Not reported

MBCT = Mindfulness Based cognitive therapy CT = Cognitive Therapy Psych = Psychologist CBT = Cognitive behavioural therapy ACT = Acceptance and Commitment Therapy EP = Exercise Physiologist

Congruent with Study 2
Not identified in Study 2

Table 2 Themes/subthemes reported by studies with survey data only

First Author/ Year	Group related theme	Program/Facilitator	Sample size	Total hours	Group size	Group process	Survey questions/data collection timepoint
Bridgman 2021	POSITIVE PEER SUPPORT Not alone Learning from others Got started socially	PMP/ Multi-D team	9	12	10	Group discussion	At last session: six questions
Brown 2022	SENSE OF BELONGING Connection Sense of safeness	Compassion/ Psych	13	12-15	4-5	Not reported	Not reported
Dysvik 2014	SUPPORT FROM THE GROUP PARTICIPANTS AND THE GROUP LEADERS WAS VALUABLE Best thing meeting others in same situation	CBT/ Counsellor or SW, peer	33	24	11	Not reported	At program completion: one question 6 months after completion:3 questions about changes
Furnes 2014	SIGNIFICANCE OF COMMUNIY AND GROUP SUPPORT Listening to others helpful Safe to talk recognition	CBT/ Nurse counsellor, peer	34	Not reported	10-12	Supervised dialogue	6 months after program completion: open-ended questions
Ley 2018	RELATIONSHIP AND SOCIAL STRUCTURE (53% of responses were related to group and facilitators) interaction with similar others understand what you are going through	PMP/ Multi-D team	85	50-150	Not reported	Not reported	At last session: two questions
Penlington 2019	FEELING DIFFERENT Less guilty Common humanity	Compassion/ Psych, mindfulness teacher	58	16	8-15	Discussion	At last session: one question about changes
Ruskin 2014	Meeting others with similar life experiences Group discussions	MBSR for adolescents/ Psych	6	16	8	Not reported	Not reported
Sloan 2018	ACCEPTABILITY Listening to how others problem solve Not alone Prefer more open conversation Spending time and talking with similar others Talking about problems and sharing	MBCT vs group therapy control for MS/ Psych	22	6	2-5	Group discussion	At last session: six questions
Zgierska 2016	Support from others *I truly enjoyed meeting others who have similar struggles*. *A support network* *That I wasn't alone*	Mindfulness/ Psych	17	16	21	Not reported	At last session: seven questions

Congruent with Study 2
Not identified in Study 2

PMP = Pain Management Program; Multi D = Multi-disciplinary; Psych = Psychologist ; MBCT = Mindfulness Based cognitive therapy; CBT = Cognitive behavioural therapy; ACT = Acceptance and Commitment Therapy; EP = Exercise Physiologist; MBSR = Mindfulness Based Stress Reduction; MS = Multiple Sclerosis SW = Social worker