

The measurement of collaboration
within healthcare settings

by

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ABSTRACT

The purpose of this study was to evaluate the measurement of collaboration within healthcare settings, with the aim of identifying validated instruments that measure collaboration in settings populated by a complex mix of participant types. To achieve this aim, a systematic review of measurement properties of instruments was performed following the Joanna Briggs Institute approach to systematic reviews and using the COSMIN checklist for methodological appraisal of validation studies.

A protocol for a systematic review was developed which established the criteria for inclusion of studies and defined the population to include more than two participant types. The focus of the review was the validation of instruments measuring collaboration, therefore validation studies were included. Clinical trials, observational studies and case studies were to be included where the study contributed to the interpretability of the instrument. Because the principal interest was healthcare, studies not about health or social care delivery were excluded. A search algorithm was developed and used search terms such as collaboration, interprofessional relations, psychometrics, measurement, reliability, instrument validation, factor analysis and instrument construction. Multiple databases were searched for published and unpublished studies.

As a result of the literature search and a refinement of the results, 21 studies of 12 unique instruments that met the inclusion criteria were included in methodological appraisal. Two appraisers reached consensus regarding the rating for methodological quality of the 21 studies and subsequently all were included in the review. The results were tabulated using a pre-established standard for this type of reporting. Tables for the characteristics of each

study accompany the results. A narrative synthesis was performed for the factor structures of the 12 instruments. This resulted in nine summary attributes that comprise collaboration; organizational settings, support structures, purpose and goals; communication; reflection on process; cooperation; coordination; role interdependence and partnership; relationships; newly created professional activities and professional flexibility.

From this process of rigorous analysis the author concluded that the measurement of social behavior like collaboration is problematic and traditional approaches to measurement using Classical Test Theory models may be limited. An approach to measurement of collaboration using Item Response Theory models should be considered. Furthermore, issues like measurement invariance and the limited use of triangulation methods in measurement and validation studies needs further research and development. An approach to measurement that incorporates an understanding of complexity and biopsychosocial principles presents a challenge for future research.

TABLE OF CONTENTS

LIST OF TABLES	viii
LIST OF FIGURES	ix
GLOSSARY	xi
The aims of this thesis	xiii
The organisation of this thesis.....	xiii
Chapter 1: Introduction.....	1
1.1 Patient safety and the quality of healthcare systems	1
1.2 Caring and the healthcare setting.....	2
1.3 Identifying the attributes of HCS and practice styles	2
1.3.1 Participants - carers and patients	4
1.3.2 Practice location and specialization.....	5
1.3.3 Team practice style	5
1.4 Definitions of terms used to describe teams	6
1.5 A definition of collaboration.....	7
1.6 Measuring collaboration to improve teamwork	8
1.7 The theoretical basis for measuring collaboration in healthcare.....	8
1.7.1 Bronstein Model of Interdisciplinary Collaboration.....	14
1.7.2 Sullivan’s Critical Attributes of Collaboration.....	16
1.7.3 D’Amour’s Conceptual Basis for Interprofessional Collaboration	18
1.7.4 San Martín-Rodríguez- The Determinants of Successful Collaboration.....	19
1.7.4.1 Systematic determinants	20
1.7.4.2 Organizational Determinants	21
1.7.4.3 Interactional determinants	22
Chapter 2: Methodology.....	25
2.1 An overview of evidence in healthcare.....	25
2.1.1 What is evidence?.....	25
2.1.2 Evidence generation.....	25
2.1.3 The quality of evidence	27
2.1.4 Decision making in healthcare.....	28
2.2 Evidence synthesis.....	29
2.2.1 What is evidence synthesis?.....	29

2.2.2	Systematic review	29
2.2.2.1	The purpose of systematic reviews	29
2.2.2.2	Heterogeneity	30
2.2.1.2	Narrative synthesis	31
2.4	Measurement science	31
2.4.1	Classical Test Theory	31
2.4.2	Item Response theory	33
2.4.3	Validity	35
2.4.4	Reliability	39
2.4.5	Interpretability	41
2.4.6	Validation studies	42
2.4.6.1	Generalizability	42
2.1.6.2	Level of evidence for instrument validity	43
Chapter 3:	Methods	45
3.1	The systematic review	45
3.1.1	Method	45
3.1.2	The systematic review protocol	46
3.1.3	The study report	47
3.2	Systematic review of measurement properties	47
3.2.1	Consensus on the Selection of Measurement Instruments checklist	48
3.2.2	Evidence synthesis of validation studies and reporting	49
3.2.3	Levels of evidence of validation studies	50
3.3	The measurement of collaboration within healthcare settings: a systematic review protocol of measurement properties of instruments	51
3.3.1	Review Question(s)/Objective(s)	51
3.3.2	Background	51
3.3.3	Criteria for considering studies for this review	56
3.3.3.1	Types of studies	56
3.3.3.2	Types of participants	56
3.3.3.3	Focus of the review	56
3.3.3.4	Types of outcome measures	56
3.3.4	Review methods	56
3.3.4.1	Search strategy	56
3.3.4.2	Assessment of methodological quality/critical appraisal	58

3.3.4.3	Data collection.....	58
3.3.4.4	Data synthesis	59
Chapter 4:	Results.....	60
4.1	Description of studies	60
4.2	Review finding/results	63
4.2.1	Methodological quality.....	63
4.2.2	Measuring collaboration beliefs, behaviours and attitudes (two studies/two instruments).....	66
4.2.3	Measuring collaboration between different levels of care (one study).....	68
4.2.4	Measuring collaboration in multi-rater on target groups (one study)	68
4.2.5	Measuring perception of collaboration (two studies/one instrument).....	70
4.2.6	Measuring collaborative relationships (one study).....	71
4.2.7	Measuring collaboration in assessing teams (thirteen studies/six instruments)	72
4.2.8	Measuring internal participation (one study/one instrument)	81
4.3	Synthesis of latent variables.....	82
Chapter 5:	Discussion	86
5.1	The outcome of this review.....	86
5.2	Measuring complexity	91
5.3	The biopsychosocial model.....	92
5.4	The value of factor analysis	93
5.5	Implications for practice	95
5.6	Implications for research	96
Conclusion.....		98
References.....		99
Appendices		112
Appendix 1:	Critical appraisal instrument; COSMIN Checklist.....	112
Appendix 2:	Generalizability data extraction instrument	124
Appendix 3:	Search algorithm examples	125
Appendix 4:	Excluded studies	126
Appendix 5:	The characteristics of the included studies table.....	134

LIST OF TABLES

Table 1.1 The Characteristics and Attributes of collaboration.....	11
Table 1.2 The Characteristics and Attributes of the Determinants of collaboration.....	12
Table 4.1 Results of the critical appraisal of methodological quality per questionnaire.....	65
Table 4.2 Levels of Evidence.....	66
Table 4.3 Narrative synthesis of factor structures of each instrument.....	84

LIST OF FIGURES

Figure 1.1 Diagrammatized representation of the healthcare setting.....	4
Figure 1.2 The continuum of team healthcare practices	5
Figure 2.1 Hierarchy of study types for therapeutic interventions.....	28
Figure 4.1 Results of literature search and inclusion.....	61

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GLOSSARY

Biopsychosocial: a term meaning to consider a persons' biological, psychological and social makeup as a way of viewing the human condition as a continuum of connected and nested hierarchies.¹

Collaboration: occurs when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms and structures, to act or decide on issues related to that domain.²

Complex Adaptive System: a collection of individual agents, who act freely in ways that are not always predictable and whose actions have an effect on other agents within the system.³

Complexity: incorporates a view of phenomena that considers the interconnectedness of elements and the importance of the environment in which the elements exist, known as a Complex Adaptive System.⁴

COSMIN: **CO**nsensus on the **S**election of **M**easurement **I**Nstruments (COSMIN) is a methodological appraisal tool for assessing the measurement properties of instruments for the purpose of rating a measurement instrument's quality (validity, reliability and interpretability).

Evidence Based Healthcare: clinical decision-making that considers the best available evidence; the context in which the care is delivered; client preference; and the professional judgement of the health professional.⁵

Evidence synthesis: methodologies aimed at integrating multiple quantitative or qualitative data sets to determine the concordance and the magnitude of effect from multiple studies.⁶

Healthcare setting (HCS): the HCS is any place where optimizing human health is the central activity of that setting and may include settings involved in the diagnosis and treatment of disease, the prevention of disease, the education of people to improve vitality and wellbeing, care of the elderly or disabled, palliation for people dying, and the rehabilitation of people with injury or post medical interventions.

Interpretability: the capacity of a metric produced by a measurement instrument to be translated to a qualitative meaning that is clinically or commonly understood.⁷

Reliability: a quantitative estimate of a measurement instrument's capacity to reproduce a metric within a specified tolerance for measurement error given similar or variable conditions for measurement or the degree to which the measurement is free from measurement error.⁷

Systematic review: a collation of all evidence that fits pre-specified eligibility criteria.⁸

Validation research/study: any scientific study reporting the results estimating the validity and reliability of a measurement instrument.

Validity: according to Messick,

"...an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment".⁹

The aims of this thesis

This thesis aims to critically analyse the current state of measurement of collaboration within healthcare settings (HCS). The thesis presents the results of a systematic review, the purpose of which was to identify, appraise and rate measurement tools that quantify collaboration in HCS that have been validated with a sample that represents a complex mix of participant types.

The organisation of this thesis

The organisation of the thesis commences in Chapter 1 with a statement regarding the relevance of patient safety and presents an overview of the discourse within healthcare literature that positions collaboration as a key component of quality patient care. Definition of the HCS and the elements that comprise any HCS are presented including a description of various styles of team practice relevant to collaborative practice. Following is a definition of collaboration, the importance of measuring collaboration relative to teamwork and a brief overview of the central theories underpinning the measurement of collaboration within healthcare systems.

Chapter 2 addresses methodological principles upon which the systematic review process is based. This includes the science of evidence, evidence synthesis, systematic review, and measurement principles relevant to the concept of validity.

Chapter 3 details the method of systematic reviews of measurement properties of instruments and reproduces the systematic review protocol produced for the purpose of guiding the systematic review process. This protocol has been published in the Joanna Briggs Institute Library.

Chapter 4 presents the results of the systematic review and includes the search results, description of studies and the appraisal of methodological quality of each individual study. This is presented as a narrative synthesis.

Chapter 5 concludes the thesis with a discussion of the results of the systematic review. Issues relating to the measurement of complex, biopsychosocial phenomena are discussed and implications of the study results for clinical practice and further research are posited.