CROSS PROFESSIONAL TEAM CHARACTERISTICS, TRANSLATION AND CONSTRUCT VALIDATION OF TEAMWORK SURVEY QUESTIONNAIRE (TSQ) AT MALAYSIAN EAST COAST PUBLIC HOSPITAL

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by

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LIST OF SYMBOLS

N	Number of cases
P	Subject to variable ratio

LIST OF ABBREVIATIONS

TSQ	Teamwork Survey Questionnaire
TCI	Team Climate Inventory
RCS	Relational Coordination Scale
PEC	Practice Environment Checklist
AITCS	Assessment of Interprofessional Team Collaboration Scales
CRBS	Cardiac Rehabilitation Barriers Scale
AARP	American Association of Retired Persons
WHO	World Health Organization
USM	Universiti Sains Malaysia
HUSM	Hospital Universiti Sains Malaysia
MOH	Ministry of Health
O&G	Obstetrics and Gynecology
EFA	Institut Pengajian Siswazah
CFA	Universiti Sains Malaysia
KMO	Hospital Universiti Sains Malaysia
IBM	International Business Machines
SPSS	Statistical Package for Social Sciences
ICV	initial content validation
FT 1	forward translation 1
FT 2	forward translation 2
RFT	reconciled forward translation
BT	back translation
CV	content validation
UMT	updated Malay translation
FMT	final Malay translatio
HO	Houseofficer
MO	Medical officer
CVI	Content Validity Index
IPE	Interprofessional Education

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CIRI PASUKAN SILANG PROFESIONAL, TERJEMAHAN DAN KESAHAN KONSTRUK ALAT TINJAUAN KERJA BERPASUKAN (TSQ) DI HOSPITAL AWAM PANTAI TIMUR MALAYSIA

ABSTRAK

Kerja berpasukan silang profesional dalam penjagaan kesihatan bermaksud interaksi antara individu yang mempunyai kepakaran dan latar belakang latihan yang berbeza, bekerjasama ke arah matlamat penjagaan pesakit yang dikongsi. Kerja berpasukan silang profesional adalah perlu untuk menyokong penyampaian perkhidmatan bersepadu. Walau bagaimanapun, kerja berpasukan silang profesional tidak diberi perhatian yang mencukupi dalam konteks negara membangun di Malaysia. Terdapat kekurangan alat untuk menilai kerja berpasukan silang profesional di Malaysia. Kajian ini bertujuan untuk menterjemah alat tinjauan kerja berpasukan (TSQ) versi Bahasa Inggeris ke Bahasa Melayu dan melaksanakan pengesahsahihan konstruk alat di hospital awam pantai timur Malaysia. TSQ menilai kerja berpasukan pada domain integrasi, hubungan dan kecekapan; alat ini telah digunakan sebelum ini di Sweden dan Australia. Matlamat kajian ini dicapai melalui kajian kaedah campuran keratan rentas dalam tiga fasa. Fasa 1 dan Fasa 2 telah dijalankan melalui pendekatan kualitatif manakala Fasa 3 menggunakan pendekatan kuantitatif. Fasa 1 memberi tumpuan kepada menterjemah TSQ ke dalam bahasa Melayu menggunakan terjemahan ke hadapan-belakang bersama dengan pendekatan jawatankuasa. Seterusnya, kajian temu bual kualitatif telah dijalankan dalam Fasa 2 untuk meneroka pemenuhan ciri pasukan silang profesional di 16 wad pesakit dalam hospital. Sebanyak 35 temu bual telah dijalankan dengan profesional kesihatan perubatan, kejururawatan dan bersekutu; sampel adalah mencukupi untuk ketepuan data kualitatif. Rakaman

daripada sesi temu bual telah ditranskripsi dan dianalisis secara tematik. Kesahan konstruk dan kebolehpercayaan TSQ versi Bahasa Melayu telah ditentukan dalam Fasa 3. Pada Fasa 3, 150 responden telah direkrut dari wad yang didapati mempunyai ciri-ciri pasukan silang profesional dalam Fasa 2. Kadar respons sebanyak 98.24% diperolehi dalam mengisi TSQ versi Bahasa Melayu, peratusan responden yang diambil adalah mencukupi untuk analisis statistik. Kesahan konstruk dinilai melalui Analisis Komponen Prinsip dengan putaran Varimax dan kebolehpercayaan diuji melalui analisis ketekalan dalaman. Hasil daripada Fasa 1 menunjukkan TSQ versi Bahasa Melayu yang diterjemahkan mempunyai persamaan dengan versi Bahasa Inggeris. Penemuan temu bual Fasa 2 mendedahkan bahawa wad pesakit dalam umumnya memenuhi kriteria pasukan silang profesional yang berkaitan dengan komposisi pasukan, objektif penjagaan pesakit dan interaksi profesional. Keputusan pengesahan konstruk fasa 3 menunjukkan bahawa tiga konstruk iaitu hubungan pasukan, kecekapan pasukan dan integrasi pasukan, tanpa sebarang pemadaman item adalah sah untuk TSQ versi Bahasa Melayu. Nilai Alpha Cronbach ialah 0.917 untuk keseluruhan skala TSQ yang diterjemahkan, manakala tiga konstruk skala juga mempunyai nilai Alpha Cronbach yang boleh dipercayai dalam julat 0.703-0.946. Perbezaan daripada proses terjemahan ke belakang ke hadapan telah diselesaikan tanpa mengubah maksud asal item. Profesional penjagaan kesihatan dalam kajian ini mengakui pelbagai profesion yang terlibat dalam penjagaan pesakit. Walau bagaimanapun, kepelbagaian disiplin di wad masing-masing berbeza-beza bergantung pada kepakaran penjagaan pesakit dan objektif rawatan. Nilai Alpha Cronbach untuk faktor TSQ versi Bahasa Melayu mencerminkan hubungan pasukan dan nilai integrasi yang lebih baik dan nilai kecekapan pasukan yang serupa apabila dibezakan dengan alat asal. Kesimpulannya, keputusan menyokong penggunaan alat itu sebagai

instrumen yang boleh dipercayai untuk menilai pasukan silang profesional dalam perkhidmatan penjagaan kesihatan awam Malaysia yang serupa. Kajian lanjut boleh dilaksanakan bagi menguji kebolehpercayaan dan kesahihan TSQ versi Bahasa Melayu di kawasan Malaysia yang lain.

CROSS PROFESSIONAL TEAM CHARACTERISTICS, TRANSLATION AND CONSTRUCT VALIDATION OF TEAMWORK SURVEY QUESTIONNAIRE (TSQ) AT MALAYSIAN EAST COAST PUBLIC HOSPITAL

ABSTRACT

Cross professional teamwork in healthcare refers to the interaction between individuals with different expertise and training backgrounds, working together towards shared patient care goals. Cross professional teamwork is necessary to support integrated service delivery. However, cross professional teamwork has not been given sufficient attention in Malaysia's developing country context. There is a lack of tools to assess cross professional teamwork for Malaysian settings. This study aimed to translate the English version teamwork survey questionnaire (TSQ) into Malay and perform tool construct validation at a Malaysian east coast public hospital. The TSQ assesses teamwork on domains of integration, climate and efficiency; the tool has been previously used in Swedish and Australian settings. This study's aim was achieved through a cross-sectional mixed methods study in three phases. Phase 1 and Phase 2 were carried out through qualitative approaches while Phase 3 utilized a quantitative approach. Phase 1 focused on translating the TSQ into Malay language using forward-backward translation together with the committee approach. Next, a qualitative interview study was conducted in Phase 2 to explore fulfillment of cross professional team characteristics at the hospital's 16 inpatient wards. A total of 35 interviews were conducted with medical, nursing and allied health professionals; the sample is sufficient for qualitative data saturation. Recordings from interview sessions were transcribed and thematically analyzed. The construct validity and reliability of the

Malay version TSQ was determined in Phase 3. In Phase 3, 150 respondents were recruited from wards found to have cross professional team characteristics during Phase 2. A response rate of 98.24% was obtained in filling in the Malay version TSQ, the percentage of recruited respondents being sufficient for statistical analysis. Construct validity was assessed through Principal Component Analysis with Varimax rotation and reliability was tested through the analysis of internal consistency. Findings from Phase 1 indicate the translated Malay version TSQ to have equivalence with the English version. Phase 2 interview findings reveal that inpatient wards generally fulfill cross professional team criteria related to team composition, patient care objectives and professional interactions. Phase 3 construct validation results indicate that three constructs namely team climate, team efficiency and team integration, without any item deletion are valid for the Malay version TSQ. The Cronbach's alpha value is 0.917 for the translated whole TSQ scale, while the three scale constructs also have reliable Cronbach's alpha values in the range of 0.703-0.946. Discrepancies for particular words used from the forward backward translation process were resolved without affecting meaning of the original items. Health professionals in this study acknowledge the different professions involved in patient care. However, disciplinary diversity at the respective wards varies depending on patient care specialties and treatment objectives. The Cronbach's alpha values for the Malay version TSQ factors reflect better team climate and integration values and comparably similar team efficiency value when contrasted with the original tool. In conclusion, the results support usage of the tool as a reliable instrument for assessing cross professional teams in other similar Malaysian public healthcare services. Further research could test the reliability and validity of the Malay version TSQ in other Malaysian regions.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter introduces important concepts about cross professional teamwork in healthcare and the importance of teamwork among medical, nursing, pharmacy and allied health professionals. The background information provides foundational appreciation for this study's aim of translating and construct validating an instrument to assess local healthcare teamwork. An overview of teamwork in developed countries, developing countries, and the Malaysian healthcare setting are presented to provide the study context and rationale. This chapter also explains the study's problem statement, lists research objectives and questions, elaborates on the conceptual framework and details chapterization of this thesis.

1.2 Background of The Study

Teamwork is coordinated action involving two or more individuals, with mutually agreed goals, and necessitates a clear understanding and respect for each member's roles and functions (Tamayo et al., 2017). Teamwork is a process, not an end in itself, and it necessitates the ability to work as colleagues rather than superior-subordinate (World Health Organization, 1988). Costello et al. (2021) reported that medical professionals have traditionally dominated leadership and decision-making responsibility in the delivery of patient care. However, holistic patient care requires the combined expertise of different professional disciplines. To fully realize the patient care benefits from different but complementary disciplinary backgrounds, effective teamwork is critical. Such cross professional teamwork promotes patient centred

collaboration across disciplines while minimizing adverse events from disciplinary blind spots and reducing conflicting priorities among professional groups (Costello et al., 2021). In modern healthcare settings teamwork among professionals is required to support the many facets of patient needs, disease complications, and treatment options (Burtscher & Manser, 2012; Chamberlain-salaun, 2013; Rosen et al., 2018). Hence, clinician-focused single disciplinary approaches to service delivery no longer dominate patient diagnosis, treatment planning, and continuity of care (Epstein & Street, 2011). The paradigm shift of patient-centred care necessitates teamwork among medical, nursing, and allied health professionals in managing a patient's journey from admission to discharge and follow-up (Hartgerink et al., 2014; Walton et al., 2019).

The concepts and terminology for teamwork among different professionals in healthcare settings have been used interchangeably in previous studies (Martin et al., 2022). The terms or team labels that are usually used in the literature are multi-professional (Reeves et al., 2017), interprofessional (Franz et al., 2020; Skyberg & Innvaer, 2020), and trans-professional (Klarare et al., 2019). However, the three terms refer to types of teams on a continuum of interdependence or collaborative intensity among the team members (i.e., a classification according to level of integration) (Hall & Weaver, 2001; Will et al., 2019). The continuum ranges from multi-professional (low integration), followed by interprofessional (medium integration) to the trans-professional model with blurred disciplinary boundaries (high integration) (Thylefors et al., 2005; Will et al., 2019). Since the teamwork terms have specific meanings based on level of collaboration intensity, the terms need to be used appropriately and not interchangeably. To avoid terminology confusion, this study uses the term 'cross professional teams' to describe healthcare teams with collaboration among members regardless of their level of integration. Cross professional teamwork in healthcare

refers to the interaction between individuals with different expertise and training backgrounds, working together towards shared patient care and service delivery goals (Morgan et al., 2015; Morley & Cashell, 2017; Reeves et al., 2010b).

Successful cross professional teamwork has been associated with more effective healthcare delivery, higher patient satisfaction and improved patient survival rates (Dinius et al., 2020; O'Leary et al., 2012; Rosen et al., 2018). Reductions in surgical and disease complications, decreased length of hospital stay and lower death rates have been achieved through cross professional teamwork (Rosen et al., 2018; Vats, 2013). Healthcare organizations benefit from savings in resource utilization when healthcare professionals collaborate effectively (Woo et al., 2017). Work cultures incorporating cross professional teamwork contribute towards good physical and mental wellness of health professionals (Costello et al., 2021; Marmo & Berkman, 2020). However, not all healthcare organizations have a culture of teamwork within their patient services (Skoogh et al., 2022; Weller, 2012).

In some healthcare settings, teamwork may be limited and adversely affected by professional tribalism. Professional tribalism is an attachment of health professionals to their respective medical, nursing and allied health groupings instead of collaborating and identifying as cross professional team members (Braithwaite et al., 2016; Weller et al., 2014). Professional tribalism might hinder recognition of other disciplines required for team care. Apart from professional tribalism, the dominance of older medical and nursing professions compared to newer allied health professions can be a barrier for teamwork (Belrhiti et al., 2021; Sinclair et al., 2009). Doctors and nurses might be perceived as higher up in the patient care hierarchy. Therapists and auxiliary professionals may be relegated to merely secondary patient care roles without

meaningful authority. Auxiliary healthcare staff who are also known as support workers, healthcare assistants, and nursing assistants are healthcare workers who work alongside doctors and nurses to provide patient care and support. Healthcare services might have diverse professional composition but professionals in such services might not identify as being part of cross professional teams when they are not granted equal or significant status in their roles.

Appreciating the elements of teamwork is the existing benchmark for identifying and evaluating cross professional services. In general, the elements of teamwork indicate membership within a team and provide insights for effective team interactions. Elements of teamwork include team composition (Hysong et al., 2019; Reeves et al., 2010b; Youngwerth & Twaddle, 2011) and team functioning (Buljac-Samardzic et al., 2020; Thylefors et al., 2005). Team composition comprises of demographics and team size. Demographics reveals team members' information such as age (Hansson et al., 2010), gender (Oladipo, 2012), education (Tanco et al., 2011) and experiences (Buljac-Samardzic et al., 2011). Team size indicates the number of members in a team. From a cross professional perspective, team composition provides an overview of a team's professional diversity.

Team functioning refers to the process of team members working together in meeting shared patient care delivery objectives (McGuier et al., 2021). Team functioning commonly includes dimensions of integration (Skyberg & Innvaer, 2020; Smith, 2012), efficiency (Franz et al., 2020; Tanco et al., 2011) and climate (Hartgerink et al., 2014; Kebe et al., 2020). Team integration concerns the degree of cohesiveness between team members and the interdependence of roles in delivering services (Thylefors et al., 2005). Efficiency in healthcare teamwork is related to the

achievement of team goals (Reeves et al., 2010b) and the way teams achieve their objectives (Tanco et al., 2011). Team climate represents the cross professional interaction and the relationship environment among team members (Hartgerink et al., 2014). Given the importance of integration, efficiency and climate in teamwork, a comprehensive assessment of team functioning should ideally cover those respective dimensions. The assessment of teamwork in healthcare has been a foundational research goal in developed contexts before interventions and more complex studies can be conducted for service delivery improvement (Kash et al., 2018; Valentine et al., 2015).

Teamwork has been widely assessed in healthcare contexts of developed countries including the United States (Patterson et al., 2013), the United Kingdom (Smith, 2012), Sweden (Thylefors et al., 2005), Australia (Nugus et al., 2010), Canada (Orchard et al., 2012), and the Netherlands (Hartgerink et al., 2014). Teamwork is commonly assessed through surveys; survey studies have the benefit of not being resource intensive and can be efficiently utilized with larger samples (Valentine et al., 2015) . Many survey tools have been developed and adapted for the evaluation of healthcare teamwork, for instance, the Team Climate Inventory (TCI) (Anderson & West, 1998), the Relational Coordination Scale (RCS) (Havens et al., 2010), the Practice Environment Checklist (PEC), the Assessment of Interprofessional Team Collaboration Scales (AICTS) (Orchard et al., 2012) and the Teamwork Survey Questionnaire (TSQ) (Pereira, 2013). Besides team composition, the scales of the mentioned tools assess the core dimensions of team functioning such as team integration, climate, communication, coordination, and efficiency. Assessing the core dimension of team functioning provides useful information on whether a team is working well or dysfunctional (Youngwerth & Twaddle, 2011).

Researchers should carefully review the features of available team assessment tools to ensure a proper fit for healthcare studies. The Team Climate Inventory (TCI) is a widely used team functioning survey tool. The scales of the TCI are participative safety, support for innovation, vision, task orientation and social desirability. Since its early development, the TCI has been psychometrically tested on UK samples of primary health care teams, also on Swedish and Finish samples (Ragazzoni et al., 2002). The Relational Coordination Scale (RCS) assesses communication and relationship between members but does not specifically measure the efficiency of the team. In the RCS, there are three questions about communication which pertain to frequency, accuracy and problem solving; and three questions about relationships namely shared goals, shared knowledge and mutual respect. Despite its broad coverage of team functioning elements, the Relational Coordination Scale does not assess team integration and efficiency. The Practice Environment Checklist (PEC) assesses team functioning with 29 items. However, the PEC focuses largely on team effectiveness (Lurie et al., 2011), thus neglecting other aspects of team functioning such as team integration and team climate. The Assessment of Interprofessional Team Collaboration Scale (AITCS) assesses the teamwork elements of partnership, cooperation, coordination, and shared decision making. The AITCS tool evaluates collaborative relationships between team members and also considers patients as team members. However, the AITCS does not evaluate team efficiency. The Teamwork Survey Questionnaire covers team demographic variables, team size and uses indexes measuring team functioning categories of integration, efficiency and climate. The indexes of team functioning in the TSQ complement each other and the usage of one questionnaire tool may avoid overlap between specific index items if tools from different authors were combined in the same study.

Most of the teamwork tools and assessments in healthcare originated from developed countries. Limited cross professional teamwork assessments have been conducted in developing country settings. However, research approaches and evidences from developed countries may offer insights for initiating studies in developing countries (Sunguya et al., 2014). As an advanced developing country, Malaysia presents an ideal context for the assessment of cross professional healthcare teamwork. There are Malaysian studies inferring patient and staff outcomes to be mitigated by teamwork. A study of customer satisfaction among urban and rural Malaysian public healthcare providers suggested a patient satisfaction link with teamwork (Sharifa Ezat et al., 2010). Research involving employees from 23 Malaysian public hospitals also documented teamwork together with quality management practices to be associated with patient satisfaction (Noor Hazilah, 2012). Clinician sense of belonging in the workplace was also attributed to teamwork in the Malaysian context (Mohamed et al., 2014). Medical professionals in Malaysian gave positive perspective on acceptance of cross professional teamwork in Malaysia (Roslan et al., 2016). Good teamwork also found between medical healthcare professionals in a study at tertiary hospital in Kuala Lumpur (Hussein et al., 2018). The promising research findings can be validated and explored further in Malaysian settings by addressing the local research gap of comprehensively assessing cross professional teamwork.

Due to the availability of credible survey tools, the researcher did not seek to 'reinvent the wheel' with regards to teamwork assessment. Evaluation of cross professional teamwork in Malaysian healthcare can be conducted using a culturally adapted existing survey questionnaire tailored to be linguistically suitable for the local context. This study contributes to the body of knowledge an adapted teamwork

questionnaire tailored for local context through a process of translation and validation (Beaton et al., 2000; Sousa & Rojjanasrirat, 2011).

1.3 Problem Statement

Malaysian healthcare services are delivered by a diversity of different professionals. While a department or ward might be served by doctors, nurses, pharmacists and allied health professionals; these professionals might not view each other as team members, especially when they are from different training backgrounds. The lack of teamwork among various health professionals in some services can be traced to professional tribalism or silos; and the dominance of older medical and nursing professions over newer allied health disciplines (Braithwaite et al., 2016; Sinclair et al., 2009; Weller et al., 2014). However, for some specialties such as physical rehabilitation, emergency services and community care; teamwork among different professional groups may be more marked and even a prerequisite for quality patient outcomes. To strengthen the validation of a team assessment tool, it could be necessary to ensure respondents fulfil criteria of being in cross professional teams. Common criteria in identifying cross professional teams are acknowledging different profession as a team, sharing common goals and having communication across disciplines.

Generally, attention is given to elements of teamwork when identifying and evaluating cross professional teams. Many assessments of teamwork in developed countries were conducted using survey studies (Kash et al., 2018; Seaton et al., 2021; Valentine et al., 2015). Numerous tools have been developed in Western countries for the assessment of cross professional healthcare services (Anderson & West, 1998; Gosselin et al., 2019; Havens et al., 2010; Orchard et al., 2012). However, a good tool

should be comprehensive and user friendly in assessing critical elements of cross professional teamwork. Some tools could be lengthy, having irrelevant components and may have been produced for commercial purpose with researchers having to pay a usage fee. Based on the basic criteria for a good comprehensive user-friendly tool and seeking to avoid survey instrument limitations, the TSQ was selected for this translation and construct validation study.

A Malay version of the teamwork survey questionnaire is necessary to assess team functioning or the quality of teamwork among diverse professionals in Malaysian healthcare. Health professionals in Malaysian healthcare settings may comprehend a tool in the English language. However, the level of the English skills might vary between low, medium and high based on the level of the health professional's education and the opportunity to practice and improve language competence. It has been reported that many health students and professionals in Malaysia have poor English language skills (Arumugam, Thayalan, Dass, & Maniam, 2014; Jebunnesa & Ibrahim, 2013; Karuthan, 2015; Yuen, 2015; Murali, 2015). Since the majority of Malaysians use Malay as their first language, administering questions in the Malay language might provide more accurate responses as the original version of the tool also could be different in terms of culture and context of the target study (Coster & Mancini, 2015). Hence, a Malay version questionnaire is needed to suit the local needs and language barriers. A reliable and valid Malay version questionnaire could provide a primary tool for assessing cross professional teamwork in the local context. This assessment could also support evaluations of performance, interventions and strategic planning to further improve cross professional teamwork. In the Malaysian developing country context, team assessment can potentially provide data for benchmarking against collaborative patient care in first world settings.

1.4 Research Questions

1.4.1 Research question 1

Do health professionals at a Malaysian east coast public hospital identify themselves as members of cross professional teams?

1.4.2 Research question 2

Is there conceptual equivalence between the English version TSQ and the translated Malay version?

1.4.3 Research question 3

Is the Malay version TSQ construct valid and reliable for assessing Malaysian healthcare teams?

1.5 Objectives

1.5.1 General objective

To translate the teamwork survey questionnaire (TSQ) into Malay and construct validate for the assessment of cross professional teams in Malaysian healthcare services.

1.5.2 Specific objectives

1.5.2(a) Specific objective 1

To explore cross professional characteristics of teams at a Malaysian east coast public hospital.

1.5.2(b) Specific objective 2

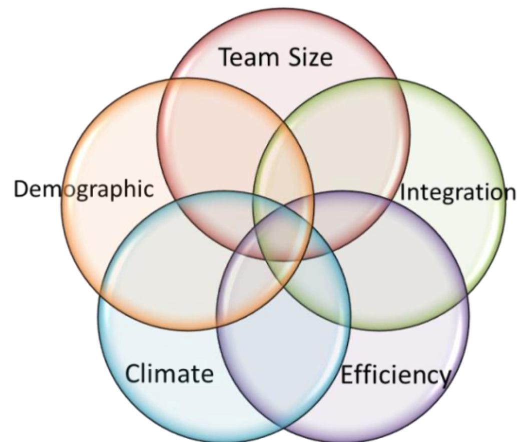
To translate the teamwork survey questionnaire (TSQ) from English to Malay language.

1.5.2(c) Specific objective 3

To determine the construct validity and reliability of Malay version TSQ for assessing cross professional teams in Malaysian healthcare setting.

1.6 Conceptual framework

The dimensions of integration, efficiency and climate have shown association in the context of healthcare teamwork. A Swedish study has indicated greater team integration to be connected with higher efficiency and the better climate among team members (Thylefors et al., 2005). The connection between dimensions of team functioning highlight how elements of teamwork are useful in describing the professional interactions within healthcare services (McGuier et al., 2021). These interactions could indicate whether a service practices good or poor teamwork (Dinh et al., 2020; Schmutz et al., 2019). Besides the dimensions of team functioning, demographic characteristics of team members and team size also influences teamwork in healthcare (Hysong et al., 2019). The TSQ selected for this study provides holistic assessment of cross professional teams' coverings demographics of team members, team size and team functioning dimensions. The holistic tool coverage is reflected in the conceptual framework diagram (Figure 1.1).



Adapted from: Thylefors *et al.,* 2005

Figure 1.1 Study conceptual framework

1.7 Chapterization of Thesis

This thesis is divided into six (6) chapters. This introduction chapter provides an overview of the study with background information, problem statement, research questions, research objectives and conceptual framework. After this introduction chapter, the second chapter provides a review of the related literature. The literature review scopes are related with teamwork in healthcare, barriers in achieving effective teamwork, elements in teamwork, assessment of teamwork and teamwork scenario in Malaysia. The third chapter covers research methodology. With data collection carried out in three phases. The translation process in Phase 1, identification of cross professional healthcare teams in Phase 2 and tool construct validation and reliability testing in Phase 3 of the study. Findings from all three study phases are presented in the fourth chapter, while the fifth chapter comprises of discussion that provides critical analysis of findings obtained. The sixth final chapter concludes this thesis with a summary of findings, study strengths and limitations as well as implications and recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 Teamwork in Healthcare

Teamwork in healthcare is explained through an appreciation of different conceptual elements. This review focuses on three major themes which are common in the current literature and comprehensively cover important elements of teamwork. These themes are demographics, namely the individual characteristics of the team members, the influence of team size on teamwork and team functioning. Team functioning in this review has components of integration, efficiency and climate.

2.1.1 Defining teams and teamwork in the context of healthcare

A team is described as “a social system of three or more people, which is embedded in an organization, whose members perceive themselves as such and are regarded as members by others, and who collaborates on a common task” (Hoegl & Gemuenden, 2001, p 436). Given the need for team members to achieve and satisfy mutual objectives for their services or organizations, a team is also defined as “a group of people that for some reason intend to establish common goals and to work towards them together” (Rydenfalt, 2014, p.10). Teamwork in healthcare can be conceptually defined as “a dynamic process involving two or more health professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted, physical and mental effort in assessing, planning, or evaluating patient care” (Schmutz et al., 2019, p.2; Xyrichis & Ream, 2008, p.238). Therefore, healthcare teamwork refers to the interaction between individuals with different expertise and training backgrounds, working together towards shared patient care and service delivery goals (Morgan et al., 2015; Reeves et al., 2010a; Walton et al., 2020).

The nature of work in hospitals requires collaboration between doctors, nurses and allied health professionals in order to deliver patient care (Schot et al., 2020). Health professionals from different disciplines collaborating together might consider themselves to be a team (Youngwerth & Twaddle, 2011). However, a grouping of different professionals might just constitute a pseudo team (West & Lyubovnikova, 2013) where individuals work side by side without meaningful collaboration (Youngwerth & Twaddle, 2011). In a pseudo team, each different profession has specific objectives that need to be met without needing to know what other staffs from other professions are doing. Health professionals also may recognize different disciplinary roles but never meet or communicate with one another in addressing patients care needs. It is therefore important to have clear criteria on how teams are classified. Research literature suggests, a group of people can considered as a team when team members are having the same goal or specific objectives, have interaction with each other, regard other members as part of the team and have formal or informal meetings to discuss anything related to the patient care delivery (West & Lyubovnikova, 2012). Without specifications on what qualifies as a team in healthcare, professionals from different disciplines might not be leveraging their full potential for holistic patient care. Clearly defined team could promote holistic care through clear objectives and meaningful cross professional interaction concerning patient conditions, treatment planning and required intervention (Canadian Health Service Research Foundation, 2006).

Recognizing the potential of teams, it should be noted that teamwork requirements in healthcare might vary according to patient care needs and service contexts (Schot et al., 2020). Teamwork requirements are often not standardized in healthcare with some specialties or services requiring more cross professional

collaboration than others. Teams in a Swedish study were classified according to a continuum of integration. Integration here describes team member interdependence and collaborative intensity. The classification continuum ranges from multiprofessional (low integration), interprofessional (medium integration) to transprofessional (high integration) (Rydenfalt, 2014; Thylefors et al., 2005). 'Multiprofessional' refers to team members from different disciplines working parallel to one another in treating clients; there is minimum interaction and sharing of information but not necessarily sharing common understanding (Chamberlain-salaun, 2013; Thylefors et al., 2005). 'Interprofessional' indicates teams members working interdependently through active communication, sharing of information (Youngwerth & Twaddle, 2011), mutual planning, collective decisions, and shared responsibilities (Thylefors et al., 2005), to achieve a common goal (Chamberlain-salaun, 2013; Mulvale et al., 2016). 'Transprofessional' teams utilize integrative work processes where disciplinary boundaries are partly dissolved (Klarare et al., 2019). To avoid terminology confusion, this study uses the term 'cross professional team' to describe healthcare teams with collaboration among members regardless of their level of integration.

2.1.2 The importance of cross professional teamwork in healthcare

The team approach among different health professionals is necessary, especially for patients with multiple health conditions (Hysong et al., 2019; Nancarrow et al., 2013). Due to advancement in medical and health sciences, population life expectancy has increased (Doekhie et al., 2017; Peduzzi et al., 2013), resulting in a growing demographic of aged individuals (Ahokangas et al., 2015; Ministry of Health Malaysia, 2011). Aging patients requesting treatment and care often suffer from more than one ailment or disease (AARP Public Policy Institute, 2014; Woo et al., 2017). Adults over 65 years of age have one or more chronic condition, such as diabetes, heart disease,

arthritis, depression, and hypertension (Chamberlain-salaun, 2013). An Italian study in hospital inpatient wards revealed that wards offering integrated services perform better than those that are more specialised (Mariani & Cavenago, 2014). When professionals have interactions across specialties and disciplines, service delivery could be more efficient and effective for patients with multiple health conditions.

Continuous advances in healthcare knowledge have resulted in more specialized services and professionals. Medical professionals cover a range of specialities such as pathology, anaesthesia, oncology (Moukafih et al., 2021; Saini et al., 2012), surgery (Bitter et al., 2013; Hossny & Sabra, 2021) and obstetrics (Deering et al., 2011). Nurses are also trained and experienced in different disciplines such as oncology (Saini et al., 2012), accident and emergency (Muntlin Athlin et al., 2013) and perinatal (Deering et al., 2011). Meanwhile allied health professionals include various therapy providers such as physiotherapists (Kilner & Sheppard, 2010; Martin et al., 2018), occupational therapists (Alotaibi et al., 2019; Patterson et al., 2013), speech therapists and audiologists (Barr, 2015; Kingston et al., 2019). Pharmacy also has established specialties in oncology pharmacy and other fields. A teamwork approach may assist health professionals to navigate specialty difference in striving to meet patient care quality and safety standards (Rosen et al., 2018). Medical errors in the United States of America are reported to cause 98 000 deaths annually (Baker et al., 2010). Greater collaboration among medical, nursing and allied health professionals could offer pathways for reducing preventable adverse patient outcome (Singer & Vogus, 2013; Zajac et al., 2021).

The complexity of patient care with various pathways and collaborative services requires a diversity of health professionals even for patients with specifically diagnosed

diseases or conditions (Hwang & Ahn, 2015; Karam et al., 2021). For instance, the delivery and management of care for a patient with breast cancer requires professionals with expertise in oncology, surgery, radiology, pathology and nursing (Saini et al., 2012; Taylor et al., 2013). In perinatal care environments, every delivery is dependent upon teams consisting of either an obstetrician or a midwife, nurses and an anaesthetist with a paediatrician to take care of the baby after delivery (Deering et al., 2011). In Swedish emergency departments, the whole process of care for patients is reported to be handled by teams consisting of physicians and paramedics (Muntlin Athlin et al., 2013). Health professionals should ideally put aside disciplinary differences in prioritizes patients' needs.

In the provision of modern healthcare; patient diagnosis, treatment, planning and continuity of care are no longer dominated by clinician focused approaches to service delivery (Epstein & Street, 2011; Taberna et al., 2020). The paradigm shift of patient centred care requires medical, nursing, allied health professionals and also patients with their next of kin to collaborate (Nickel et al., 2018). Collaboration is necessary in managing patient journeys from diagnosis, treatment and monitoring upon admittance, though interventions, consultations prior and post discharge, and follow up continuity (Hartgerink et al., 2014). Studies reveal that improvements in meeting patient needs can be achieved by centring care and decision-making around patients and their families (Deacon & Cleary, 2013; Hepp et al., 2015; Leasure et al., 2013). Patients and families also could benefit from exposure to more complete information concerning diagnosis, treatment options and prognosis by different health professionals.

2.2 Barriers in Achieving Effective Teamwork

In some healthcare settings, teamwork may be limited and adversely affected by professional tribalism. Professional tribalism is an attachment of health professionals to their respective medical, nursing and allied health groupings instead of collaborating and identifying as cross professional team members (Braithwaite et al., 2016; Weller et al., 2014). Professional tribalism might hinder recognition of other disciplines required for team care. This problem has roots in a lack of collaboration during the professional education process. With no prior interaction, some professionals develop negative stereotypes and flawed perceptions of other health professionals at the work settings (McNeil et al., 2013). Insufficient knowledge about other professions' scope of practice, skills and expertise also leads to barriers in appreciating other disciplines in a team setting.

Although, doctors and nurses interact numerous times a day, they have different perceptions about their roles and responsibilities to patient needs and may have different goals for patient care. Medical team members should be open to discussion; however other health professionals might perceive communication to be hindered by professional hierarchy (Fox & Comeau-Vallée, 2020). Instead of regarding nurses as colleagues, doctors often view nurses as assistants. In developed countries, nurses are increasingly involved with patient care decision making (Woo et al., 2017) while nurses sometimes wrongly regarded as lesser helping-hands in developing countries (Hussein et al., 2018).

Cross professional teamwork could also be affected when a country has health professionals from diverse ethnic and cultural backgrounds (O'Daniel et al., 2015). Malaysia is one of the countries that have multiple races and cultures. Cultural differences could worsen communication problems in interactions because in some cultures, individuals may refrain from openly or directly challenging opinions.

Therefore, it is very difficult for health professionals from such cultures to speak up if they see something wrong. In cultures such as these, health professionals may communicate their concerns in very indirect ways which may not be understood by health professionals from different cultures.

Apart from professional tribalism, the dominance of older medical and nursing professions compared to newer allied health professions can be a barrier for teamwork (Sinclair et al., 2009). Doctors and nurses might be perceived as higher up in the patient care hierarchy. Health professional therapists may be relegated to merely secondary patient care roles without meaningful authority. Healthcare services might have diverse professional composition but professionals in such services might not identify as being part of cross professional teams when they are not granted equal or significant status in their roles. In healthcare teams, senior doctors have historically been granted the highest traditional respect in the hierarchical levels of authority and are automatically designated as team leaders (Yusra et al., 2019). Health professionals on the lower end of the hierarchy such as junior doctors, nurses and allied health professionals tend to be uncomfortable speaking up about problems or concerns when hierarchical differences exist. Intimidating behaviour of individuals at the top of a hierarchy may impede communication as some members can have the impression that those higher up are unapproachable (O'Daniel et al., 2015).

2.3 Elements in Teamwork

The elements of teamwork are a useful benchmark for identifying and evaluating cross professional services. Elements of teamwork include team composition (Hysong et al., 2019; Reeves et al., 2010a; Youngwerth & Twaddle, 2011) and team functioning (M. Buljac-Samardzic et al., 2011; McGuier et al., 2021; Thylefors et al., 2005). From

a cross professional perspective, team composition provides an overview of a team's professional diversity. Meanwhile, team functioning refers to the process of team members working together in meeting shared patient care delivery objectives (McGuier et al., 2021). The respective elements within the categories of team composition and functioning have been found to have interconnectedness and influence on each other (Buljac-Samardzic et al., 2011; Thylefors et al., 2005).

2.3.1 Team composition

Team composition comprises of demographics and team size. Demographics reveals team members' information such as age (Hansson et al., 2010), gender (Oladipo, 2012), education (Tanco et al., 2011) and experiences (M. Buljac-Samardzic et al., 2011). Team size is the number of the members within a team (Hysong et al., 2019; Pereira, 2013).

When health professional work together, they bring with them different sources of expertise and different professional cultures. These difference may need to be bridged in generating positive collaborative process and outcomes (Chreim et al., 2013). Staff satisfaction could be improved when a leader is able to identify and leverage potential strengths between the generations. There are generational differences in understanding what health professionals want from their team leaders. Health professionals from the Baby Boomers generation (born between 1946 to 1964) want a manager who is supportive, trustworthy, professional, dependable, respectful, who has good people skills and is clinically competent. In contrast, Gen Y (born between 1980 to 2000) nurses are reported to want a manager who is dependable, a team player, supportive, available, fair, has good communication skills, and is trustworthy (Nelsey & Brownie, 2012). Health professionals from Generation X (born between 1965 to 1980) expressed

a desire for managers who value transparency, work-life balance, autonomy, encourage professional growth and promote usage of technology (Waltz et al., 2020).

A leader with desirable managerial traits could mitigate barriers between various professionals who are required to collaborate. As cited by O' Leary et al. (2012), good leadership can facilitate team problem solving, provide performance expectations, clarify team member roles and assist in conflict resolution. The results from a study of 423 health professionals in Sweden highlighted the need for good leadership in managing and encouraging team members' contributions during meetings (Thylefors, 2012a). The effectiveness of communication between team members can be posited to be largely influenced by leadership (Smith, 2012).

Team member education in combination with working experience has been found to contribute wider knowledge, skills and abilities that are valuable for effective team functioning (Wegge et al., 2012). Teams whose members have greater occupational diversity have higher overall effectiveness. The diversity of members in experience and knowledge can improve group performance. However, a study by Kalisch et al. (2013) indicates that teamwork is not greatly affected by years of experience. In Kalisch et al.'s (2013) study, when staffing was adequate, overall teamwork improved. Team members with variation in training, differing experience and range of skills tend to lack an understanding about individual roles and responsibilities within teams, thus limiting the effectiveness of teamwork across generations. Therefore, team members should learn with, from and about each other to close the generation gap between members.

Research has shown that the structure and composition of small team size has implications on the effectiveness of team functioning (Remke & Schermer, 2012; Youngwerth & Twaddle, 2011). Smaller teams with fewer professionals have more

informal communication due to less complexity in group dynamics (Remke & Schermer, 2012). Smaller teams also contribute towards better team member participation (Youngwerth & Twaddle, 2011) compared to larger team settings (Brault et al., 2014). Some members might not have an opportunity to contribute significantly if a team has too many members. Previous research by Thylefors (2012) indicates that the larger the size of a team, the lower the degree of each member's verbal contributions. This may affect the internal dynamics of the team and contribute to ineffective communication. Team members of large teams, whom occupy the same specialist role may compete for power or withdraw their participation from the team. Therefore team size should be appropriate for task demands and should not exceed eight to 12 members (West & Lyubovnikova, 2013). It is difficult to work with more than 10 members in a team compared to smaller teams due to difficulty in scheduling meetings, coordinating members' tasks and also reaching mutual agreements on a decision (Reeves et al., 2010b). Schmutz et al. (2019) suggests that a team consisting of five to seven members may be the most effective size; as smaller teams have higher levels of participation which creates effectiveness in the team (Youngwerth & Twaddle, 2011).

2.3.2 Team functioning

Team functioning can be interpreted as "a reflection of the way a team acts, integrates, behaves and copes with the delivery of healthcare" (Pereira, 2013, p.44). Team functioning commonly includes dimensions of integration (Smith, 2012), efficiency (Tanco et al., 2011) and climate (Hartgerink et al., 2014). The dimensions of integration, efficiency and climate have shown overlapping association in the context of healthcare teamwork. The interaction between integration, efficiency and climate may reflect whether team functioning is effective or poor (Youngwerth & Twaddle, 2011). A Swedish study has indicated greater team integration to be connected with

higher efficiency and better climate among team members (Thylefors et al., 2005). Teamwork with cohesion and participation has been connected with staff satisfaction and perceived team effectiveness (Lemieux-Charles & McGuire, 2006). In addition, good social interactions reflects significantly positive climate and effective communication between different health professionals (Bitter et al., 2013; Hartgerink et al., 2014).

2.3.2(a) Team integration

Integration refers to the cohesiveness between team members and the interdependence of roles in delivering services (Thylefors et al., 2005). A high level of team commitment, where team goals are identified and shared, is positively related with group cohesiveness and team creativity (Youngwerth & Twaddle, 2011). The team integration may be influenced by role specialization (Thylefors et al., 2005), task interdependence (Wildman et al., 2012), coordination (Nygren et al., 2021), task specialization (Thylefors et al., 2005), leadership (Dinius et al., 2020) and role interdependence (Wholey et al., 2013).

A qualitative study among patients and health professionals highlighted the importance of role specialization for effective teamwork (Pullon et al., 2011). Role specialization encompasses the main function of different health professionals. Health professionals should give attention on how their own role fits within the team and differs from other team members (Nancarrow et al., 2013). The competency of the other team members with differing expertise allows health professionals to concentrate on their own expert knowledge and task focus, while gaining new insights. A study of cross professional collaboration in elderly care at Sweden acknowledged that specific knowledge deepens when it is informed by the knowledge of other professionals (Duner, 2013). A health professional may share expert perspectives about specific

patient treatment interventions with team members from different training and expert backgrounds. This sharing of input enables cross pollination of knowledge that could drive innovations in delivering better patient care. Therefore, it is necessary for a health professional to respect and understand the roles of other team members so that the limitations and boundaries of each role are well understood.

Beside role specialization, the integration of a team is influenced by task interdependence. Task interdependence determines where and to what extent individuals and teams have to rely on each other to complete tasks (Angry, 2011; Borrill et al., 2000). Thylefors et al. (2005) modelled task interdependence on a low, medium and high classification connected with integration. For low task interdependence; task is usually performed in a determined sequence. In medium task interdependence; tasks are partly interdependent and must be coordinated. Under high task interdependence; team members as well as their tasks are reliant upon one another's role. When the subtasks of each team member are more interdependent, the need for coordination to reach the common goal will be higher and this will increase the need for a shared understanding between members (West & Lyubovnikova, 2013). A study on 50 doctors and 52 nurses in Belgium revealed that doctors are predominantly independent from other professionals when performing their healthcare tasks because doctors often regard themselves as individuals who are responsible to make decisions in patient care delivery (Voyer, 2013). However, interdependence in a team could be influenced by the nature of work and the job scope of a team. Therefore, all doctors can't be generalized as not having interdependence with nurses and allied health professionals. A team of surgeons conducting a cardiac bypass operation is characterized by a high level of task interdependence while the majority of ward nurses with routine tasks have looser interdependence (Burtscher & Manser, 2012). Surgical room often have pre-determined