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Examining How Medical Practitioners Establish Therapeutic Alliance: A Dynamic Systems Approach

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the degree of Master of Science

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Abstract

Background: Patient-centred care is a key and understudied concept in modern health care. One notable influence on patient-centred care and patient outcomes, is therapeutic alliance. State space grids (SSGs) are an observational, dynamic systems methodology that allow for the trajectory of dyadic interactions to be mapped in real-time. By examining interactions between medical practitioners and patients, SSGs have the potential to characterize how therapeutic alliance is established in real-time.

Objective: To use SSGs to examine how practitioners’ real-time use of verbal behaviours is associated with the perception of therapeutic alliance between a practitioner and a patient.

Methods: This exploratory study involved video-recording practitioners having a simulated appointment (session) with a standardized patient. Following the sessions, therapeutic alliance was assessed using the Working Alliance Inventory (WAI). Analyses were conducted in three steps. In Step 1, WAI scores were calculated. In Step 2, a coding manual was developed to reliably code for verbal behaviours within the sessions. In Step 3, the coding manual was applied and SSG analyses were used to understand how practitioners and patients used verbal behaviours during the session, and if these behaviours were associated with WAI scores.

Results: 11 practitioners participated in the study (55% men). The number of practitioner support statements were positively correlated with the patients’ WAI scores (p < .01). In contrast, the number of times the practitioner gave information was negatively correlated with the practitioners’ WAI scores (p < .05). The relationship between the number of transitions and WAI scores was negative (p > .05). Whereas, the average duration per visit was positively correlated with WAI scores (p > .05).

Conclusions: Our findings highlight the importance of using a dynamic systems approach to understand how conversations between practitioners and patients unfold over time to influence therapeutic alliance. Preliminary data from this thesis indicate that practitioners should be cautioned about giving ample information or advice. Instead practitioners should consider spending more time creating a relational bond with the patient by offering supportive statements.
Lay Summary

The relationship between doctors and patients is important. When doctors and patients have a strong relationship, patients enjoy their care, follow doctors’ instructions, and have better health. However, we do not know how doctors create strong relationships with their patients. This study aimed to understand how doctors create strong relationships by video-recording appointments between 11 different doctors and a standardized patient. After each appointment, the doctor and the patient rated their relationship strength. Everything the doctors and patient said during their appointments was analyzed by researchers. Initial findings from this thesis suggest that doctors should be cautioned about asking several questions, and giving lots of information. Instead doctors should consider spending more time creating strong relationships with their patients by giving supportive statements. This thesis gives new information on how doctors and patients can create strong relationships to help patients enjoy their care, and have better health.
Preface

The study protocol for this thesis received ethics approval through the Behavioural Research Ethics Board at the University of British Columbia, Okanagan Campus (#H18-01073). Kristy Baxter and Dr. Heather Gainforth developed the initial research questions and design of study. The research questions and design of study were refined by Kristy Baxter, Dr. Heather Gainforth, Dr. Karl Erickson, Virginia Preston, Connie Davis, Suzanne Moccia, and Dr. Tyler Murphy. Kristy Baxter was responsible for the development of recruitment materials, development of the surveys, development of the session guide, conduction of all sessions, transcription of sessions, development of the coding manual, coding of the session transcripts, statistical analyses performed, and writing of the thesis document. Dr. Heather Gainforth supervised Kristy Baxter throughout the research process. Dr. Heather Gainforth, Dr. Karl Erickson, Virginia Preston, Connie Davis, Suzanne Moccia, and Dr. Tyler Murphy provided input and feedback throughout the development of the study materials. Dr. Heather Gainforth, Virginia Preston, and Connie Davis provided input during the development of the coding manual and during the coding of session transcripts. Dr. Karl Erickson was involved during the state space grids analyses. Connie Davis and Virginia Preston were responsible for the development of the standardized patient script. Joëlle Deschênes-Bilodeau was a second coder and helped with the analysis of transcripts and the refinement of the coding manual. Dr. Tyler Murphy also helped with the recruitment of participants. Funding for the standardized patient was provided through the Centre for Collaboration, Motivation and Innovation. Funding for remuneration of participants was provided through the South Okanagan Similkameen Division of Family Practice. This thesis has not yet been submitted for publication.
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Dedication

To my family, both old and new, you have always and will always be there for me. This thesis is dedicated to you.

Mom and dad, you are both by far the reason I am able to answer the question, “why is the sky blue”, pursue my dreams, and live with kindness and compassion. You not only fostered my curiosity in school by buying me countless books and summer school activities, but you also ignited my curiosity for life by never holding me back from new adventures. Thank you for being my parents.

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Chapter 1: Introduction

1.1 The Need for Patient-Centred Care for Chronic Conditions

The current health care system emerged as an answer to address acute conditions (Holman & Lorig, 2000). Globally there has been a dramatic increase in chronic conditions which are the leading cause of death in the world (Epping-Jordan, 2004; Koné Pefoyo et al., 2015). Chronic conditions are not passed from person to person, are of long duration, and generally have slow progression (World Health Organization, 2014). A recent global estimate states that of 56 million global deaths in 2012, 38 million (68%) were due to chronic conditions (Harold, Kovach, & Zoghbi, 2016; Roberts, Rao, Bennett, Loukine, & Jayaraman, 2015). The World Health Organization projects that the annual number of deaths resulting from chronic conditions will increase to 52 million by 2030 (Roberts et al., 2015). In Canada, 74% of those aged 65+ reported having one or more of 11 chronic conditions in 2008, and the prevalence of chronic pain among the general Canadian population was 21% in 2014 (Koné Pefoyo et al., 2015; Shupler, Kramer, Cragg, Jutzeler, & Whitehurst, 2019). As the prevalence of chronic conditions has increased over the last 50 years, and continues to do so, there is a demand for practices that are more effective and efficient in caring for people with chronic conditions (Holman & Lorig, 2000).

To effectively care for people with chronic conditions, the current health care system has been transitioning from the biomedical model of medicine, where the primary focus is the accurate diagnosis of certain pathologies, to patient-centred care where the main focus is patient values, needs, and desires (Constand, MacDermid, Dal Bello-Haas, & Law, 2014; Kaba & Sooriakumaran, 2007). In the care of chronic conditions, patient-centred care has been found to have a beneficial effect on practitioner-patient agreement of treatment plans, health outcomes, and patient satisfaction (Kane et al., 2015). Patient-centred care is generally defined as an approach to care that meets the specific needs, values, and beliefs of patients (McMillan et al., 2013). Patient-centred care is compassionate, empathetic, and responsive to patient needs (Rathert, Wyrwich, & Boren, 2013). It values the expressed preferences of each individual patient and it holds that patients should be informed decision makers in their care (Rathert et al., 2013). Patient-centred care is now acknowledged as a necessary component to properly provide safe, high-quality care that is
essential to address the demands of increasing rates of people with chronic conditions (McMillan et al., 2013).

1.2 The Link between Patient-Centred Care and Therapeutic Alliance

A notable and influential aspect of patient-centred care that requires further exploration is the concept of therapeutic alliance. Rathert and colleagues (2013), state that therapeutic alliance must be established between practitioners and patients for care to be patient-centred (Rathert et al., 2013). The necessity of therapeutic alliance’s role in patient-centred care is echoed in Mead & Bower (2002), where therapeutic alliance is chosen as one of five distinct dimensions of patient-centred care (Mead & Bower, 2002).

Therapeutic alliance is a concept that generally refers to the collaborative and affective bond between the practitioner and patient (Martin, Garske, & Davis, 2000). Therapeutic alliance is often referred to as working alliance. Both terms are comprised of practitioner-patient agreement on goals of treatment, the extent to which there is practitioner-patient agreement on tasks needed to achieve the goals of treatment, and the extent to which there is an emotional bond (Fuertes et al., 2007). Though there are other definitions given to this concept, generally three common themes emerge within the literature: the collaborative nature, the affective bond, and goal and task agreement between practitioners and patients (Martin et al., 2000; Pinto et al., 2012).

In 1979, Bordin proposed a definition of therapeutic alliance that was meant to be applicable to any therapeutic approach (Ardito & Rabellino, 2011; Bordin, 1979). As previously mentioned it states that therapeutic alliance consists of three essential elements: agreement on the goals of the treatment, agreement on the tasks, and the development of a personal bond made up of reciprocal positive feelings (Bordin, 1979). Put another way, strong therapeutic alliance is achieved when practitioners and patients share beliefs with regard to the goals of the treatment and the methods used to achieve these (Ardito & Rabellino, 2011; Bordin, 1979). Bordin states that the goal and task components of therapeutic alliance can only develop if there is a personal relationship of confidence and trust (Ardito & Rabellino, 2011; Bordin, 1979). Not only
must the patient believe in the practitioner’s ability to help them, but the practitioner must also be confident in the patient’s resources (Ardito & Rabellino, 2011; Bordin, 1979).

### 1.3 Therapeutic Alliance Outcomes

Therapeutic alliance has grown in significance in the health care literature primarily because of the consistent finding that the quality of the alliance is related to therapeutic outcomes (Martin et al., 2000). Strong therapeutic alliance can positively influence treatment outcomes resulting in improved symptoms and health status, and a greater satisfaction with the care provided (Di Blasi, Harkness, Ernst, Georgiou, & Kleijnen, 2001; Pinto et al., 2012; Rathert et al., 2013). Several studies have shown that patients with chronic medical conditions who report strong therapeutic alliance with their practitioner also report better adherence to recommended treatment, increased satisfaction with their treatment, and better treatment outcomes (Bennett, Fuertes, Keitel, & Phillips, 2011; Ferreira et al., 2013; Fuertes et al., 2007, 2017; Hall, Ferreira, Maher, Latimer, & Ferreira, 2010; Jones, Vallis, Cooke, & Pouwer, 2016; Kelley, Kraft-Todd, Schapira, Kossowsky, & Riess, 2014; Pinto et al., 2012). These three specific outcomes of therapeutic alliance are discussed below in further detail.

**Patient Adherence**

Patient adherence is a medical phenomenon that has received considerable attention for many years in the medical literature because it involves significant personal, societal, and economic costs (Fuertes et al., 2007). Patient adherence has been defined as the degree to which a patient correctly follows medical advice (Fuertes et al., 2007). It is estimated that between 20-80% of patients do not adhere to their recommended treatments resulting in an economic cost ranging from $25 to 100 billion US per year (Christensen & Johnson, 2002; Fuertes et al., 2007). This non-adherence can be attributed to patients ignoring, forgetting, misunderstanding, or inaccurately following directions on appointments, prescriptions, and lifestyle changes (Bennett et al., 2011). Patient adherence is a necessary condition for safe, effective, and efficient treatment (Christensen & Johnson, 2002). Non-adherence has been linked to increased
sickness, treatment failures, hospitalization, and higher mortality across many clinical populations (Christensen & Johnson, 2002).

Therapeutic alliance has a positive relationship with patient adherence to recommended treatment (Bennett et al., 2011; Fuertes et al., 2007; Pinto et al., 2012). Adherence is intimately linked to variables such as the practitioners’ clear delivery of information and encouragement of patient involvement as well as the degree to which the patient trusts the practitioner (Bennett et al., 2011). Therapeutic alliance has been found to be significantly associated with more optimal treatment adherence in a sample of 118 patients diagnosed with a chronic medical illness including diabetes and also has been significantly associated with treatment adherence in people with diabetes (Fuertes et al., 2007; Jones et al., 2016). Lastly, therapeutic alliance was also found to have a significant positive association with metabolic control in people with type 1 diabetes (Jones et al., 2016; Maddigan, Majumdar, & Johnson, 2005; Sherbourne, Hays, Ordway, DiMatteo, & Kravitz, 1992).

**Patient Satisfaction**

Patient satisfaction is an important and commonly used predictor to measure the quality of health care. Patient satisfaction is defined as the extent to which a patient is content with the health care they have received (Prakash, 2010). Patient satisfaction affects clinical outcomes, patient retention, and medical malpractice claims (Prakash, 2010). Improved satisfaction with care has shown to increase patients’ compliance with care. Patients are more likely to follow doctors’ instructions, such as lifestyle modifications or medication prescriptions, if they are more satisfied with the care they receive (Chow, Mayer, Darzi, & Athanasiou, 2009). As well, Chow et al. (2009) speak of the potential to increase patient satisfaction and ultimately improve patients’ perceptions of the health care system, which may in turn increase trust of those within the health care system (Chow et al., 2009).

Therapeutic alliance has been found to have a consistent and significant relationship with patients’ satisfaction levels (Fuertes et al., 2017). Therefore, therapeutic alliance may be an important construct to address because of it’s relation to the aforementioned benefits of patient satisfaction in the health care field (Fuertes et al., 2017). In a study by Fuertes et al. (2017) they investigated the correlation between
therapeutic alliance and patient satisfaction, outcome expectations, and adherence in people with end-stage renal disease requiring hemodialysis three times per week. They found a high correlation between therapeutic alliance and satisfaction with a large effect size; a high correlation between therapeutic alliance and outcome expectations was also reported with a medium effect size (Fuertes et al., 2017). There was not a statistically significant direct relationship between therapeutic alliance and patient adherence, however, it indirectly predicted adherence through its significant relationship with satisfaction and outcome expectations (Fuertes et al., 2017). Likewise, in a study of people with systemic lupus erythematosus participants who reported a strong therapeutic alliance with their practitioner also reported higher satisfaction with their medical care (Bennett et al., 2011). Bennett et al. (2011) emphasized the value of this finding as it aligns with the existing knowledge that satisfaction with care is clearly related to compliance with treatment.

**Treatment Outcome**

Perhaps the best empirically supported relationship is that between therapeutic alliance and treatment outcomes (Jones et al., 2016). Findings from meta-analyses and systematic reviews support the relationship that exists between therapeutic alliance and treatment outcomes (Di Blasi et al., 2001; Griffin et al., 2004; Kelley et al., 2014; Stewart, 1995). For example, Kelley and colleagues (2014) examined whether the practitioner-patient relationship had a beneficial effect on healthcare outcomes by performing a systematic review and meta-analysis of randomized controlled trials attempting to manipulate the practitioner-patient relationship (Kelley et al., 2014). Thirteen randomized controlled trials of adult patients in which the practitioner-patient relationship was systematically manipulated and healthcare outcomes were either measured objectively (e.g., blood pressure) or subjectively, using validated measures (e.g., pain scores), were included. Across the 13 studies, intervention designs varied in how the practitioner-patient relationship was manipulated. Included interventions targeted practitioner training related to communication skills, motivational interviewing, shared-decision making, patient-centred care, empathic care, and cultural competency (Kelley et al., 2014).
The estimate of the combined effect size across the individual studies indicated that the practitioner-patient relationship had a small \( (d = 0.11) \) but statistically significant effect \( (p = 0.02) \) on healthcare outcomes (Kelley et al., 2014). Though the effect size is small, Kelley et al. (2014) acknowledge that this is often the case in medicine as there are many factors that influence health outcomes (e.g., psychosocial stressors, severity of the disease, etc.). They also note that many important variables affecting health are of similarly small magnitude. For example, the effect size for aspirin in reducing myocardial infarction over five years is only \( d = 0.06 \) (Rutledge & Loh, 2004). Similarly the effect size of the therapeutic relationship may be small, but it does not mitigate its potential importance on healthcare outcomes (Kelley et al., 2014). In 2017 there were 86,644 medical practitioners working in Canada, therefore an improvement in therapeutic alliance among even a small number of practitioners could have significant practical implications for the health of patients (Canadian Institute for Health Information, 2017).

### 1.4 Measuring Therapeutic Alliance

The benefits of establishing a strong therapeutic alliance are apparent and measures have been established to assess the quality of therapeutic alliance experienced within interactions. Ardito & Rabellino (2011) summarized ten frequently used measures to assess therapeutic alliance (Ardito & Rabellino, 2011). Measures of therapeutic alliance tend to examine either the specific theoretical concepts of therapeutic alliance or more eclectic constructs. The number of items included in the measures varies substantially ranging between six and 145 items (Ardito & Rabellino, 2011). Measures also vary in the dimensions of therapeutic alliance investigated, from two (i.e., patient’s perception of the therapist as supportive and the collaborative relationship between patient and therapist) to five (i.e., bond, partnership, confidence, openness, and client initiative). Despite these differences all therapeutic alliance measures aim to assess the level of therapeutic alliance experienced within an interaction (Ardito & Rabellino, 2011).

A meta-analysis of substantive alliance studies included a comparison of therapeutic alliance measures used in different studies (Martin et al., 2000). The most commonly used measure of therapeutic alliance was the Working Alliance Inventory (WAI). The WAI is a self-report scale that measures the
quality of alliance based on Bordin’s (1979) three aspects of the alliance: the bond, the agreement on goals, and the agreement on task. This scale has three versions based on rater perspective (i.e., practitioner, patient, and clinical observer) and a shortened version is also available (Ardito & Rabellino, 2011). The main use of the WAI has been to understand therapeutic alliance and how it is related to outcomes in different patient groups and treatment modalities (Bennett et al., 2011; Ferreira et al., 2013; Horvath & Luborsky, 1993; Klein et al., 2003). Martin et al. (2000), recommended that of all therapeutic alliance measures the WAI is likely to be most appropriate for use in research projects.

With such a broad assortment of therapeutic alliance measures it could be assumed that it is well understood how to establish therapeutic alliance. However, current therapeutic alliance questionnaires can only provide information on the ratings of therapeutic alliance after an interaction has occurred. These questionnaires do not allow for an understanding of the process through which therapeutic alliance is established between practitioners and patients. If we are to understand the process by which therapeutic alliance is established it is essential to look at real-time conversations between practitioners and patients.

1.5 Understanding Therapeutic Alliance Using Recordings

Within practitioner and patient interactions both verbal and non-verbal behaviours are used. Verbal behaviours are spoken ways in which an individual conducts themselves (e.g., asking a question). The use of verbal behaviours within interactions has often been investigated to gain a greater understanding of the interaction process (Gainforth, Lorencatto, Erickson, West, & Michie, 2016). By better understanding verbal behaviours used by practitioners, and thus the process with which practitioners establish therapeutic alliance, interventions aiming to strengthen therapeutic alliance could be improved.

To better understand interactions and to objectively verify whether verbal behaviours are being used in an interaction, the gold-standard approach is to assess treatment fidelity using audio- or video-recorded interactions between the practitioner and the client (Gainforth, Lorencatto, Erickson, West, & Michie, 2016). Treatment fidelity enables the investigation of whether the individuals involved in an interaction or intervention are consistently implementing specified or previously selected behaviours.
(O’Shea, McCormick, Bradley, & O’Neill, 2016). Treatment fidelity allows us to understand how the degree to which an intervention is implemented as intended affects outcomes of interest (Borrelli, 2011). Without assessing treatment fidelity, conclusive statements about intervention effects cannot be made and it is difficult to provide recommendations on how to improve the intervention (Borrelli, 2011).

Motivational interviewing is an example of a conversation style that is regularly assessed for treatment fidelity using audio- and video-recordings. Motivational interviewing is a counselling approach that involves attention to language concerning change, particularly between helping professionals and their clients (Miller & Rollnick, 2012). Motivational interviewing aims to provide a means to have more effective conversations regarding client change by arranging conversations in a manner where people talk themselves into change, based on their own values and interests (Miller & Rollnick, 2012). The spirit of motivational interviewing is the underlying perspective with which one practices motivational interviewing. The spirit of motivational interviewing is composed of four interrelated components: partnership, acceptance, compassion, and evocation (Miller & Rollnick, 2012). Motivational interviewing, specifically the underlying spirit of motivational interviewing, closely aligns with the concepts of patient-centred care and therapeutic alliance (e.g., relational bond, mutual agreement, compassion, partnered care) (Bordin, 1979; Rathert et al., 2013). The verbal behaviours associated with motivational interviewing may therefore provide an initial understanding of how therapeutic alliance is established between practitioners and their patients.

Currently, there are three main treatment fidelity manuals that allow for the coding of verbal behaviours used in motivational interviewing: The Manual for the Motivational Interviewing Skills Code (MISC), The Motivational Interviewing Competency Assessment (MICA), and The Motivational Interviewing Treatment Integrity (MITI) (Jackson, Butterworth, Hall, & Gilbert, 2015; Miller, Moyers, Ernst, & Amrhein, 2008; Moyers & Martin, 2010). The Manual for the Motivational Interviewing Skill Code (MISC) was developed in 1997 as a method for evaluating the quality of motivational interviewing from either audio or video tapes of counseling sessions (Miller et al., 2008). The MISC is the only manual that allows for the coding of both practitioner and client verbal behaviours. The MISC codes for 15 major
categories of verbal behaviours that are either compliant or non-compliant to motivational interviewing (i.e., foster or hinder client engagement) (Miller et al., 2008). The MISC has not yet been used to understand therapeutic alliance, however, the MISC may have potential to be applied to practitioner and patient interactions to understand how the presence and absence of verbal behaviours may help to establish therapeutic alliance. The application of the MISC to practitioner and patient interactions could provide a greater understanding of how therapeutic alliance is established beyond basic questionnaire data.

While the MISC has the potential to advance our understanding of therapeutic alliance, it is limited in that it only examines the presence or absence of verbal behaviours used by the practitioner and the patient, ignoring the dynamic interaction between the practitioner and patient (i.e., how the patient behaviours influence the practitioner behaviours and vice versa). Real-world interactions, for example between medical practitioners and their patients, are complex and generally involve the use of a wide range of verbal behaviours (Craig et al., 2008; Gainforth et al., 2019). By coding for only the presence or absence of verbal behaviours, the MISC does not provide information on the frequency, duration, and sequence with which verbal behaviors are used (Gainforth et al., 2016). The MISC ignores the reciprocal, dynamic, and real-time nature of verbal behaviours between practitioners and patients. Using the MISC, researchers are limited to a unidirectional understanding of the conversation and the dynamic differences in the delivery and receipt of verbal behaviours used cannot be examined (Gainforth et al., 2016). If we are to truly advance our understanding of how therapeutic alliance is established, we must begin to explore and characterize the reciprocal, dynamic, and real-time nature of verbal behaviours used by practitioners and patients in clinical interactions (Gainforth et al., 2016; Gainforth et al., 2019).

1.6 Dynamic Systems Methods

An observational method that may hold promise to understand therapeutic alliance in real-time is state space grids. State space grids were created in the field of developmental psychology (Hollenstein, 2007). They conceptualize individuals within a one-to-one interaction as a dynamic system, in this case practitioner-to-patient. This method allows for a graphical representation of the total state space (i.e., the
range of interaction possibilities) to be created for the system in question (Hollenstein, 2007). Researchers are then able to map the trajectory of the interaction in real-time (i.e., moment-to-moment). The dynamic characteristics of this trajectory can then be quantified and used to investigate research questions and test hypotheses. Simply put, state space grids provide a visual and quantifiable profile that may be able to represent how the practitioner and patient interact to establish therapeutic alliance over time (Hollenstein, 2007). To date, state space grids have not been used to explore how practitioners and patients use verbal behaviours within a clinical interaction that aims to be patient-centred. Therefore, state space grids may hold promise to explore how practitioners’ and patients’ use of verbal behaviours are associated with therapeutic alliance, allowing for a greater understanding of how therapeutic alliance is established.

An essential first step in creating a state space grid is to develop a coding framework that accounts for all the verbal behaviours made by each individual in the system (i.e., the practitioner and patient). Categories from the coding framework for the practitioner encompass the x-axis of the grid and the categories for the patient encompass the y-axis of the grid (Hollenstein, 2007). Each cell within the grid is representative of a potential pairing of specific verbal behaviours of the practitioner and patient. The real-time trajectory of the system – the practitioner-to-patient interaction – is mapped within the total possible state space as a series of system locations, which are co-defined by the verbal behaviour of both the practitioner and patient at each given moment (Hollenstein, 2007). These system locations are connected sequentially in real-time. The diameter of the system location relates to the duration the system spent in that state space. Through this mapping, one can quantify measures that capture the frequency, duration, and sequence of verbal behaviours used by both the practitioner and patient to examine how therapeutic alliance is established (Hollenstein, 2007).

To further the understanding of state space grids, Figure 1 is provided as a simple, hypothetical example of a state space grid. In this example, the practitioner listens while the patient disagrees (A). The practitioner chooses how to react and selects technique 3 while the patient listens (B). Next, the patient agrees while the practitioner listens (C). Lastly, the practitioner uses a different technique while the patient
listens (D). Though this is a very simple depiction of a state space grid, one could imagine how complex and intricate the dynamic system could become over the course of an interaction.

![State Space Grid Diagram](image.png)

**Figure 1: A Simplified, Hypothetical State Space Grid**

The state space grid method was developed by Marc Lewis and colleagues in 1999 to fill a methodological void (Lewis, Lamey, & Douglas, 1999). This method was inspired from a dynamic systems approach to development (Hollenstein, 2007). Since the development of state space grids, they have been used to examine developmental phenomena in the field of psychology (Hollenstein, 2007). Some examples include, but are not limited to, the flexibility of parent-to-child interactions, parent-child behaviour in subtypes of aggressive children, the organization of peer interactions among antisocial and non-antisocial boys, and brain-behaviour relations in children with aggressive behaviour (Dishion, Nelson, Winter, & Bullock, 2004; Granic & Lamey, 2002; Granic, O’Hara, Pepler, & Lewis, 2007; Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Hollenstein & Lewis, 2006; Lewis, Granic, & Lamm, 2006). As well, state space grids have been used to examine coach-athlete interactions and smoking cessation practitioners’ interactions with their clients, among others (Erickson, Côté, Hollenstein, & Deakin, 2011; Gainforth et al., 2016).

To date, state space grids have not been used to understand therapeutic alliance. By applying these methods, we can understand how different trajectories and quantifiable patterns of verbal behaviours within the grids may be linked to perceived therapeutic alliance between practitioners and patients. This
information would not only advance our understanding of therapeutic alliance as a construct but may also inform evidence-based recommendations to assist practitioners in establishing therapeutic alliance in real-time.

1.7 Purpose

The overarching aim of this study was to use a dynamic systems approach to examine if and how practitioners’ and patients’ real-time use of verbal behaviours is associated with the perception of therapeutic alliance between practitioners and a patient. To accomplish the overarching aim, this study had three sub-aims:

1. To create a coding manual to reliably code for verbal behaviours used within clinical interactions between a practitioner and a patient.

2. Apply the framework to conduct state space grid analyses to understand how practitioners and patients apply these verbal behaviours during a clinical interaction.

3. Examine the association between therapeutic alliance and practitioners’ and patients’ use of verbal behaviours during a clinical interaction.

This study is a proof-of-concept in that it aims to demonstrate if and how dynamic systems methods could be used to enhance our understanding of the process by which therapeutic alliance is established. Due to the novel and exploratory nature of this study, as well as the limited knowledge of the verbal behaviours associated with therapeutic alliance, no hypotheses were made. Rather, analyses were guided by key questions pertaining to how these interactions would unfold in real-time.
Chapter 2: Methods

2.1 Study Design and Research Approach

This exploratory study used observational methods in the form of video-recordings of a simulated clinical interaction between a medical practitioner and a standardized patient.

The study was conducted using an integrated knowledge translation (IKT) approach. IKT represents an alternative approach for promoting research use in which research users function as active partners to generate research from conceptualization to implementation, rather than as passive recipients of research or research products (Gagliardi, Kothari, & Graham, 2017). IKT has the potential to enhance researcher understanding of the research user context and needs, which allows for enhanced relevance of the generated research. In turn, this increases the research user understanding of the research process, awareness of the research, and appreciation for how and when it can be applied (Gagliardi et al., 2017).

This research project was done in partnership with two research user organizations who may be impacted by and/or implement the findings of this research project: The South Okanagan Similkameen (SOS) Division of Family Practice and The Centre for Collaboration, Motivation and Innovation (CCMI).

The SOS Division of Family Practice incorporates family physicians from Keremeos, Oliver, Osoyoos, Penticton, Naramata, Summerland, and Princeton. They envision a community of primary care physicians who are active and collaborative partners in promoting practical and innovative solutions to local community health. Their mission is to engage and support primary care physicians as collaborative and trusted partners to improve primary patient care. Patient-centred care is listed among their seven values and principles, making them a valuable partner on this project. CCMI is an organization that helps individuals and organizations create partnerships that improve health and well-being. They accomplish this by working collaboratively to inspire new ways of thinking about helping relationships, teaching practical skills that foster partnerships, and implementing strategies for system-wide change. Patient- and family-centred care workshops are among the different programs they offer, making them a valuable partner.

Both The SOS Division of Family Practice (SM, TM) and CCMI (CD, VP) were involved throughout the research process (e.g., development of research question and methodology, recruitment of
participants, refinement of coding framework, analyses, and interpretation of results) as active partners. Partners were regularly communicated with via email and meetings. All partners provided feedback, recommendations, and approval throughout the research project. Through the active involvement of these organizations, we aimed to ensure the research findings were relevant to and useful for their work.

2.1.2 Researcher Position

Given that I only have lived experience as a patient within a practitioner-to-patient interaction, I recognize that I have a limited understanding of the experience from a practitioner’s point-of-view. To mitigate this limitation and provide a more comprehensive understanding of the practitioner’s lived experience, a medical resident from The SOS Division of Family Practice (TM) was involved as a research partner throughout the entire research process. TM provided his personal expertise and experience as a practitioner to ensure the research methodology was relevant and user-friendly for the participants. TM reviewed the demographic questionnaire assessing the items for proper terminology and relevancy to the needs of the SOS Division of Family Practice. The protocol was piloted with TM and the standardized patient and all recommendations from TM were incorporated into the study protocol. Compliant with the goals of IKT research, the expertise of the project partners helped to ensure that all research findings were synthesized in a usable format to best benefit the research user (Graham et al., 2010). Further dissemination efforts will be chosen and implemented in partnership with the SOS Division of Family Practice and CCMI to facilitate uptake.

This research project was conducted from a pragmatic perspective in which inquiry was the defining process (Morgan, 2014). Inquiry is a process that aims to examine beliefs that are problematic and resolve them through action. From a pragmatic perspective the research questions are prioritized, little emphasis is placed on seeking a single truth or reality, and creating practical recommendations for implementation is the main goal (Morgan, 2014). In accordance with IKT research, pragmatism encourages flexible investigative techniques and collaboration with researchers and research users (Onwuegbuzie &
Leech, 2005). As this thesis involved novel and innovative methodology to create a proof-of-concept, a pragmatic approach was an appropriate paradigm of choice.

2.2 Ethical Consideration

Ethics approval was obtained through the University of British Columbia Okanagan Behavioural Research Ethics Board. Participants completed a consent form in the survey provided by the recruitment email (see Appendix A). Before each session was conducted verbal consent was obtained from the practitioner and the standardized patient to both participate in the session and have it video-recorded by KB.

2.3 Participants

This study involved family practitioners participating in a medical session via video conference with a standardized patient. Practitioners were recruited from The SOS Division of Family Practice by the medical resident (TM), partnered on this project. To be eligible for participation, practitioners were required to (1) be 18 years or older, and (2) be a currently working medical practitioner from the SOS Division of Family Practice. To facilitate recruitment, convenience sampling was used. Practitioners were sent an email via TM inviting them to participate in this study. The recruitment email used by TM can be found in Appendix B. Snowball sampling by word-of-mouth was also used to recruit further participants.

2.4 Procedures

A survey link was provided to the practitioners requesting their demographic and contact information. Practitioners were then contacted by KB to schedule a session with the standardized patient. One standardized patient was used across all sessions. The standardized patient was employed and funded by CCMI. Since the introduction of standardized patients in the 1960s by Howard Barrows, their use has increased in the field of medical education, both for training and for assessment of students’ competences (Shirazi et al., 2014). Therefore, a standardized patient was appropriate for this study as the practitioners’ competence of establishing therapeutic alliance was being assessed.
Prior to each session the standardized patient watched a YouTube video of a medical consultation and completed the Working Alliance Inventory (see Appendix C). This standardization procedure was used to mitigate potential biases affecting the standardized patient’s ratings and to ensure their perceptions from earlier sessions did not alter their perceptions, and therefore ratings, of later sessions. The reliability of the scores was calculated to ensure the standardized patient was consistent.

Using Vidyo, a video conferencing software, practitioners had a simulated appointment (session) with a standardized patient, who was the same for each session. All sessions involved the practitioner, standardized patient, and KB joining the Vidyo room created for this project. Instructions were provided to both the practitioner and standardized patient via Vidyo prior to the session (see Appendix D for the full session guide). Both the practitioner and the patient were instructed to treat the session as if it were a typical doctor’s appointment, to keep the session around 15 minutes in duration, and to conduct the session however they chose. A summary of the standardized patient’s current concerns, background information, and medications were also provided. The standardized patient was trained as a patient with chronic pain, anxiety, and insomnia, and their script was written and provided by CCMI (see Appendix E). Each session was video-recorded. Video-recordings were transcribed verbatim by an undergraduate research assistant.

Following each session, the standardized patient and practitioner completed the Working Alliance Inventory (WAI) assessing their perception of how successfully therapeutic alliance was established during their interaction (Horvath & Greenberg, 1989). The practitioners were also asked to rate how representative the session was of a real life appointment with a patient.

2.5 Measures

Demographics. To assess demographics, participants were asked for demographic information regarding their age and gender. They were also asked questions about their experiences as medical practitioners. These questions covered the following topics: the number of years they have been in practice; the number of hours they work per week, on average, in their clinic; how long, on average, are their appointments with patients; the number of patients on their patient panel; their area of specialization; any
training they have received in self-management or goal setting; any training they have received related to
patient-centred care; whether they have nursing and/or other allied staff at their clinic; and where they
completed their training. The complete questionnaire is provided in Appendix F.

Real Life Representativeness of Session. To assess the external validity of the session,
practitioners were asked to rate how representative the session was of a real life appointment with a patient.
The item was rated on a five-point scale rated from 1 – strongly agree to 5 – strongly disagree.

The Working Alliance Inventory. For the purposes of this study the practitioner and patient
versions of the WAI were used (see Appendix G). The WAI is a self-report scale consisting of 36 items
that aims to capture the quality of therapeutic alliance experienced between a practitioner and a patient.
Each item is rated on a seven-point scale rated from 1 – never to 7 – always. Both the client and practitioner
versions of the scale have been previously validated and have shown good internal consistency with
Cronbach’s Alpha values of 0.93 and 0.87, respectively (Horvath & Greenberg, 1989). Participants received
tailored versions of the questionnaire depending on if they were the practitioner or patient. Participants
were informed that the sentences provided would describe some of the different ways they may have
thought or felt about their [practitioner/patient]. The standardized patient was instructed to mentally insert
the name of their practitioner in place of ________ in the text as they read the sentences. Since the same
standardized patient was used across all practitioner sessions, the name of the standardized patient (i.e., Ms.
Reese) was inserted into the practitioner version of the WAI. The questionnaire consists of three subscales:
task scale, goal scale, and bond scale. Each subscale has 12 items associated with it. An example sentence
of the task scale for both practitioner and patient versions is, “I believe the time _______ and I spent together
was not spent efficiently”. Example sentences of the goal scale for the practitioner and patient versions are,
“_______ and I had a common perception of her/his goals”, and, “_______ perceived accurately what my
goals were”, respectively. An example sentence of the bond scale for both practitioner and patient versions
is, “I felt uncomfortable with ________” (Horvath & Greenberg, 1989).
2.6 Analyses

This thesis included several analyses to investigate the association between therapeutic alliance and practitioners’ and patients’ use of verbal behaviours during a clinical interaction. Aligned with the three sub-aims, analyses were conducted in three steps. Each analyses is described below and the analysis plan is displayed in Figure 2.

![Analyses Process Diagram]

Note. WAI = working alliance inventory.

Figure 2: Analyses Process

**Step 1: WAI Score Analysis.** Step 1 used the WAI questionnaires, completed by both the practitioner and standardized patient, to calculate a practitioner WAI score, patient WAI score, and a combined total WAI score for each session. The three WAI scores were calculated by computing the sum of each item. The practitioner WAI score was obtained by calculating the sum of the participant’s ratings for the 36 WAI items. The standardized patient WAI score was obtained by calculating the sum of the patient’s ratings for the 36 WAI items. The total WAI score was obtained by calculating the sum of both the practitioner’s WAI score and the patient’s WAI score. Means, medians, and standard deviations were calculated for the practitioner, patient, and total WAI score. To understand how practitioner and patient WAI scores differed, a two-tailed Pearson’s r was calculated for the practitioner’s ratings for the 36 WAI items and the standardized patients’ ratings for the 36 WAI items associated with each session.
Four independent samples t-tests were conducted to compare the patient WAI scores between the following groups: (1) men and women, (2) those who have been practicing as medical practitioner for >10 years and those who have been practicing as a medical practitioner for ≤10 years, (3) those who have received some form of goal setting training and those who have not, and (4) those who have received some form of patient-centred care training and those who have not. The same independent samples t-tests were conducted to compare practitioner WAI scores.

**Step 2: Coding Framework Development and Transcript Analysis.** In Step 2, a deductive coding manual was developed to reliably code for verbal behaviours within clinical interactions between practitioners and patients. The coding manual was developed by adapting the Motivational Interviewing Skill Code (MISC) to allow for state space grid analyses and to reflect the nature of therapeutic alliance, specifically Bordin’s (1979) three aspects of therapeutic alliance (i.e., the bond, the agreement on goals, and the agreement on tasks) (Miller et al., 2008; Miller & Rollnick, 2012). The coding manual, including definitions and descriptions of codes, was further refined using a similar motivational interviewing coding manual developed for peer mentorship conversations between people with spinal cord injury (McKay et al., n.d.). This coding manual was chosen because it has previously adapted the MISC to real life conversations between a helping individual and someone seeking help.

To initially test the coding framework, two researchers (KB, JDB) used the coding framework to independently code and deductively analyze the first transcript. Agreed upon codes were calculated as an agreement (e.g., both researchers coded “closed question”). Disagreement was calculated when one researcher identified a code and the other did not (e.g., one researcher coded “simple reflection” and the other researcher did not). An hypothetical example transcript is provided in Appendix H to assist in the understanding of the coding procedure. Three steps were done after this transcript was coded: (1) inter-rater reliability was calculated using kappa and PABAK, (2) discrepancies were discussed and resolved, and (3) the coding framework was adapted to resolve any discrepancies. Any unresolved disagreements or discrepancies were resolved with the assistance of another researcher (HG). Once a kappa value of 0.60 was reached for the first transcript the next 10 transcripts were coded in rounds of three and followed by
the three aforementioned steps. Kappa values ranging from 0.60-0.79 were considered ‘substantial’ and values above 0.80 were considered ‘outstanding’. (Landis & Koch, 1977). One common criticism of kappa, however, is its high dependence on the prevalence of the condition in the population (Chen, Faris, Hemmelgarn, Walker, & Quan, 2009). PABAK is a bias-adjusted and prevalence-adjusted kappa that assumes fifty percent prevalence of the condition, and absence of any bias. PABAK ignores the variation of prevalence across the conditions and bias presented in the ‘real’ world (Chen et al., 2009). Therefore, PABAK was used along with kappa. The coding framework continued to be revised until a kappa and PABAK value of 0.60 was consistently achieved. Upon the completion of transcript coding, the coding manual, including definitions and descriptions, was finalized. The final version of the coding manual can be found in Appendix I.

**Step 3: State Space Grid Analysis.** In Step 3, the association between verbal behaviours and therapeutic alliance was investigated using state space grids. Coded transcript data was entered into Noldus Observer XT, a software designed to allow for continuous (i.e., second by second) coding of multiple individuals from audio and/or video files (Noldus, Trienes, Hendriksen, Jansen, & Jansen, 2000). The developed coding manual for both practitioner and standardized patient statements was inputted into Observer XT. As well, all final agreed codes for each transcript were entered into Observer XT. While listening to the interaction video files, one researcher (KB) entered the time stamp for the onset and conclusion of each code for both the practitioner and the standardized patient. The verbal behaviour of the practitioner and standardized patient was coded simultaneously working through the video file second-by-second. The Observer software was used to create a duration-based stream of data for both the practitioner and standardized patient by recording the codes as the video files were played.

The duration-based continuous stream of data was analyzed using Gridware (Hollenstein, 2007). Gridware is a state space grid software that allows for visualization and data manipulation of multivariate time-series data. Each transcript produced two streams of time-series data: one for the practitioner and another for the standardized patient. These data are representative of each time-stamped, continuous, sequential stream of behaviour produced by both the practitioner and standardized patient during each
interaction. Gridware was used to create x- and y-coordinate state space grids representing each consultation by integrating the two streams of categorical data.

Three types of state space grid analyses were performed to both compare state space grids between practitioners of varying therapeutic alliance ratings and examine behaviour patterns within the practitioner and standardized patient sessions. These analyses included measures of: (A) Attractor States, (B) Variability, and (C) Conditional Pairing. All analyses were compared with both the practitioner and standardized patient WAI scores to explore how the frequency, duration, and sequence of behaviours used was associated with the quality of therapeutic alliance experienced by both the practitioner and the standardized patient. Table 1 outlines how each of these analyses can be used to answer our research questions about the interactions.

Table 1: State Space Grid Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure Description</th>
<th>Research Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractor states</td>
<td>Identification of co-defined interaction states to which the dyad is drawn.</td>
<td>What are the most commonly used verbal behaviours by the practitioner?</td>
</tr>
<tr>
<td>Variability</td>
<td>Degree of variability across the total state space, within a particular session.</td>
<td>How often/quickly do the practitioner and patient change the verbal behaviours they are using?</td>
</tr>
<tr>
<td>Conditional pairing</td>
<td>Most prevalent patient responses paired with specific practitioners’ behaviours (i.e., If x behaviour, then y response).</td>
<td>What are the most common patient responses to different practitioner verbal behaviours?</td>
</tr>
</tbody>
</table>

**A** Attractor States represent the idea that although the practitioner and standardized patient dyad can operate in any cell of the grid and have the opportunity to use all behaviours equally, the dyad will often be drawn to certain areas of the grid (i.e., particular practitioner and standardized patient behaviours). This measure was chosen as it reveals where the practitioner and standardized patient spent most of their time. The duration of time spent in each cell by the practitioner and standardized patient dyad was calculated (i.e., the sum of time for each co-defined behaviour, identified by a specific cell within the grid). The top five co-defined attractor states and their durations were determined for each session.

Scatterplots were created comparing six different behaviours performed by the practitioner (displayed on the y-axis) with both the practitioners’ WAI scores and the patient’s WAI scores for all 11
sessions (displayed on the x-axis). Behaviours were chosen for analyses if they were frequently used (i.e., top attractor states) and aligned closely with the spirit of motivational interviewing. The behaviours were practitioner questions, practitioner reflections, practitioner affirmations, practitioner support statements, practitioner advice statements, and practitioner giving information statements. Pearson’s r was calculated for each graph.

**B) Variability Measures** represent the idea that dyads of interacting individuals are often drawn to particular areas of a grid and/or will only use some of all possible behaviours. As well variability measures explore how often interacting individuals transition between behaviours and how long, on average, the individuals use their behaviours. Three measures of variability were calculated for each session: (1) the range of cells used, (2) the number of transitions between cells, and (3) the average duration per visit across all cells. The three measures of variability used examine the degree of “spread” across the total state space and the degree of movement around the grid (i.e., the change of behaviour use throughout the session).

Scatterplots were created comparing the number of transitions between cells and the average duration per visit across all cells with both the practitioners’ WAI scores and the patient’s WAI scores for all 11 sessions. Pearson’s r was calculated for each graph. The range of cells used was not compared to the WAI scores as there was not enough variability in the number of cells used between practitioners.

**C) Conditional Pairing** was selected as a measure to examine what standardized patient behaviours often follow practitioner behaviours. Conditional pairing permits the examination of the most common standardized patient responses to practitioner behaviours. The three most common conditional pairings for each session were determined. Paired behaviours were only considered for the three most common conditional pairings if there were four or more instances where the practitioners’ behaviour preceded the standardized patient’s behaviour. Paired behaviours that occurred three or fewer times were considered to be not frequent enough for inferences to be made.

Two scatterplots were created to compare the frequency of the conditional pairing QUC-GI (i.e., the standardized patient responding with giving information when the practitioner asked a closed question)
with both the practitioners’ WAI scores and the patient’s WAI scores for all 11 sessions. Scatterplots and Pearson’s r were only calculated if a conditional pairing occurred frequently enough to emerge in all sessions.

Due to the exploratory nature and aims of this study the magnitude and direction of the relationships were considered with greater importance than the significance of the relationships. Therefore, there was no adjustment for alpha values in the calculations of Pearson’s r, as it was better to potentially make a Type I error than a Type II error.
Chapter 3: Results

3.1 Participants

In total, 11 practitioner-to-patient sessions were recorded by KB between November 2018 and March 2019. Session durations ranged from 16 minutes and 12 seconds to 24 minutes and 4 seconds (Mean: 12 minutes and 12 seconds; SD: 2 minutes and 26 seconds). Six (55%) participants identified as men and 5 (45%) participants identified as women. Of the 11 participants, six (55%) reported that they were 40 years of age or younger and five (45%) reported that they were 51 years of age or older. Nine (82%) of the 11 participants reported that they received medical training in Canada. On average, participants reported that they have been practicing as a medical practitioner for 14 years (SD: 12 years; Range: 1 – 34 years). Participants reported that they worked in their clinic (i.e., not including out of clinic hours), on average, 32 hours per week (SD: 6.6 hours per week; Range: 22 – 40 hours per week). Participants reported that they spent an average of 14 minutes per patient in their clinic (SD: 2.7 minutes per patient; Range: 10 – 18 minutes per patient). Lastly, participants reported that they had an average of 855 patients on their patient panel (SD: 498 patients; Range: 0 – 1400).

Of 11 participants, six (55%) reported that they have received some form of goal setting training; and 7 (64%) reported that they have received some form of patient-centred care training. Participants reported that it has been on average 8 years (SD: 12 years; Range: 1 – 32 years) and 10 years (SD: 12 years; Range: 1 – 32) since they have received training for goal setting and patient-centred care, respectively. Six (55%) participants reported that they have nursing and/or other allied staff working in their clinic. Participants reported registered nurses, licensed practical nurses, social workers, medical office assistants, and psychologists as examples of nursing and/or other allied staff working in their clinic.

In regards to the perceptions of the session, ten (91%) practitioners agreed with the statement, “The video-conference appointment I just experienced was representative of a real life appointment with a patient”. One (9%) practitioner reported neutral.
3.2 Step 1: Working Alliance Inventory Session Ratings

The mean practitioner WAI score was 206 (SD: 19.25; Range: 164 – 230; Median: 206). Session 8 was perceived as having the highest quality of therapeutic alliance and Session 1 as having the lowest quality of therapeutic alliance, according to the practitioner scores. The mean patient WAI score was 207.91 (SD: 19.25; Range: 179 – 240; Median: 210). According to the standardized patient scores, Session 6 was perceived as having the highest quality of therapeutic alliance and Session 7 as having the lowest quality of therapeutic alliance. The mean total WAI score was 413.91 (SD: 28.72; Range: 385 – 466; Median: 418). According to the total WAI scores, Session 6 had the highest perceived quality of therapeutic alliance and three sessions (1, 7, and 10) were all rated as having the lowest perceived quality of therapeutic alliance.

Table 2 presents the scores given to each session by the practitioner and standardized patient, as well as the total score. Table 2 also shows that the correlations between the 36 WAI item scores from the practitioner and the standardized patient associated with each session were positive and significant, $p < .01$. The relationship strength was strong ($r \geq .50$).

There were no significant differences in either the patient or practitioner WAI scores based on gender, years of practice as a medical practitioner, goal setting training, or patient-centred care training.

<table>
<thead>
<tr>
<th>Session #</th>
<th>Practitioner Sum WAI Score</th>
<th>Patient Sum WAI Score</th>
<th>Total Sum WAI Score</th>
<th>Correlation of Practitioner and Patient Scores (Pearson’s r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>164</td>
<td>221</td>
<td>385</td>
<td>0.50*</td>
</tr>
<tr>
<td>Session 2</td>
<td>227</td>
<td>232</td>
<td>459</td>
<td>0.81*</td>
</tr>
<tr>
<td>Session 3</td>
<td>215</td>
<td>210</td>
<td>425</td>
<td>0.80*</td>
</tr>
<tr>
<td>Session 4</td>
<td>207</td>
<td>214</td>
<td>421</td>
<td>0.90*</td>
</tr>
<tr>
<td>Session 5</td>
<td>205</td>
<td>183</td>
<td>388</td>
<td>0.80*</td>
</tr>
<tr>
<td>Session 6</td>
<td>226</td>
<td>240</td>
<td>466</td>
<td>0.93*</td>
</tr>
<tr>
<td>Session 7</td>
<td>206</td>
<td>179</td>
<td>385</td>
<td>0.67*</td>
</tr>
<tr>
<td>Session 8</td>
<td>230</td>
<td>188</td>
<td>418</td>
<td>0.76*</td>
</tr>
<tr>
<td>Session 9</td>
<td>196</td>
<td>222</td>
<td>418</td>
<td>0.75*</td>
</tr>
<tr>
<td>Session 10</td>
<td>188</td>
<td>197</td>
<td>385</td>
<td>0.80*</td>
</tr>
<tr>
<td>Session 11</td>
<td>202</td>
<td>201</td>
<td>403</td>
<td>0.79*</td>
</tr>
</tbody>
</table>

Note. WAI = working alliance inventory; * = significant at $p < .01$.

3.3 Step 2: Results of Coding Framework Development and Transcript Analysis

Across the 11 transcripts, researchers (KB and JDB) coded 1740 statements. Practitioner statements totaled 847 and standardized patient statements totaled 827. The remaining 66 statements were either
researcher statements or other statements that were unable to be coded. The average percent agreement between coders was 65.06% for practitioner statements and 74.15% for standardized patient statements. Overall the average percent agreement between coders was 69.62% for all statements. The average kappa across all sessions was “substantial” for practitioner statements (Mean = 0.75±0.07 SD) and “outstanding” for standardized patient statements (Mean = 0.85±0.05 SD). The average PABAK across all sessions was “outstanding” for both practitioner statements (Mean = 0.95±0.02 SD) and standardized patient statements (Mean = 0.95±0.01 SD).

3.4 Step 3: Results of State Space Grid Analysis

Eleven SSGs were created from each of the 11 video-recorded sessions. All eleven grids are shown in Figure 3. The grids represent the unfolding of the practitioner and standardized patient sessions over time. On each grid all possible practitioner statements are represented along the x-axis (i.e., practitioner) and all possible standardized patient statements are represented along the y-axis (i.e., patient). Each data point within a specific cell on the grid represents a co-defined behaviour for both the practitioner and the standardized patient (i.e., the individual behaviours that both the practitioner and the standardized patient are using at that given moment in time, represented by the codes listed on the x- and y-axes). Each line on the grid represents a transition from one co-defined behaviour to the next (i.e., the transition from one behaviour used by the practitioner and/or the standardized patient to the next behaviour). The WAI scores associated with each interaction are provided in the notes below each grid. Findings from all state space grid analyses and associated WAI scores for each session are also provided in Appendix J.
Note. Practitioner WAI score = 164; patient WAI score = 221; total WAI score = 385.

Note. Practitioner WAI score = 227; patient WAI score = 232; total WAI score = 459.
Note. Practitioner WAI score = 215; patient WAI score = 210; total WAI score = 425.

Note. Practitioner WAI score = 207; patient WAI score = 214; total WAI score = 421.
Note. Practitioner WAI score = 205; patient WAI score = 183; total WAI score = 388.

Note. Practitioner WAI score = 226; patient WAI score = 240; total WAI score = 466.
Note. Practitioner WAI score = 206; patient WAI score = 179; total WAI score = 385.

Note. Practitioner WAI score = 230; patient WAI score = 188; total WAI score = 418.
Note. Practitioner WAI score = 196; patient WAI score = 222; total WAI score = 418.

Note. Practitioner WAI score = 188; patient WAI score = 197; total WAI score = 385.

Note. Practitioner WAI score = 202; patient WAI score = 201; total WAI score = 403.

Note. ADP = advice with permission; ADW = advice without permission; QUO = open question; QUC = closed question; RES = simple reflection; REC = complex reflection; RCP = raise concern with permission; RCW = raise concern without permission; AF = affirm; EC = emphasize control; RF = reframe; SU = support; CO = confront; DI = direct; WA = warn; AG = agree; GI = giving information; ST = structure; FA = facilitate; FI = filler; OTH = other; LIS = listening; RCS = raise concern about self; CL = commitment language; INT = showing interest; GRA = showing gratitude; DG = disagree.
Figure 3: State Space Grids of Eleven Sessions

Attractor States. There were common trends in the top five attractor states for all eleven sessions. In all sessions, the standardized patient giving information while the practitioner listens, and the standardized patient raising concern about self while the practitioner listens are two of the top five attractor states. Common behaviours the practitioner performs while the standardized patient listens are giving information, providing advice with permission, asking closed questions, and providing simple reflections (See Appendix J).

Four sessions display an attractor state that is uncommon to the other sessions. Session 2 has “other” as a top behaviour for both the practitioner and the standardized patient – this is likely due to technical difficulties during the session. In Session 6, the practitioner providing support while the standardized patient listens is a top five attractor state. The practitioner giving advice without permission while the standardized patient listens is a top behaviour in Session 7. Lastly, in Session 11, the standardized patient showing interest while the practitioner listens is a top five attractor state (See Appendix J).

Figure 4 displays 12 scatterplots of six different frequencies of behaviours performed by the practitioners. Each behaviour was plotted against both the practitioner WAI score (i.e., the graphs presented in orange on the left) and the patient WAI score (i.e., the graphs presented in blue on the right). The relationship between the number of practitioner support statements and the patient WAI score was positive and significant, \( r = .81, p = < .01 \). It appears that when the practitioner provided more support statements to the patient, the patient perceived a higher quality of therapeutic alliance. The relationship between the number of times the practitioner gives information to the patient and the practitioner WAI score was negative and significant, \( r = -.72, p < .05 \). It appears that the more the practitioner gave information to the patient the more the practitioner perceived a lower quality of therapeutic alliance. All other relationships presented in Figure 4 were not significant.
Note. $r = -.37$, $p > .05$.

Note. $r = -.59$, $p > .05$.

Note. $r = .02$, $p > .05$.

Note. $r = -.22$, $p > .05$.

Note. $r = .14$, $p > .05$.

Note. $r = .09$, $p > .05$.

Note. $r = -.05$, $p > .05$.

Note. $r = .81$, $p < .01^*$. 
Note. $r = -.13$, $p > .05$.

Note. $r = -.41$, $p > .05$.

Note. $r = -.72$, $p < .05$.*

Note. $r = .09$, $p > .05$.

Note. WAI = working alliance inventory; * = significant.

**Figure 4: Practitioner and Patient WAI Scores Compared with Practitioner Behaviour Frequencies**

**Variability.** Across the eleven sessions there was minimal variability in terms of the range of cells used (Mean: 22.91; SD: 2.39; Range: 17 – 25; See Appendix J). Practitioners and the standardized patient used the same number of cells within the total state space, therefore not varying much in the amount of different behaviours used. Sessions varied in the number of total transitions they made within the interaction (Mean: 188.09; SD: 65.33; Range: 89 – 270). These data suggests that the sessions differed in how often the practitioners and the standardized patient went back and forth between who was talking rather than what is specifically said. Sessions also varied in the average duration per visit across all cells (Mean: 8.13 seconds; SD: 2.86 seconds; Range: 5.04 seconds – 13.12 seconds). In some sessions more time was spent in each cell (i.e., a certain co-defined behaviour state) that was visited throughout the conversation, suggesting more time spent talking by either the practitioner or standardized patient between transitions.

Figure 5 displays four scatterplots showing the relationship between variability measures and associated scores on the WAI. Two graphs display the number of transitions plotted against both the

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practitioner WAI score and the patient WAI score. The other two graphs display the average duration per visit plotted against both the practitioner WAI score and the patient WAI score.

The relationship between the number of transitions and both the practitioner and patient WAI scores was negative. In contrast the average duration per visit was positively correlated with the practitioner and patient WAI scores. All relationships were moderate, $r < .50$, except for the relationship between the average duration per visit and the standardized patient WAI score, which was strong, $r = 0.52$.

Note. $r = -.33, p > .05$.  
Note. $r = -.36, p > .05$.  
Note. $r = .31, p > .05$.  
Note. $r = .52, p > .05$.

Note. WAI = working alliance inventory; s = seconds.

**Figure 5: Practitioner and Patient Sum WAI Scores Compared with Variability Measures**

**Conditional Pairing.** Eleven lagged-patient plot SSGs were created from each of the 11 video-recorded sessions, shown in Figure 6. The practitioner behaviour at time $t$ is plotted on the x-axis. The standardized patient behaviour at time $t+1$ is plotted on the y-axis. The grids represent how the standardized patient responds to the practitioners’ behaviours. Each data point within a specific cell on the grid represents what behaviour the practitioner used and what behaviour the standardized patient used to respond.
Note. Practitioner WAI score = 164; patient WAI score = 221; total WAI score = 385.

Note. Practitioner WAI score = 227; patient WAI score = 232; total WAI score = 459.

Note. Practitioner WAI score = 215; patient WAI score = 210; total WAI score = 425.

Note. Practitioner WAI score = 207; patient WAI score = 214; total WAI score = 421.

Note. Practitioner WAI score = 205; patient WAI score = 183; total WAI score = 388.

Note. Practitioner WAI score = 226; patient WAI score = 240; total WAI score = 466.
Note. Practitioner WAI score = 206; patient WAI score = 179; total WAI score = 385.

Note. Practitioner WAI score = 230; patient WAI score = 188; total WAI score = 418.

Note. Practitioner WAI score = 196; patient WAI score = 222; total WAI score = 418.

Note. Practitioner WAI score = 188; patient WAI score = 197; total WAI score = 385.

Note. Practitioner WAI score = 202; patient WAI score = 201; total WAI score = 403.

Note. ADP = advice with permission; ADW = advice without permission; QUO = open question; QUC = closed question; RES = simple reflection; REC = complex reflection; RCP = raise concern with permission; RCW = raise concern without permission; AF = affirm; EC = emphasize control; RF = reframe; SU = support; CO = confront; DI = direct; WA = warn; AG = agree; GI = giving information; ST = structure; FA = facilitate; FI = filler; OTH = other; LIS = listening; RCS = raise concern about self; CL = commitment language; INT = showing interest; GRA = showing gratitude; DG = disagree.

Figure 6: Lagged-Patient Plot State Space Grids of Eleven Sessions
Appendix J presents the top three conditional pairings for each session. Some sessions did not have enough frequent behaviour pairings between the practitioner and the standardized patient to have three top conditional pairings. Few common trends emerged in the top three conditional pairing across the eleven sessions. The only conditional pairing that emerged across all sessions was the standardized patient responding with giving information when the practitioner asked a closed question. The standardized patient also often responded with raising concern about self when the practitioner asked a closed question. The last common conditional pairing is the standardized patient agreeing after the practitioner has offered a simple reflection.

A few conditional pairings only emerged in a small number of sessions. For example, the standardized patient agreeing after the practitioner structures the session, the standardized patient agreeing after the practitioner has asked a closed question, and the standardized patient offering a facilitative comment after the practitioner has provided advice with permission. The standardized patient offering a facilitative comment or showing interest after the practitioner has asked a closed question both only emerged as a frequent conditional pairing in one of the eleven sessions (i.e., Session 7 and Session 9, respectively).

Figure 7 displays two graphs representing the relationship between the frequency of QUC-GI conditional pairings and the practitioner and patient WAI scores. The frequency of QUC-GI conditional pairings that occurred in each session was significantly and negatively correlated with the patient WAI scores, $r = -.76$, $p < .01$. Therefore, the more the standardized patient responded with giving information to the practitioner asking a closed question the less the standardized patient perceived therapeutic alliance in their session.
Note. $r = -.10$, $p > .05$.  

Note. $r = -.76$, $p < .01$.*

Note. QUC-GI = closed question-giving information; WAI = working alliance inventory; * = significant.

**Figure 7: Practitioner and Patient WAI Scores Compared with Frequency of Conditional Pairings**
Chapter 4: Discussion

4.1 Understanding Therapeutic Alliance Using Dynamic Systems

This study provides initial insight into how therapeutic alliance is established between practitioners and their patients in real-time. A reliable dynamic systems coding manual was developed and associated state space grid analyses were used to characterize reciprocal, dynamic, and real-time nature of the interaction between the practitioner and the patient. Our findings highlight the importance of using a dynamic systems approach to understand how conversations between practitioners and patients unfold over time in terms of the frequency, duration, and sequence of behaviours used as well as how these patterns of interactions may influence the outcome of therapeutic alliance.

Our approach provides a more nuanced understanding of how therapeutic alliance may be established in real world interactions between practitioners and patients. Previous methods would have only accounted for the presence or absence of practitioners’ and patients’ verbal behaviours and have not linked these behaviours to therapeutic alliance outcomes. By simply looking at the presence or absence of verbal behaviours in these interactions, one could conclude that there are few differences in the way in which practitioners and patients establish therapeutic alliance. However, our state space grid analyses reveal potentially important differences in the frequency, duration, and sequence of behaviours used across sessions. Support statements made by the practitioner appear to be positively associated with the establishment of therapeutic alliance when used more frequently and for longer periods of time. In contrast, asking questions, giving information, and providing advice seem to be negatively associated with the establishment of therapeutic alliance when practitioners use them frequently. The more frequent the sequence of practitioner closed questions followed by information given by the standardized patient, the less therapeutic alliance was established. Further, when considering variability measures, sessions that are slower paced with fewer transitions between behaviours seem to better encourage the establishment of therapeutic alliance compared to sessions that include short statements with more frequent transitions between behaviours.
While this study is exploratory in nature and results should be interpreted with caution, comparisons between the highest and lowest rated sessions may provide further insight into how state space grid analyses can be used to understand therapeutic alliance. Session 6 was the highest rated session by the standardized patient and best highlights the positive trends of behaviours associated with therapeutic alliance. In contrast, Session 7 was the lowest rated session by the standardized patient and highlights the more negative trends of behaviours associated with therapeutic alliance. These observations provide a foundation with which to unpack our findings.

The significant, positive relationship between the frequency of practitioner support statements and the standardized patient WAI scores suggests the importance of the practitioner providing several support statements to the patient to establish therapeutic alliance. The practitioner in Session 6 used the highest frequency of support statements and also received the highest WAI score from the standardized patient. Throughout Session 6 the practitioner often showed compassion, offered practical support, displayed understanding, and normalized or validated how the standardized patient felt. Making supportive statements may be a promising behaviour to facilitate the establishment of therapeutic alliance because of the way it seems to align with the underlying spirit of motivational interviewing (Miller & Rollnick, 2012). Providing support is a behaviour that aligns with and may encourage the forming of a partnership, conveying acceptance, fostering compassion, and facilitating evocation. Further, providing emotional comfort, alleviation of fear and anxiety and/or having a ‘sympathetic presence’ are frequently listed as dimensions and/or processes of patient-centred care (Kitson, Marshall, Bassett, & Zeitz, 2013; McCormack & McCance, 2006). These statements may facilitate the formation of a trusting and mutually respectful relationship in which the practitioner conveys that they not only understand the patient’s current situation, but will also assist them in practical and emotional ways.

Our data indicate that the practitioner asking more questions may hinder the establishment of therapeutic alliance. In Session 7 (i.e., lowest WAI rating), we observed the highest frequency of questions asked by the practitioner. The practitioner in Session 7 often asked the standardized patient questions and did so in a quick and efficient manner, affording the standardized patient less opportunity to discuss their
concerns in depth. The quick, efficient, and transactional conversation style observed in Session 7 is further highlighted in the variability measures where we see many transitions, and a low average duration per behaviour. In comparison, the practitioner in Session 6 also asks questions, but asks less questions and does so using a different conversation style with fewer transitions and more time spent on each behaviour. Likewise, our conditional pairing analysis indicated that the more questions asked by the practitioner that led the patient to respond with giving information, the less therapeutic alliance was perceived by the standardized patient. Asking too many questions is a common communication trap discussed in motivational interviewing. The ‘assessment trap’ occurs in motivational interviewing, when practitioners believe it is necessary to know a lot of information before being able to help (Miller & Rollnick, 2012). It is possible that frequent questioning from the practitioner may also reduce self-regulation of the patient, hindering their ability to emotionally regulate by the end of the session (Martin Ginis & Bray, 2010). When considered alongside the motivational interviewing literature, our findings indicate that the behaviour of asking questions itself may not be harmful to therapeutic alliance. However, if a practitioner is asking questions in a manner that seeks to assess the patient quickly and efficiently, indicative of the assessment trap, it may be difficult to establish a mutual bond between the practitioner and patient and the quality of therapeutic alliance may be negatively affected (Miller & Rollnick, 2012).

Both giving information and providing advice were practitioner behaviours that were negatively associated with the quality of therapeutic alliance. The frequency of advice provided had a negative relationship with both the practitioner and the standardized patient WAI scores. Whereas, the frequency of information given only had a significant, negative relationship with the practitioner WAI scores. These findings are suggestive of the ‘expert trap’ which is warned of in motivational interviewing. The expert trap occurs when the practitioner takes an “in charge” role and often ends up telling the patient to “just do this” (Miller & Rollnick, 2012). Aligned with the idea of the ‘expert trap’, our data highlight that the frequency with which giving information and providing advice are used may influence perceptions of therapeutic alliance, in particular for practitioners in the case of information provision. All practitioners used the behaviours giving information and providing advice, but when we compare the frequency and duration of
use across sessions it seems that less is more when it comes to these behaviours. Both practitioners in Session 6 and Session 7 provided advice to the standardized patient, but Session 7 did so more frequently and spent at least twice the amount of time doing so. In order to avoid the expert trap and maintain therapeutic alliance for both the practitioner and the patient, it may be important to provide information and advice, but to do so less often and using less conversation time.

When examining sequences in practitioner verbal behaviours and subsequent patient verbal behaviours there was little commonality across sessions. The only relationship observed was that the more questions the practitioner asked that led the patient to respond with giving information, the less therapeutic alliance was perceived by the standardized patient. Other conditional pairings occurred throughout the sessions, but no other common trends emerged. These findings may relate to the variability with which the standardized patient responded to practitioner’s statement. However, it is perhaps more likely that the practitioners’ verbal behaviours did not occur in high enough frequencies for conditional pairings to strongly emerge.

Certain behaviours were never used by the practitioners. For example, we did not observe the behaviours of ‘emphasize control’, ‘confronting’, or ‘warning’. Emphasize control is motivational interviewing compliant and data supports the importance of autonomy in patient-centred care (Podlog & Brown, 2016; Williams, Freedman, & Deci, 1998; Williams, McGregor, King, Nelson, & Glasgow, 2005). Whereas, ‘confrontation’ and ‘warning’ are considered to be motivational interviewing non-compliant and likely to hinder therapeutic alliance (Miller & Rollnick, 2012). We cannot ascertain why certain behaviours were not observed in the recordings. Future research is needed to understand if and how these behaviours influence therapeutic alliance.

4.2 Strengths

This study is the first to use state space grid methodology to investigate how practitioners and patients apply verbal behaviours within a clinical interaction and to link these verbal behaviours to the outcome of therapeutic alliance. The novel findings provided by this research advance our methods for understanding how interactions between practitioners and patients are established in real-time and advance
our current understanding of how therapeutic alliance is established between practitioners and patients. While our findings are exploratory in nature, they do align with previous research in patient-centred care and motivational interviewing (e.g. Rathert et al. 2013; Mead & Bower (2002); Miller & Rollnick (2012)) and therefore may inform evidence-based recommendations for practitioners on how to establish therapeutic alliance with their patients and provide patient-centred care.

By taking an IKT approach, and partnering with both The SOS Division of Family Practice and CCMI throughout the research process, our findings have the potential to be more relevant and useful for the target population (Gagliardi et al., 2017). Through our partnerships the procedures of this study were able to be properly oriented and relevant to practitioners. During recruitment, the medical resident partner was able to reach more participants than could have been reached without using an IKT approach. During analyses, our partners provided further insights into our findings. The partnerships with both The SOS Division of Family Practice and CCMI have not only enhanced the quality of this thesis and research process, but will continue to help ensure that the research findings are used in practice.

Through our partnerships, we were able to identify an experienced standardized patient and craft an externally valid patient scenario. Though having a standardized patient across all sessions can be inferred as a limitation, it can also be considered a strength, especially for an exploratory study. The use of a standardized patient reduced the number of variables to consider when interpreting the WAI scores. A standardized patient, rather than multiple real life patients removed the opportunity for patient confounding variables to influence both the practitioners’ and the standardized patient’s perception of the quality of therapeutic alliance. Further, our findings indicate that even with the use of a standardized patient, practitioners still perceived the session to be representative of a real-life session.

A final strength of this study was the use of video-conferencing as a means of conducting the simulated medical consultation. Through our partnerships, video-conferencing (i.e., Telehealth) was identified as the most feasible and beneficial mode of delivery for the medical practitioners. Telehealth involves the use of virtual technology to deliver health care outside of traditional medical offices. Telehealth provides a practical means to reach patients in rural areas and is increasing in application (Edmunds et al.,
2017). This study provides support for the feasibility and real-life representativeness of Telehealth. As well, it provided the participants with the opportunity to practice delivering health care via virtual technology.

4.3 Limitations and Future Directions

Despite the strengths of this study, there are limitations to this study that need to be addressed in future research to strengthen and confirm our findings. The developed coding manual allowed for the coding of verbal behaviours used by the practitioner and the standardized patient. These verbal behaviours were subsequently correlated with the quality of therapeutic alliance which is comprised of bond, agreement on goals, and agreement on tasks. The developed coding manual did not allow for the coding of bond, agreement on goals, and agreement on tasks. With the present study, it is currently unknown how the practitioners differed in how often, how much time, and in what order they agreed on goals or tasks or established a bond with the patient. It would be of interest to create a coding manual to reliably code for behaviours associated with Bordin’s three aspects of therapeutic alliance (i.e., bond, agreement on goals, and agreement on tasks). As well, the coding manual developed for this research was based on the MISC, and though it allowed for reliable coding of practitioner and patient verbal behaviours, future research could explore using other coding frameworks to understand practitioner and patient verbal behaviours (e.g., MITI, MICA, BCT Taxonomy v1) (Jackson, Butterworth, Hall, & Gilbert, 2015; Michie et al., 2013; Moyers & Martin, 2010).

While the use of a standardized patient is perceived as a strength of this research, it does present limitations. The sessions were rated as representative of real-life appointments. However, these sessions are still not the same as real-world settings where practitioners see numerous patients with various conditions, personalities, and concerns. To understand how therapeutic alliance is established in real-world settings, it would be of use to conduct similar studies with various real life patients and various practitioners. By examining multiple real life patients and multiple practitioners, research could explore one patient’s experience across various doctors. Whereas a study involving multiple patients would allow for a variety of patient ratings and experiences with one doctor to be examined and could be used to understand how
patients’ characteristics affect their perception of therapeutic alliance. Lastly, by recording real-world interactions, external validity could be enhanced making the findings more applicable to real-world settings.

A third limitation to this study was the small sample size. This study examined recordings from eleven practitioners working within one region. Though the sample size was sufficient for establishing a proof-of-concept, a larger and more diverse sample of practitioners may have led to different findings. With a sample size of eleven, our findings did show that practitioners differed in their frequency, duration, and sequence of verbal behaviours used, however, our sample size did not show any variation in the range of cells used by practitioners. A larger and more diverse sample may provide more variability in verbal behaviours used and therefore more comparisons, potentially leading to a greater understanding of how to establish therapeutic alliance.

The fourth limitation to this study is the lack of insight into rationale for the practitioners’ and standardized patient’s WAI ratings. Though we have quantitative data that can be interpreted alongside their WAI scores, it would be of benefit to have qualitative data that explains their perceptions of therapeutic alliance. A method to provide this information would be stimulated recall. Stimulated recall involves interviewing the participant of interest while they watch clips of the previously recorded session they participated in (Taguchi, Gass, & Mackey, 2008). It would be of value to create an interview guide that is capable of probing the patient and the practitioner to explain how certain moments during the interaction made them feel, why they responded in the way they did, and/or if there were specific moments within the session that strongly influenced their rating. To gain further insight, stimulated recall could also be used to understand the practitioner’s intentions behind their verbal behaviours. Practitioners could be probed to explore why they used certain verbal behaviours, what helped or hindered them from using certain verbal behaviours, and/or if they felt the verbal behaviours they used fostered or impeded therapeutic alliance from being established.

A final limitation to this study was that verbal behaviours were only coded for quantity and not quality (i.e., if the verbal behaviour was delivered, but not how well it was delivered). For example, a practitioner who gave a low quality affirmation to the standardized patient would be coded in the same way.
as a practitioner who gave a higher quality affirmation. Therefore, this study is limited in that it cannot state whether the quality of the verbal behaviours delivered by the practitioner affect the quality of therapeutic alliance experienced. Future research could assess practitioner-to-patient transcripts for the quality of verbal behaviours used to understand if the quality of verbal behaviours mediates the relationships seen in this research.

4.4 Practical Implications

While this study is a proof-of-concept and provides data from only a small subset of practitioners working in one region, it does highlight some implications for practitioners that should be investigated in future research. Knowing that therapeutic alliance is associated with improved treatment outcomes, stronger adherence to treatment, and greater patient satisfaction, it could be said that any style of practitioner-to-patient interaction that does not result in high quality therapeutic alliance is potentially inefficient and ineffective and does not provide the most beneficial care to the patient. Preliminary data from this thesis indicate that practitioners should be cautioned about falling into the assessment and expert trap by asking several questions, and giving ample information or advice. Instead practitioners should consider spending more time creating a relational bond with the patient by providing support statements. It seems important, when considering how therapeutic alliance is established and unfolds in real-time, for practitioners to consider not only what behaviours to use, but how often, for how long, and in what sequence they use such behaviours. That said, this thesis cannot state the optimal ‘dose’ of practitioner verbal behaviours necessary to establish therapeutic alliance, however, our findings do indicate that the dose of these verbal behaviours may matter for establishing therapeutic alliance. Future research needs to be done to investigate the optimal dose for how often, how long, and in what sequence behaviours should be used by practitioners to establish therapeutic alliance with their patients.

4.5 Conclusion

This thesis is the first to use dynamic systems methodology to examine how verbal behaviours are used within clinical interactions between practitioners and patients. This study provides novel insight into how therapeutic alliance is established between practitioners and their patients in real-time. Our findings
highlight the importance of using a dynamic systems approach to understand how conversations between practitioners and patients unfold over time in terms of the frequency, duration, and sequence of verbal behaviours used and how these patterns of interactions may influence therapeutic alliance. Preliminary data from this thesis indicate that practitioners should be cautioned about falling into the assessment and expert trap by asking several questions, and giving ample information or advice. Instead practitioners should consider spending more time creating a relational bond with the patient by offering supportive statements.

By strengthening our understanding of how therapeutic alliance is established between practitioners and their patients this research, alongside future research, has the potential to not only improve the therapeutic relationship between practitioners and patients, but also improve the satisfaction of care provided, adherence to treatment, and health outcomes of patients (Fuertes et al., 2007, 2017; Kelley et al., 2014).
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Appendices

Appendix A: Example Consent Form

Consent Form
The Therapeutic Alliance Relationship

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Sponsors:
This study is being funded by Canadian Institutes of Health Research Canada Graduate Scholarship. In-kind support is provided by the South Okanagan Similkameen Division of Family Practice and The Centre for Collaboration, Motivation and Innovation.

Purpose:
This study is a graduate student and medical resident research project. The purpose of this study is to better understand how therapeutic alliance is established between medical practitioners and patients. A better understanding of how to establish therapeutic alliance may allow for improved implementation of patient-centred care within the healthcare setting. You are invited to take part in this research study because you are a medical practitioner.

Study Procedures:
Your participation in this study will first include completing a survey asking for demographic information. This survey will take a maximum of 15 minutes to complete. On a separate survey, you will then be asked for your contact information and consent to be contacted by a member of the research team.

Dr. Tyler Murphy, a family practice resident, will then contact you to schedule a convenient time for you to have a session with a standardized patient (i.e. an individual trained to act as a real patient in order to simulate a set of symptoms or problems). The session will be recorded by researchers using video conferencing and will take a maximum of 30 minutes to complete. Dr. Tyler Murphy will provide you with a laptop for this video conference session.

Following the video-recording, you will be emailed a post-session questionnaire to assess the quality of therapeutic alliance experienced during the session. The questionnaire will also ask some questions focused on patient-centred care and team-based care. The questionnaire will take a maximum of 15 minutes to complete.

In total, this study will take a maximum of one hour of your time.

Potential Risks:
There are no known physical, psychological, economic, or social risks associated with this study. You should not feel obligated to answer any material or participate in anything that you find objectionable or that makes you feel uncomfortable. As well, you will not be evaluated in any manner if you participate in this study. You may withdraw from the study at any time by contacting Dr. Gainforth or Kristy Baxter by email or by phone.

Potential Benefits:
Your participation in this study will allow for a better understanding of how therapeutic alliance is established between medical practitioners and patients. Findings will be used by healthcare organizations to better inform the implementation of patient-centred care in the healthcare setting.

This study will also allow you an opportunity to practice for TeleMedicine appointments. As technology advances the use of TeleMedicine is becoming more popular for reaching rural communities. The opportunity to practice TeleMedicine can therefore benefit those working in the healthcare setting.

Confidentiality:
This online questionnaire is administered by the UBC-hosted version of Qualtrics. All data will be stored and backed up in Canada. The video conferencing session will be administered by Vidyo. Data will be kept for at least five years after publication. All transcriptions and surveys from this study will be de-identified and kept in a locked filing cabinet in Dr. Gainforth’s Lab at UBC Okanagan. Electronic recordings, survey, and transcription data will be stored on password-protected computers in a locked office in Dr. Gainforth’s Lab at UBC Okanagan. Data may be shared with co-investigators at other universities. All data will be password protected and securely transferred using a UBC file sharing service.

Staff at the South Okanagan Similkameen Division of Family Practice will not have access to your individual data. The data from this study may be shared via reports and presentations to both scientific and broader community, but any such presentations will be of general findings and will never breach your confidentiality.

Remuneration/Compensation:
To remunerate you for your participation The South Okanagan Similkameen Division of Family Practice will reimburse you for one sessional hour. At the end of the study, you will be instructed to complete a South Okanagan Similkameen Division of Family Practice ‘Sessional Payment and Expense Form’. The form will be billed under ‘Patient Medical Home’ and will not compromise your confidentiality in this study.

Communication of Findings:
This research thesis will be a publicly available document. Further, findings from this research can be shared with participants upon request.

Contact for information about this study:
If you have any questions or desire further information with respect to this study, you may contact Dr. Heather Gainforth at (250) 807-9352 or by email at heather.gainforth@ubc.ca or at abc.lab@ubc.ca. You may also contact Kristy Baxter at kristy.baxter@ubc.ca or Dr. Tyler Murphy at tyler.murphy.1201@students.mwsu.edu.

Contact for concerns about the rights of research participants:
If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Services at 1-877-822-8598 or the UBC Okanagan Research Services Office at 250-807-8832. It is also possible to contact the Research Participant Complaint Line by email (RSIL@ors.ubc.ca). Please reference the study number (H18-01073) when contacting the Complaint Line so the staff can better assist you.

Consent:
Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time. If you prefer, you can email or call Dr. Gainforth or Kristy Baxter to withdraw and have your data and recordings deleted from the study.

If you decide to withdraw prior to transcription, your interview recording and any associated notes will be destroyed. Although the researcher cannot “wipe” the information from their mind, they will not use anything you have said in the final research product. If you decide to withdraw from the study after your interview has been transcribed, your information will be part of the final research product. However, the researcher will not use any of your quotes as examples.
If you would like to participate, please click on the arrow in the bottom right corner to begin. This will indicate that you have read and understood the above information and have consented to participate in this study. If you do not wish to participate, please exit this website.

*To download this consent form and print/save it for your records please use this link*

(Link provided)
Appendix B: Example Recruitment Email

*EMAIL TO BE SENT BY PARTNER MEDICAL RESIDENT*

Subject: Family Doctors needed for a study on establishing therapeutic alliance between medical practitioners and patients

The South Okanagan Similkameen Division of Family Practice and The Centre for Collaboration, Motivation and Innovation have partnered with The University of British Columbia Okanagan (UBCO), to better understand how therapeutic alliance is established between medical practitioners and patients to improve the implementation of patient-centred care in the healthcare system. The main researchers on this project are Dr. Tyler Murphy, a UBCO Family Practice Resident; Kristy Baxter, a graduate student at UBCO; and Dr. Heather Gainforth, an Assistant Professor at UBCO. This research study is a graduate thesis project as well as a medical resident research project. This research study is entitled:

Examining How Medical Practitioners Establish Therapeutic Alliance with Patients: A Dynamic Systems Approach

You are receiving this email because you are a currently practicing medical practitioner of The South Okanagan Similkameen Division of Family Practice. Your email address was obtained from The South Okanagan Similkameen Division of Family Practice.

We are recruiting family doctors who are currently in practice to participate in this study. The research team is trying to understand how medical practitioners establish therapeutic alliance with their patients during a medical appointment. The results of this study will provide a tool for doctors listing specific techniques, along with examples, for establishing patient-centred care and therapeutic alliance, which aligns with the Patient Medical Home (PMH) attributes.

If you choose to participate in this study, you would take part in a simulation of a routine telemedicine appointment with a standardized patient that will last at maximum 30 minutes and will be recorded. Before you complete the session, you will be asked to fill out a survey that includes questions about your demographic information. The survey will take approximately ten minutes to complete. After you complete the session, you will be asked to fill out a questionnaire assessing the quality of therapeutic alliance you experienced during the session. The questionnaire will also ask some questions focused on patient-centred care and team-based care. This survey will take approximately ten minutes to complete.
To be able to take part in this study, you must:

- Be a currently practicing medical practitioner

You will be renumerated for your time participating in this study by The South Okanagan Similkameen Division of Family Practice. Your session will be scheduled based on the time that works best for you.

If you are interested in participating, please click on the following link:

https://ubc.ca1.qualtrics.com/jfe/form/SV_dinTBrBAYs6nRQx

If you have any questions about the study, please contact either Dr. Tyler Murphy at tyler.murphy.1201@students.mwsu.edu or Kristy Baxter at kristy.baxter@ubc.ca.
Appendix C: Example Standardization Survey

Pre-Working Alliance Inventory Patient Version

Please state which session number this is.

________________________________________________________________

Please watch the video provided below, which features a conversation between a doctor and patient. This video will serve as a baseline for assessing the following session you will be partaking in. After completion of the video please complete the Working Alliance Inventory.

---

Working Alliance Inventory

Patient Form

Instructions

On the following pages, there are sentences that describe some of the different ways you might have thought or felt about your doctor. As you read the sentences mentally insert the name of your doctor in place of ________ in the text.

Beside each statement on the next page there is a seven-point scale:


If the statement describes the way you always felt (or thought) choose the number 7; if it never applied to you choose the number 1. Use the numbers in between to describe variations between these extremes.

This questionnaire is CONFIDENTIAL; only the research team will see your answers

Work fast, your first impressions are the ones we would like to see. (PLEASE DON'T FORGET TO RESPONSE TO EVERY ITEM.)

Thank you for your participation.
Please choose the number which best represents how you felt or thought about your doctor during the session.

<table>
<thead>
<tr>
<th>1. I felt uncomfortable with _____.</th>
<th>(1) Never</th>
<th>(2) Rarely</th>
<th>(3) Occasionally</th>
<th>(4) Sometimes</th>
<th>(5) Often</th>
<th>(6) Very Often</th>
<th>(7) Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. ____ and I agreed about the things I needed to do in the appointment to help improve my situation.</td>
<td>(1) Never</td>
<td>(2) Rarely</td>
<td>(3) Occasionally</td>
<td>(4) Sometimes</td>
<td>(5) Often</td>
<td>(6) Very Often</td>
<td>(7) Always</td>
</tr>
<tr>
<td>3. I was worried about the outcome of the appointment.</td>
<td>(1) Never</td>
<td>(2) Rarely</td>
<td>(3) Occasionally</td>
<td>(4) Sometimes</td>
<td>(5) Often</td>
<td>(6) Very Often</td>
<td>(7) Always</td>
</tr>
<tr>
<td>4. What I was doing in the appointment gave me new ways of looking at my problem.</td>
<td>(1) Never</td>
<td>(2) Rarely</td>
<td>(3) Occasionally</td>
<td>(4) Sometimes</td>
<td>(5) Often</td>
<td>(6) Very Often</td>
<td>(7) Always</td>
</tr>
<tr>
<td>5. ____ and I understood each other.</td>
<td>(1) Never</td>
<td>(2) Rarely</td>
<td>(3) Occasionally</td>
<td>(4) Sometimes</td>
<td>(5) Often</td>
<td>(6) Very Often</td>
<td>(7) Always</td>
</tr>
<tr>
<td>6. ____ perceived accurately what my goals were.</td>
<td>(1) Never</td>
<td>(2) Rarely</td>
<td>(3) Occasionally</td>
<td>(4) Sometimes</td>
<td>(5) Often</td>
<td>(6) Very Often</td>
<td>(7) Always</td>
</tr>
<tr>
<td>7. I found what I was doing in the appointment confusing.</td>
<td>(1) Never</td>
<td>(2) Rarely</td>
<td>(3) Occasionally</td>
<td>(4) Sometimes</td>
<td>(5) Often</td>
<td>(6) Very Often</td>
<td>(7) Always</td>
</tr>
<tr>
<td>8. I believe ____ likes me.</td>
<td>(1) Never</td>
<td>(2) Rarely</td>
<td>(3) Occasionally</td>
<td>(4) Sometimes</td>
<td>(5) Often</td>
<td>(6) Very Often</td>
<td>(7) Always</td>
</tr>
</tbody>
</table>
9. I wish ________
   and I could have
   clarified the purpose
   of our appointment.

10. I disagreed with
    ________ about
    what I ought to get
    out of the
    appointment.

11. I believe the
   time ________ and I
   spent together was
   not spent efficiently.

12. ________ did
    not understand what
    I was trying to
    accomplish in the
    appointment.

13. I was clear on
    what my
    responsibilities were
    in the appointment.

14. The goals of the
    appointment were
    important for me.

15. I found what
    ________ and I
    were doing in the
    appointment was
    unrelated to my
    concerns.

16. I felt the things I
    did in the
    appointment helped
    me to accomplish
    the changes that I
    wanted.

17. I believe
    ________ was
    genuinely concerned
    for my welfare.
18. I was clear as to what ______ wanted me to do in the appointment.

19. ______ and I respected each other.

20. I felt that ______ was not totally honest about his/her feelings toward me.

21. I was confident in ______'s ability to help me.

22. ______ and I were working towards mutually agreed upon goals.

23. I felt that ______ appreciated me.

24. We agreed on what was important for me to work on.

25. As a result of this appointment I became clearer as to how I might be able to change.

26. ______ and I trust one another.

27. ______ and I had different ideas on what my problems were.
28. My relationship with ________ is very important to me.

29. I had the feeling that if I said or did the wrong things, ________ would stop working with me.

30. ________ and I collaborated on setting goals during my appointment.

31. I was frustrated by the things I was doing in the appointment.

32. We had a good understanding of the kind of changes that would be good for me.

33. The things that ________ was asking me to do did not make sense.

34. I did not know what to expect as the result of the appointment.

35. I believe the way we were working with my problem was correct.

36. I felt ________ cared about me even when I did things that he/she did not approve of.
Appendix D: Example Session Guide

Ex·amining How Medical Practitioners Establish Therapeutic Alliance with Patients: A Dynamic Systems Approach

Practitioner-to-Patient Session Guide

1. Initial Setup and Introduction for Doctor

Open Vidyo room.

The doctor will join Vidyo room. Once they have joined say this:

“Hello, it’s Kristy Baxter from the University of British Columbia Okanagan. This call is in regards to Dr. Tyler Murphy and Kristy Baxter’s study conducted in partnership with the South Okanagan and Similkameen Division of Family Practice and the Centre for Collaboration, Motivation and Innovation.”

“Thank you for taking the time to record a practitioner-to-patient session. The purpose of recording today’s session is to understand how therapeutic alliance is established between medical practitioners and patients. The results of this study will provide a tool for doctors that will list specific techniques, along with examples, for establishing patient-centred care and therapeutic alliance, which aligns with the Patient Medical Home (PMH) attributes.”

“To allow us to link this conversation to our survey data, can you confirm your personalized ID codes?”

“First 3 letters of your mother's maiden name.”

“2 digits of your day of birth.”

“Last 2 digits of your phone number.”

“Thank you. Before the standardized patient joins the video conferencing room, do you have any questions?” (Answer any questions.)

2. Adding the Standardized Patient

“Okay. The standardized patient will now join the video conferencing room.”

Standardized patient joins the Vidyo room.
“We should now have everyone in the video conferencing room. Can both of you say your names so we can ensure you can both hear each other well.”

If both voices are heard well, continue with instructions.

3. Instructions

“I’m now going to say the instructions. If for any reason I cut out during the instructions, please let me know.”

“During today’s simulated routine appointment you will have the opportunity to have a family doctor-to-patient session with each other. Please treat this as if it were a typical doctor’s appointment with a patient. That being said, there are no expectations or requirements for how you choose to have this session. There are also no requirements for how long you need to speak, however we do recommend a length of time that is representative of a typical appointment, perhaps around 15 minutes. Before the session begins I will give an overview of the patient and their current concerns to facilitate the session.”

“Only the research team will have access to the recording and all transcriptions and surveys from this study will be anonymized and kept in a locked filing cabinet in Dr. Gainforth’s Lab at UBC Okanagan.”

“Before we begin recording do you have any questions?”

“When you finish your session, I will stop the recording and give further information about next steps.”

“I will now start the recording.” (Begin recording)

“Can you both confirm that you consent to having this conversation recorded?”
 * If both agree, continue to record conversation*

3. Patient Overview

“I will now provide an overview of the patient and their current concerns.”

“Ms. Ellen Reese is a 30-year-old woman with chronic pain, anxiety, and insomnia. She was in a car accident a year ago when the car she was driving was T-boned in an intersection. She sustained a neck injury, fractured ribs and pelvis. She is taking narcotics for her pain and she’s been having trouble sleeping since then. She has not driven since the accident. She is a single parent of a six-year-old daughter and was divorced 3 months ago. She is on a fixed income and has a grade 10 education. She formerly worked as a clerk in a grocery store. She comes in monthly for her prescription narcotic.”

“Her medications are:
Hydromorph Contin 12 mg PO BID (Hy-dro-mor-phone)
Venlafaxine 150 mg PO once daily (anxiety) (Ven-la-faxine)
Trazadone 25 mg PO qhs (sleep) (Tra-za-done)
Lorazepam 1 mg PO TID prn (anxiety)” (Lor-ra-ze-pam)
“Once again, there are no expectations or requirements for how you choose to have this session and there are also no requirements for how long you need to speak. However, we do recommend a length of time that is representative of a typical appointment, perhaps around 15 minutes. When you are finished please let me know and I will stop the recording. When you feel you are ready to start the session you may begin.”

4. The Session

(*Stop recording when session has finished*)

5. Debrief

“I have stopped the recording. Thank you for taking the time to participate in this study. Later today, you will receive an email with a link to a short post-session questionnaire. For your participation, you are both being reimbursed for your time spent participating in this study.”

“Do you have any questions?”

“Thank you again for participating. If you have any additional questions, do you have Dr. Murphy’s or my contact information that was given in the survey? If not, I can give that to you now: tyler.murphy.1201@students.mwsu.edu or kristy.baxter@ubc.ca. Bye.”
Appendix E: Example Standardized Patient Script

Ms. Ellen Reese is a 30-year-old woman with chronic pain, anxiety, and insomnia. She was in a car accident a year ago when the car she was driving was T-boned in an intersection. She sustained a neck injury, fractured ribs, and pelvis. She is taking narcotics for her pain and she’s been having trouble sleeping since then. She has not driven since the accident. She is a single parent of a six-year-old daughter and was divorced 3 months ago. She is on a fixed income and has a grade 10 education. She formerly worked as a clerk in a grocery store. She comes in monthly for her prescription narcotic.

Her medications are:
Hydromorph Contin 12 mg PO BID
Venlafaxine 150 mg PO once daily (anxiety)
Trazadone 25 mg PO qhs (sleep)
Lorazepam 1 mg PO TID prn (anxiety)

Here are examples of things Ms. Reese might say.

“I wish I could get back to work. But I’m worried I won’t be able to manage the pain.”

“The most important thing to me is my daughter and being there for her. I wish I had more energy and felt well enough to be more a part of her life.”

“I get short of breath and anxious whenever I have to do something that might be painful.”

“I know I should get off these narcotics. But every time I try and cut back, I feel the pain coming on I panic and take it anyway.”

“I saw something on the news about the opioid crisis and then I realized they were talking about people like me who start pain medication and can’t get off and some people overdose. That got my attention.”

“I wish I could get some massage therapy or something else but I don’t have a way to pay for it.”

“I wish I knew more about why I still hurt when the accident happened over a year ago.”

“I lie awake at night and worry about what’s going to happen.”

“It’s really hard to stay connected because I can’t drive.”

“I’m losing touch with my friends.”

“I’m angry about all the losses in my life.”

“Whenever I ride in a car with another person, I get so anxious and sometimes I end up saying things I don’t mean to about how they are driving.”
Appendix F: Example Practitioner Demographic Survey

Practitioner Demographic Survey

To create your personalized identification code, please fill the required information in the following boxes provided.

Please enter the first 3 letters of your mother's maiden name.
________________________________________________________________

Please enter 2 digits of your day of birth.
________________________________________________________________

Please enter the last 2 digits of your phone number.
________________________________________________________________

Please answer the following demographic questions.

1. How many years have you practiced as a family physician?
________________________________________________________________

2. How many hours a week, on average, are you working in your clinic?
________________________________________________________________
3. How long, on average, are your appointments with patients (in minutes)?

________________________________________________________________

4. How many patients do you have on your patient panel?

________________________________________________________________

5. What is your area of specialization?

________________________________________________________________

6. Have you received any training related to patient self-management and/or goal setting with patients (i.e. Cognitive Behavioral Therapy, Motivational Interviewing)? If yes, describe your training.

   O Yes (1) ______________________________________________________

   O No (2)

Display This Question:
If Have you received any training related to patient self-management and/or goal setting with patients... = Yes

7. How long ago, in years, did you receive your last training?

________________________________________________________________
8. Have you received any training related to patient-centred care? If yes, describe your training.

○ Yes (1) ________________________________

○ No (2)

Display This Question:
If Have you received any training related to patient-centred care? If yes, describe your training. = Yes

9. How long ago, in years, did you receive your last training?

______________________________________________________________

10. Do you have a nursing and/or other allied staff working in your clinic? If yes, please describe further.

○ Yes (1) ________________________________

○ No (2)
11. Where did you complete your family physician training? Select all that apply.

Canada (1)

United States (2)

South Africa (3)

Europe (4)

Middle East (5)

Other (6) ________________________________________________
12. How old are you (in years)?

- [ ] 35 or less (1)
- [ ] 36-40 (2)
- [ ] 41-45 (3)
- [ ] 46-50 (4)
- [ ] 51-55 (5)
- [ ] 56-60 (6)
- [ ] 61-65 (7)
- [ ] 66+ (8)
13. Which gender do you most identify with?

- Male (1)
- Female (2)
- Transgender Male (3)
- Transgender Female (4)
- Gender Variant/Non-Conforming (5)
- Not Listed - specify (6) ________________________________
- Prefer Not to Answer (7)

This completes the baseline survey. To provide your contact information to schedule your session please select 'yes' then click on the arrow in the bottom right corner.

- Yes (1)

**Contact Information**

To schedule your session with the standardized patient a medical resident (Dr. Tyler Murphy) will contact and/or meet with you to discuss a time that works for you. Please note the following information will not be linked to your previous responses.
If you agree to be contacted, please provide your name, email, and a phone number to contact you at:

- Name (1) ________________________________________________
- Email (2) ________________________________________________
- Phone Number (3) __________________________________________

If you have any questions or would like further information about this study, you may contact Dr. Heather Gainforth at (250) 807-9352 or by email at heather.gainforth@ubc.ca. You may also contact Kristy Baxter at kristy.baxter@ubc.ca or Dr. Tyler Murphy at tyler.murphy.1201@students.mwsu.edu.
Appendix G: Example Practitioner and Standardized Patient Working Alliance Inventory Surveys

Working Alliance Inventory Practitioner Version

Please fill the required ID information in the following boxes provided.

________________________________________________________________
Please enter the first 3 letters of your mother's maiden name.

________________________________________________________________
Please enter the 2 digits of your day of birth.

________________________________________________________________
Please enter the last 2 digits of your phone number.

________________________________________________________________

The video-conference appointment I just experienced was representative of a real life appointment with a patient.

☐ Strongly Agree (1)

☐ Agree (2)

☐ Neutral (3)

☐ Disagree (4)

☐ Strongly Disagree (5)
Please choose the number which best represents how you felt or thought about your patient during the session.

<table>
<thead>
<tr>
<th>1. I felt uncomfortable with Ms. Reese.</th>
<th>(1) Never</th>
<th>(2) Rarely</th>
<th>(3) Occasionally</th>
<th>(4) Sometimes</th>
<th>(5) Often</th>
<th>(6) Very Often</th>
<th>(7) Always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Ms. Reese and I agreed about the steps to be taken to improve her situation.</th>
<th>(1) Never</th>
<th>(2) Rarely</th>
<th>(3) Occasionally</th>
<th>(4) Sometimes</th>
<th>(5) Often</th>
<th>(6) Very Often</th>
<th>(7) Always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. I had some concerns about the outcome of the appointment.</th>
<th>(1) Never</th>
<th>(2) Rarely</th>
<th>(3) Occasionally</th>
<th>(4) Sometimes</th>
<th>(5) Often</th>
<th>(6) Very Often</th>
<th>(7) Always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. My patient and I both felt confident about the usefulness of our activity in the appointment.</th>
<th>(1) Never</th>
<th>(2) Rarely</th>
<th>(3) Occasionally</th>
<th>(4) Sometimes</th>
<th>(5) Often</th>
<th>(6) Very Often</th>
<th>(7) Always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. I felt I really understood Ms. Reese.

6. Ms. Reese and I had a common perception of her goals.

7. Ms. Reese found what we were doing in the appointment confusing.

8. I believe Ms. Reese likes me.

9. I sensed a need to clarify the purpose of our appointment for Ms. Reese.

10. I had some disagreements with Ms. Reese about the goals of the appointment.

11. I believe the time Ms. Reese and I spent together was not spent efficiently.

12. I had doubts about what we were trying to accomplish in the appointment.

13. I was clear and explicit about what Ms. Reese's responsibilities were in the appointment.

14. The goals of the appointment were important for Ms. Reese.

15. I found what Ms. Reese and I were doing in the appointment was unrelated to her current concerns.
16. I felt confident that the things we did in the appointment will help Ms. Reese to accomplish the changes she desires.

17. I was genuinely concerned for Ms. Reese's welfare.

18. I was clear as to what I expected Ms. Reese to do in the appointment.

19. Ms. Reese and I respected each other.

20. I felt that I was not totally honest about my feelings toward Ms. Reese.

21. I was confident in my ability to help Ms. Reese.

22. We were working towards mutually agreed upon goals.

23. I appreciated Ms. Reese as a person.

24. We agreed on what is important for Ms. Reese to work on.

25. As a result of the appointment Ms. Reese is clearer as to how she might be able to change.

26. Ms. Reese and I have built a mutual trust.

27. Ms. Reese and I have different ideas on what her real problems are.
28. Our relationship is important to Ms. Reese.

29. Ms. Reese had some fears that if she said or did the wrong things, I would stop working with her.

30. Ms. Reese and I had collaborated in setting goals for the appointment.

31. Ms. Reese was frustrated by what I was asking her to do in the appointment.

32. We had a good understanding between us of the kind of changes that would be good for Ms. Reese.

33. The things that we were doing in the appointment didn’t make much sense to Ms. Reese.

34. Ms. Reese didn’t know what to expect as the result of the appointment.

35. Ms. Reese believed the way we were working with her problem was correct.

36. I respected Ms. Reese even when she did things that I did not approve of.

Please complete a South Okanagan Division of Family Practice "Sessional Payment and Expense Form" to be reimbursed for your time participating in this study. The form is to be billed under "Patient Medical Home" and will not compromise your confidentiality in this study.
Working Alliance Inventory Patient Version

Please state which session number this is.

__________________________________________
Please choose the number which best represents how you felt or thought about your doctor during the session.

<table>
<thead>
<tr>
<th>Choose from (1) Never to (7) Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Never</td>
</tr>
</tbody>
</table>

1. I felt uncomfortable with _______.

   |   |   |   |   |   |   |   |
   |   |   |   |   |   |   |   |

2. ________ and I agreed about the things I needed to do in the appointment to help improve my situation.

   |   |   |   |   |   |   |   |
   |   |   |   |   |   |   |   |

3. I was worried about the outcome of the appointment.

   |   |   |   |   |   |   |   |
   |   |   |   |   |   |   |   |
4. What I was doing in the appointment gave me new ways of looking at my problem.

5. ________ and I understood each other.

6. ________ perceived accurately what my goals were.

7. I found what I was doing in the appointment confusing.

8. I believe ________ likes me.

9. I wish ________ and I could have clarified the purpose of our appointment.

10. I disagreed with about what I ought to get out of the appointment.

11. I believe the time ________ and I spent together was not spent efficiently.

12. ________ did not understand what I was trying to accomplish in the appointment.

13. I was clear on what my responsibilities were in the appointment.

14. The goals of the appointment
15. I found what ________ and I were doing in the appointment was unrelated to my concerns.

16. I felt the things I did in the appointment helped me to accomplish the changes that I wanted.

17. I believe ________ was genuinely concerned for my welfare.

18. I was clear as to what ________ wanted me to do in the appointment.

19. ________ and I respected each other.

20. I felt that ________ was not totally honest about his/her feelings toward me.

21. I was confident in ________'s ability to help me.

22. ________ and I were working towards mutually agreed upon goals.

23. I felt that ________ appreciated me.

24. We agreed on what was
important for me to work on.

25. As a result of this appointment I became clearer as to how I might be able to change.

26. _______ and I trust one another.

27. _______ and I had different ideas on what my problems were.

28. My relationship with _______ is very important to me.

29. I had the feeling that if I said or did the wrong things, _______ would stop working with me.

30. _______ and I collaborated on setting goals during my appointment.

31. I was frustrated by the things I was doing in the appointment.

32. We had a good understanding of the kind of changes that would be good for me.

33. The things that _______ was asking me to do did not make sense.

34. I did not know what to expect as the result of the appointment.
Appendix H: Example Transcript to Demonstrate Coding Process

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Transcript</th>
<th>Researcher 1</th>
<th>Researcher 2</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
<td>What concerns do you have today?</td>
<td>QUC</td>
<td>QUO</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Patient</td>
<td>I have been having some trouble sleeping lately and it has really been bothering me.</td>
<td>GI//RCS</td>
<td>RCS</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Doctor</td>
<td>Are you taking sleeping pills?</td>
<td>QUC</td>
<td>QUC</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Patient</td>
<td>No, I’m not right now.</td>
<td>GI</td>
<td>GI</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix I: Example Coding Manual

#### Doctor Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Title</th>
<th>Code Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG</td>
<td>Agree</td>
<td>The doctor makes a comment to indicate that they are in agreement with something the patient has said. Doctor provides an answer when it is expected. Confirmation of a guess. E.g., “Absolutely!”</td>
<td>PM Manual</td>
</tr>
<tr>
<td>ADP</td>
<td>Advice with permission</td>
<td>The doctor gives advice, makes a suggestion, or offers a solution or possible action. These will usually contain language that indicates that advice is being given: should, why don’t you, consider, try, suggest, advise, you could, etc. Prior permission can be in the form of a request from the patient, or in the doctor asking the patient’s permission to offer it. Indirect forms of permission asking may also occur, such as</td>
<td>MISC</td>
</tr>
<tr>
<td>ADW</td>
<td>Advice without permission</td>
<td>The doctor gives advice, makes a suggestion, or offers a solution or possible action. These will usually contain language that indicates that advice is being given: should, why don’t you, consider, try, suggest, advise, you could, etc. If the doctor provides a summary of advice with information embedded, code for advice. E.g., “You could check out the website PainBC to get more information.”</td>
<td>MISC</td>
</tr>
<tr>
<td>AF</td>
<td>Affirm</td>
<td>The doctor says something positive or complimentary to the patient. It may be in the form of expressed appreciation, confidence or reinforcement. The doctor comments on the patient’s strengths or efforts. Appreciation. The doctor compliments the patient on a trait, attribute, or strength. The reference can be to a “stable, internal” characteristic of the client, something positive that refers to an aspect of the client that would endure across time or situations (smart, resourceful, patient, strong, etc.). It may also be for effort. E.g., “I’ve enjoyed talking with you today.” &amp; “Thank you for coming today.” Confidence. The doctor makes a remark that bespeaks confidence in the patient’s ability to do something, to make a change; it predicts success, or otherwise supports patient self-efficacy. These are related to a particular task, goal, or change. E.g., “You’ve succeeded through some difficult changes in the past.” Reinforcement. These are general encouraging or “applause” statements even if they do not directly comment on a patient’s nature, and do not speak directly to self-efficacy. They tend to be short. E.g., “Good for you.”</td>
<td>MISC</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Example</td>
<td>Notes</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>CO</td>
<td>Confront</td>
<td>These are expert-like responses that have a particular negative-parent quality, an uneven power relationship accompanied by disapproval, disagreement, or negativity. There is a sense of “expert over-ride” of what the patient says. The doctor directly disagrees, argues, corrects, shames, blames, seeks to persuade, criticizes, judges, labels, moralizes, ridicules, or questions the client’s honesty. Included here are utterances that have the form of questions or reflections, but through their content or emphatic voice tone clearly constitute a roadblock or confrontation. If you are in doubt as to whether a behaviour was a Confront or some other code do not code it as Confront. Confront should be unmistakably confrontational Subtle inference is not sufficient reason to code a doctor’s behaviour as Confront. Re-emphasizing negative consequences that are already known by the patient constitutes a Confront, except in the context of a Reflection. The Reflection restates information presented by the patient and is merely reflected back to the patient without disapproval or negativity. E.g., “Don’t you understand what drinking is doing to your health?”</td>
<td>MISC</td>
</tr>
<tr>
<td>DI</td>
<td>Direct</td>
<td>The doctor gives an order, command, or direction. The language is imperative. E.g., “Get out there and find support.” Phrases with the effect of the imperative tone include: - “You need to _______. “ - “I want you to _______. “ - “You have to _______. “ - “You must _______. “ - “You can’t _______. “</td>
<td>MISC</td>
</tr>
<tr>
<td>EC</td>
<td>Emphasize control</td>
<td>The doctor directly acknowledges, honors, or emphasizes the patient’s freedom of choice, autonomy, personal responsibility, etc. This may also be stated in the negative, as in “Nobody can make you change.” There is no tone of blaming or faultfinding. Statements acknowledging the patient’s autonomy in an accomplishment are coded as Emphasize Control rather than Affirm. Emphasize Control takes precedence over Affirm or Reflect when a doctor response could be interpreted as both.</td>
<td>MISC</td>
</tr>
<tr>
<td>Code</td>
<td>Category</td>
<td>Description</td>
<td>Code</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>FA</td>
<td>Facilitate</td>
<td>These are simple utterances that function as keep going acknowledgements. Facilitate responses are stand alone utterances. They do not usually occur with other doctor responses in the same volley. Do not code as Facilitate if the vocal sound is a preface to some other doctor response like a Question or a Reflect. In these combinations, code only the second response. Do not code as Facilitate if the vocal sound serves as a time holder (uh…) that serves to delay the patient’s response, rather than having the “go ahead” function. These are not coded at all. Instead what follows is coded. E.g., “Mm Hmm.” “OK.” “Tell me more.” “I see.” Do not code if it breaks up a line of OTH.</td>
<td>MISC</td>
</tr>
<tr>
<td>FI</td>
<td>Filler</td>
<td>This is a code for the few responses that are not codeable elsewhere: pleasantries, etc. It should not be used often. If these exceed 5% of Doctor responses, they are probably being over-coded. E.g., “Nice weather today!”</td>
<td>MISC</td>
</tr>
<tr>
<td>GI</td>
<td>Giving Information</td>
<td>The doctor gives information to the patient, explains something, educates or provides feedback or discloses personal information. When the doctor gives an opinion but does not advise, this category would be used. Some example types of Giving Information include providing feedback from assessment instruments, explaining ideas or concepts relevant to the intervention, or educating about a topic. E.g., “Individuals who eat five fruits and vegetables each day reduce their cancer risk five fold. For certain kinds of cancer, like colon cancer, it’s even more of a reduction.”</td>
<td>MISC</td>
</tr>
<tr>
<td>QUC</td>
<td>Closed question</td>
<td>The doctor asks a question in order to gather information, understand, or elicit the client’s story. Generally these begin with a question marker word: Who, What, Why, When, How, Where, etc. A question may be stated in imperative statement language. There may be two separate utterances that constitute both a Reflect and a Question. In transcript these would usually be written as separate sentences. Sometimes, however, the doctor begins with a Reflect but turns it into a Question to check the</td>
<td>MISC</td>
</tr>
</tbody>
</table>
accuracy of the Reflection or to move forward. When both elements are present within the same utterance, only the Question is coded.

The question implies a short answer: Yes or no, a specific fact, a number, etc. The question specifies a restricted range or satisfies a questionnaire or multiple-choice format. This includes a “spoiled open question” where the doctor begins with an open question but ends it by asking a Closed Question. In this case, the QUO is not coded, but only QUC.

If there is an expected answer, code as QUC.

E.g., “Where do you live?”

| QUO | Open question | The doctor asks a question in order to gather information, understand, or elicit the client’s story. Generally these begin with a question marker word: Who, What, Why, When, How, Where, etc. A question may be stated in imperative statement language. There may be two separate utterances that constitute both a Reflect and a Question. In transcript these would usually be written as separate sentences. Sometimes, however, the doctor begins with a Reflect but turns it into a Question to check the accuracy of the Reflection or to move forward. When both elements are present within the same utterance, only the Question is coded.

An open question is coded when the doctor asks a question that allows a wide range of possible answers. The question may seek information, invite the patient’s perspective, or encourage self-exploration. The Open Question allows for the option of surprise for the doctor.

If a doctor asks an Open Question and then gives a series of “for example” questions before the patient answers, this is coded as one Open Question.

An Open Question need not be in the form of a question. “Tell me more”, is an Open Question.

E.g., “How might you be able to do that?” |

| RCP | Raise concern with permission | The doctor points out a possible problem with a patient’s goal, plan, or intention. It always contains language that marks it as the doctor’s concern (rather than fact).

Prior permission can be in the form of a request from the patient or in the doctor asking the patient’s permission to offer it. Indirect forms of permission asking may also occur, such as a doctor’s statement that gives the patient permission to disregard the doctor’s concern. |

| MISC | |

RCP Raise concern with permission

The doctor points out a possible problem with a patient’s goal, plan, or intention. It always contains language that marks it as the doctor’s concern (rather than fact).

Prior permission can be in the form of a request from the patient or in the doctor asking the patient’s permission to offer it. Indirect forms of permission asking may also occur, such as a doctor’s statement that gives the patient permission to disregard the doctor’s concern.
| RCW | Raise concern without permission | The doctor points out a possible problem with a patient’s goal, plan, or intention. It always contains language that marks it as the doctor’s concern (rather than fact).

Raise Concern may include elements of possible negative consequences as long as these are expressed as the doctor’s own concern.

Something that the patient is doing is a problem and the doctor is pointing it out.

E.g., “I think you may wind up using again with your old friends.” |
| RES | Simple reflection | A reflection is a reflective listening statement made by the doctor in response to a patient statement. Reflections capture and return to the patient something that the patient has said. Reflections can simply repeat or rephrase what the patient has said or may introduce new meaning or material. Reflections can summarize part of all of a session.

Simple reflections add little or no meaning or emphasis to what the patient has said. Simple reflections merely convey understanding or facilitate patient/doctor exchanges. Simply repeating or rephrasing what the patient has said qualifies as a simple reflection. They may identify very important or intense patient emotions but not go far beyond the original overt content of the patient’s statement.

Reflections can end in a question mark, but are usually more of a guess and require a confirmation (agree or disagree) from the patient.

Summaries pull together points from two or more prior patient turns. Summaries are usually Complex Reflections, but can be coded as Simple Reflections if they add little or nothing to prior patient statements. When in doubt, code a summary reflection as complex (REC).

E.g., “That’s why you’re here.” |
| REC | Complex reflection | A reflection is a reflective listening statement made by the doctor in response to a patient statement. Reflections capture and return to the patient something that the patient has said. Reflections can simply repeat or rephrase what the patient has said or may introduce new meaning or material. Reflections can summarize part of all of a session. Complex reflections typically add substantial meaning or emphasis to what the patient has said. They convey a deeper or richer picture of the patient’s statement. They contain significantly more or different content from what the patient actually said. The doctor may add subtle or obvious content or meaning to the patient’s words. The following are almost always Complex Reflections:  
- Analogy, metaphor and simile (not stated by the patient)  
- Exaggeration or amplification by understating or overstating  
- “Continuing the paragraph” by anticipation of what the patient might reasonably say next  
- Double-sided reflection containing both sides of ambivalence in a single Reflect  
- Summaries are usually coded as Complex Reflections when they add content or meaning to patient statements.  
E.g., “So you’re kind of wondering what it would be like here.” | MISC |
| --- | --- | --- |
| RF | Reframe | The doctor suggests a different meaning for an experience expressed by the patient, placing it in a new light. These generally have the quality of changing the emotional valence of meaning from negative to positive or from positive to negative. Reframes generally meet the criteria for Reflect but go further than adding meaning or emphasis by actually changing the valence of meaning and not just the depth. Reframing can involve giving the patient new information in order to see their situation from a different perspective.  
E.g., Patient: “My husband is always nagging me about that.”  
Doctor: “Sounds like he’s pretty concerned about you.” | MISC |
| SU | Support | These are generally sympathetic, compassionate, or understanding comments. They have the quality of agreeing or siding with the client. Examples of Support:  
- “You’ve got a point there.” – Agreement | MISC |
**ST** Structure  
To give information about what’s going to happen directly to the patient throughout the course of treatment or within a study format, in this or subsequent sessions. To make a transition from one part of a session to another.

Doctor provides information on the setting of the session.

Doctor describes past sessions or how sessions normally go.

E.g., “What we normally do is start by asking you about your eating habits.”

**WA** Warn  
The doctor provides a warning or threat, implying negative consequences unless the patient takes a certain action. It may be a treat that the doctor has the perceived power to carry out or simply the prediction of a bad outcome is the patient takes a certain course.

E.g., “You’re going to relapse if you don’t get out of this relationship.”

**OTH** Other  
The doctor discusses something that does not relate or fit with any of the other codes.

There are technical difficulties discussed.

Something is inaudible or undecipherable.

The introduction to the session and any ending conversation unrelated to the session are coded as Other.

**LIS** Listening  
Coded whenever the patient is talking. It is assumed that the doctor is listening.

---

### Patient Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Title</th>
<th>Code Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>Giving information</td>
<td>The patient gives information to the doctor, explains something, educates, provides feedback, discloses personal information, or gives information about somebody else. General information that does not have the overall feeling of concern or worry. E.g., “I was in a car accident about a year ago.”</td>
<td>MISC</td>
</tr>
<tr>
<td>RCS</td>
<td>Raise concern about self</td>
<td>The patient points out a possible problem with their own goal, plan, intention, behaviour, or current situation. It always contains language that marks it as their own concern (rather than fact). The patient points out something they are concerned about.</td>
<td>Modified from MISC PM Manual</td>
</tr>
</tbody>
</table>
concerned or worried about. The patient is seeking help from the doctor.

If RCS and GI could both be coded, RCS takes precedence as the main code.

If there is background information around the concern, code all as RCS not GI.

E.g., “I’m having trouble falling asleep lately.”

<p>| QUC | Closed question | The patient asks a question in order to gather information. Generally these begin with a question marker word: Who, What, Why, When, How, Where, etc. A question may be stated in imperative statement language. There may be two separate utterances that constitute both a Reflect and a Question. In transcript these would usually be written as separate sentences. Sometimes, however, the doctor begins with a Reflect but turns it into a Question to check the accuracy of the Reflection or to move forward. When both elements are present within the same utterance, only the Question is coded. The question implies a short answer: Yes or no, a specific fact, a number, etc. The question specifies a restricted range or satisfies a questionnaire or multiple-choice format. This includes a “spoiled open question” where the patient begins with an open question but ends it by asking a Closed Question. In this case, the QUO is not coded, but only QUC. If there is an expected answer, code as QUC. E.g., “Where do you live?” | MISC |
| QUO | Open question | The patient asks a question in order to gather information. Generally these begin with a question marker word: Who, What, Why, When, How, Where, etc. A question may be stated in imperative statement language. There may be two separate utterances that constitute both a Reflect and a Question. In transcript these would usually be written as separate sentences. Sometimes, however, the doctor begins with a Reflect but turns it into a Question to check the accuracy of the Reflection or to move forward. When both elements are present within the same utterance, only the Question is coded. An open question is coded when the patient asks a question that allows a wide range of possible answers. The question may seek information or invite the doctor’s perspective. The Open Question allows for the option of surprise for the patient. | MISC |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG</td>
<td>Agree</td>
<td>The patient makes a comment to indicate that they are in agreement with something the doctor has said. Patient provides an answer when it is expected. Confirmation of a guess. E.g., “That’s exactly right.”</td>
</tr>
<tr>
<td>DG</td>
<td>Disagree</td>
<td>The patient makes a comment to indicate that they disagree with something the doctor has said. E.g., “No, I don’t want to do that.”</td>
</tr>
<tr>
<td>FA</td>
<td>Facilitate</td>
<td>These are simple utterances that function as keep going acknowledgements. Facilitate responses are stand alone utterances. They do not usually occur with other doctor responses in the same volley. Do not code as Facilitate if the vocal sound is a preface to some other doctor response like a Question or a Reflect. In these combinations, code only the second response. Do not code as Facilitate if the vocal sound serves as a time holder (uh…) that serves to delay the patient’s response, rather than having the “go ahead” function. These are not coded at all. Instead what follows is coded. E.g., “Mm Hmm.” “OK.” “Tell me more.” “I see.”</td>
</tr>
<tr>
<td>FI</td>
<td>Filler</td>
<td>This is a code for the few responses that are not codeable elsewhere: pleasantries, etc. E.g., “Nice weather today!”</td>
</tr>
<tr>
<td>CL</td>
<td>Commitment Language</td>
<td>Language implies an agreement, intention, or obligation regarding future behaviour change or steps that have taken towards behaviour change. Commitment can be expressed directly via a committing verb, or indirectly. Has to state that they are going to do something – committed. Themes may include but are not limited to:</td>
</tr>
</tbody>
</table>
- Future plans or goals: The mentor or mentee’s statements of how they will rearrange their lives in the future relating to the behaviour change
- Steps Taken: Concrete and specific steps the mentee or mentor has recently taken toward the behaviour change. This may also include successful or unsuccessful steps that have been taken in the less recent past.

E.g., “Yeah, I’m going to give that a try.”

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTH</td>
<td>Other</td>
<td>The patient discusses something that does not relate or fit with any of the other codes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There are technical difficulties discussed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Something is inaudible or undecipherable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The introduction to the session and any ending conversation unrelated to the session are coded as Other.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT</td>
<td>Showing Interest</td>
<td>The patient is interested or open to trying something or getting new information, but does not use commitment language. The patient mentions changes they want to make, but does not commit to making them – showing interest in changing their behaviour.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I’d be interested in that.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRA</td>
<td>Showing Gratitude</td>
<td>The patient expresses gratitude to the doctor. The patient is thankful for their support, help, or guidance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does not include thanking the doctor at the end of a conversation. Must show an expression of appreciation rather than a social nicety.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E.g., “Thank you so much, I super appreciate what you’ve done.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>Structure</td>
<td>The patient discusses appointments or other things related to scheduling with the doctor.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIS</td>
<td>Listening</td>
<td>Coded whenever the doctor is talking. It is assumed that the patient is listening.</td>
</tr>
</tbody>
</table>
### Appendix J: WAI Scores and Results of State Space Grid Analyses

<table>
<thead>
<tr>
<th>Session #</th>
<th>Practitioner WAI Score</th>
<th>Patient WAI Score</th>
<th>Total WAI Score</th>
<th>Practitioner and Patient Correlation (r)</th>
<th>n1</th>
<th>n2</th>
<th>n3</th>
<th>n4</th>
<th>n5</th>
<th>Cell Range</th>
<th>Total Transitions</th>
<th>Duration Per Visit</th>
<th>n1</th>
<th>n2</th>
<th>n3</th>
<th>n4</th>
<th>n5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>164</td>
<td>221</td>
<td>385</td>
<td>0.59*</td>
<td>LS-GI (197.51)</td>
<td>GE-LS (191.22)</td>
<td>ADP-LS (141.25)</td>
<td>LS-RCS (115.20)</td>
<td>QUC-LS (83.41)</td>
<td>24</td>
<td>220</td>
<td>6.58</td>
<td>QUC-GI (9)</td>
<td>QUC-AG (7)</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 2</td>
<td>227</td>
<td>232</td>
<td>459</td>
<td>0.81*</td>
<td>OTH-LS (271.45)</td>
<td>LS-GI (208.37)</td>
<td>ADP-LS (185.92)</td>
<td>LS-OTH (120.75)</td>
<td>LS-RCS (90.33)</td>
<td>23</td>
<td>121</td>
<td>11.93</td>
<td>QUC-GI (4)</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 3</td>
<td>215</td>
<td>210</td>
<td>425</td>
<td>0.80*</td>
<td>LS-GI (239.89)</td>
<td>ADP-LS (234.54)</td>
<td>LS-RCS (191.55)</td>
<td>QUC-LS (184.53)</td>
<td>GL-LS (109.04)</td>
<td>24</td>
<td>270</td>
<td>5.72</td>
<td>QUC-GI (17)</td>
<td>ADP-FA (5)</td>
<td>QUC-AG (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 4</td>
<td>207</td>
<td>214</td>
<td>421</td>
<td>0.90*</td>
<td>LS-GI (267.67)</td>
<td>GE-LS (186.06)</td>
<td>ADP-LS (173.55)</td>
<td>LS-RCS (118.76)</td>
<td>RES-LS (99.56)</td>
<td>23</td>
<td>259</td>
<td>5.76</td>
<td>QUC-GI (13)</td>
<td>RES-AG (8)</td>
<td>ST-AG (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 5</td>
<td>205</td>
<td>183</td>
<td>388</td>
<td>0.80*</td>
<td>LS-GI (576.58)</td>
<td>LS-RCS (192.13)</td>
<td>QUC-LS (130.61)</td>
<td>ADP-LS (118.23)</td>
<td>GL-LS (102.62)</td>
<td>23</td>
<td>257</td>
<td>6.30</td>
<td>QUC-GI (17)</td>
<td>QUC-RCS (5)</td>
<td>RES-AG (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 6</td>
<td>226</td>
<td>240</td>
<td>466</td>
<td>0.93*</td>
<td>LS-RCS (331.87)</td>
<td>LS-GI (204.20)</td>
<td>ADP-LS (136.32)</td>
<td>SU-LS (108.83)</td>
<td>QUC-LS (95.77)</td>
<td>24</td>
<td>127</td>
<td>10.98</td>
<td>QUC-GI (8)</td>
<td>QUC-RCS (6)</td>
<td>ST-AG (3)</td>
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<td></td>
</tr>
<tr>
<td>Session 7</td>
<td>206</td>
<td>179</td>
<td>355</td>
<td>0.67*</td>
<td>LS-GI (269.63)</td>
<td>LS-RCS (211.75)</td>
<td>QUC-LS (197.53)</td>
<td>ADP-LS (191.16)</td>
<td>ADW-LS (57.03)</td>
<td>23</td>
<td>254</td>
<td>5.04</td>
<td>QUC-GI (23)</td>
<td>QUC-RCS (6)</td>
<td>QUC-FA (6)</td>
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</tr>
<tr>
<td>Session 8</td>
<td>230</td>
<td>188</td>
<td>418</td>
<td>0.76*</td>
<td>LS-GI (290.60)</td>
<td>LS-RCS (167.36)</td>
<td>ADP-LS (138.72)</td>
<td>QUC-LS (103.93)</td>
<td>RES-LS (37.28)</td>
<td>24</td>
<td>134</td>
<td>7.89</td>
<td>QUC-GI (11)</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 9</td>
<td>196</td>
<td>222</td>
<td>418</td>
<td>0.75*</td>
<td>LS-GI (452.67)</td>
<td>LS-RCS (155.06)</td>
<td>ADP-LS (132.62)</td>
<td>ADW-LS (112.03)</td>
<td>RES-LS (83.92)</td>
<td>25</td>
<td>147</td>
<td>9.97</td>
<td>QUC-GI (9)</td>
<td>QUC-INT (4)</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 10</td>
<td>188</td>
<td>197</td>
<td>385</td>
<td>0.80*</td>
<td>LS-GI (283.12)</td>
<td>LS-RCS (218.57)</td>
<td>ADP-LS (107.25)</td>
<td>QUC-LS (93.76)</td>
<td>GL-LS (83.40)</td>
<td>20</td>
<td>211</td>
<td>6.15</td>
<td>QUC-GI (14)</td>
<td>ADP-FA (6)</td>
<td>RES-AG (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 11</td>
<td>202</td>
<td>201</td>
<td>403</td>
<td>0.79*</td>
<td>LS-GI (421.87)</td>
<td>LS-RCS (199.70)</td>
<td>ADP-LS (148.95)</td>
<td>QUC-LS (97.72)</td>
<td>LS-INT (59.52)</td>
<td>17</td>
<td>89</td>
<td>13.12</td>
<td>QUC-GI (9)</td>
<td>QUC-RCS (5)</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: WAI = working alliance inventory; * = significant at p ≤ 0.01; LS = listening; GL = giving information; ADP = advice with permission; RCS = raise concern about self; OTH = other; QUC = closed question; RES = simple reflection; SU = support; ADW = advice without permission; INT = showing interest; AG = agree; FA = facilitate; ST = structure; N/A = not applicable; $z$ = seconds.