

Psychometric Properties and Descriptive Characteristics of Clients by Using Two Theory-based Assessments

BY

CHIA-WEI FAN

B.S., National Cheng Kung University, 2006

M.S., National Taiwan University, 2008

THESIS

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Defense Committee:

Renee Taylor, Chair and Advisor

Yolanda Suarez-Balcazar

Gail Fisher

Tamar Heller, Disability and Human Development

Elin Ekbladh, Department of Social and Welfare Studies, Linköping University, Sweden

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DEDICATION

To my father, Kang-Chu Fan, and my husband, Hsin-Hsiung Huang, for their unwavering support and encouragement over the years.

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Abstract

In the field of occupational therapy, few studies have examined clients' experiences of rehabilitation from the perspectives of occupational participation and therapeutic communication (i.e., use of self). This dissertation explored these important aspects of therapy utilizing Kielhofner's (2008) Model of Human Occupation and Taylor's (2008) Intentional Relationship Model. The overarching purpose of this dissertation is two-fold. Firstly, it applies Rasch Analysis to examine the psychometric properties of two theory-based assessments- the Model of Human Occupation Screening Tool (MOHOST) and the Clinical Assessment of Modes (CAM). Secondly, this dissertation provides insight into the occupational and interpersonal characteristics of occupational therapy clients using these two assessments.

Study I

Methods

Clinical information including the MOHOST, Health of Nation Outcome Scales (HoNOS) and Historical, Clinical, Risk-Management – 20 (HCR-20) were collected on 489 patients in low and medium secure units across six trusts in England. Seventy-eight occupational therapists participated in this study. The independent t-test and correlation analysis were employed to examine relationships between risk factors, symptom profiles, and occupational participation. The regression analysis was used to examine clients' occupational participation changes over time.

Results & Conclusions

Clients in low security settings had higher occupational participation than clients in medium secure settings. Clients' current risk factors and some items in HoNOS were associated with their

participation. Findings in this study also indicated improvements in clients' occupational participation over time during the 2-year follow-up. These results can be used to inform occupational therapy pathways and protocols. Findings also confirmed that the MOHOST is a valid and reliable assessment for a forensic population.

Study II

Methods

The CAM was administered to 110 neurological and orthopedic clients who were receiving rehabilitation services at the University of Illinois at Chicago Hospital & Health Sciences System (UICHSS). Thirty-eight therapists and students (including OT, PT and ST) participated in this study. Rasch analysis was used to examine the appropriateness of the rating scales and unidimensionality of the six modes in CAM. The internal consistency, targeting appropriateness and inter-rater reliability were analyzed as well.

Results & Conclusions

The Rasch analysis confirmed the item set in six modes meet the criteria of unidimensionality. The four version of CAM exhibited satisfactory construct validity and internal consistency. The CAM observational version demonstrated strong inter-rater reliability. Additionally, the CAM showed that clients and therapists differed in their perceptions on therapeutic communication modes.

Findings from this study indicated that all four versions of the Clinical Assessment of Modes, a client and therapist self-report and observational measure derived from the Intentional Relationship Model, demonstrated strong validity and reliability.

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CHAPTER 1

INTRODUCTION

In the field of occupational therapy, few studies have examined clients' experiences of rehabilitation from the perspectives of occupational participation and therapeutic communication (i.e., use of self). This dissertation explored these important aspects of therapy utilizing Kielhofner's Model of Human Occupation (2008) and Taylor's Intentional Relationship Model (2008). The overarching purpose of this dissertation is two-fold. First, it applies Rasch Analysis (Rasch, 1960) to examine the psychometric properties of two theory-based assessments- the Model of Human Occupation Screening Tool (MOHOST) (Parkinson, Forsyth, & Kielhofner, 2006) and the Clinical Assessment of Modes. Four versions of the Clinical Assessment of Modes were examined in this study: the Clinical Assessment of Modes, Client Preferences version, CAM-C1 (Taylor, Wong, Fan, Kjellberg, Alfredsson-Agren, Andersson, & Zubel, 2013a); the Clinical Assessment of Modes, Client Outcomes version, CAM-C2 (Taylor, Wong, Fan, Kjellberg, Alfredsson-Agren, Andersson, & Zubel, 2013b); the Clinical Assessment of Modes, Therapist Outcomes version, CAM-T (Taylor, Wong, Fan, Kjellberg, Alfredsson-Agren, Andersson, & Zubel, 2013c), and the Clinical Assessment of Modes, Observational version, CAM-O (Fan, Taylor, Wong, & Zubel, 2013). Secondly, this dissertation provides insight into the occupational and interpersonal characteristics of occupational therapy clients using these two assessments. These two assessments are grounded in two conceptual practice models: the MOHOST is based upon the Model of Human Occupation (MOHO) (Kielhofner, 2008) and the CAM is based upon the Intentional Relationship Model (IRM) (Taylor, 2008), respectively.

To accomplish these objectives, two studies were conducted, each reflecting a different client population. The sample for the first study (Study 1) was an inpatient forensic population of

clients incarcerated for criminal behavior and hospitalized for the purposes of psychiatric rehabilitation. The sample for the second study consisted of inpatient and outpatient clients undergoing orthopedic or neurological rehabilitation at a U.S. hospital.

The first study is a psychometric and longitudinal analysis of an existing dataset derived from clinical records in six forensic hospitals (i.e., rehabilitative prison settings) in England. In order to test the psychometric properties of the MOHOST (Parkinson, Forsyth, & Kielhofner, 2006), we examined the correlation between the MOHOST and Health of the Nation Outcomes Scale (HoNOS) (Dickens, Sugarman, & Walker, 2007). Additionally, in order to describe the clinical characteristics and occupational profiles of forensic clients in England, we examined relationships between symptom profiles, risk factors, and occupational participation (as defined by MOHO). To do this we used three widely used assessments: the Health of the Nation Outcomes Scale (HoNOS) (Dickens, Sugarman, & Walker, 2007), the HCR-20 (Webster, Douglas, Eaves, & Hart, 1997), and the MOHOST (Parkinson, Forsyth, & Kielhofner, 2006). The aim of Study 1 was to contribute to the understanding of forensic clients' occupational profiles and their occupational participation over time.

The second study examines the psychometric properties of a newly-developed set of assessments that measure therapeutic communication (i.e., use of self) from four different perspectives: the client's pre-therapy preferences for the therapist's communication modes before therapy; the client's post-therapy-perception of the communication modes that were actually used in therapy, the therapist's post-therapy perception of her or his use of communication modes, and an observational measure that enables a trained rater to rate the therapist's use of communication modes while therapy is actually taking place. This study examined the assessments' reliability and validity using Rasch analysis.

CHAPTER 2

LITERATURE REVIEW

1. Occupational Therapy and Participation

The change of focus from “handicap” to “participation” within the International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001) has inspired a body of research on participation (Perenboom & Chorus, 2003; Hemmingsson & Jonsson, 2005; O’Donovan, Doyle, & Gallagher, 2009). Accordingly, participation has been defined from different perspectives depending upon the context in which it is being examined. According to the World Health Organization, “activity” represents the capacity to engage in a particular task; “participation” is the observable performance within a person’s life situation (World Health Organization, 2001). In other words, occupational participation refers to engaging in education, work, activities of daily living, leisure, and activities that are part of one’s sociocultural and physical contexts. Occupational participation has always been viewed as an important long-term outcome of medical, rehabilitation, and social services. As said by Dr. Law, “It is a vital part of human life. It influences life satisfaction and a person’s sense of competence and is essential for one’s psychological, emotional, and skill development (Law, 2002)”. Viemero and Krause (1998) studied the quality of life of clients with physical disabilities and found their life satisfaction was significantly associated with clients’ occupational status, involvement in meaningful activities, and social integration. Through participation, people learn and obtain needed skills and gain competencies through the learning process. They have a chance to connect with friends, family and communities, and even find purpose and meaning of their life.

While participation is defined in the ICF as “involvement in a life situation,” participation restrictions are defined as “problems an individual may experience in involvement in life situations” (World Health Organization, 2001, p. 213). Participation is not only known to enhance quality of life, but research also shows that a lack of participation leads to poor health and well-being. As Whiteford (2000) stated in a previous article: “Occupational deprivation is, in essence, a state in which a person or group of people are unable to do what is necessary and meaningful in their lives due to external restrictions. It is the state in which the opportunity to perform those occupations that have social, cultural and personal relevance is rendered difficult if not impossible. It is a reality for numerous people living around the world today (p. 200).” Indeed, many examples of the negative consequences of a lack of occupational participation exist in the world today, including those for certain clients with disabilities. Many clients with disabilities have experienced a substantial and prolonged effect on their participation. In addition, a significant association exists between disability severity and social participation (Law, 2002).

Occupational therapists are uniquely equipped to contribute to the development and enactment of occupational participation for clients with disabilities. Being occupational therapists, we seek to improve overall health and well-being through occupation. Our goal is to enable individuals to participate in everyday occupations that are meaningful to them, provide fulfillment, and engage them in everyday life with others. Just as Cardol, de Jong, and Ward (2002) said, “.....the ultimate aim of rehabilitation is to maximize a person’s participation in society”. Also, as Wilcock (1998) noted: “Occupational therapists are in the business of helping people to transform their lives through enabling them to do and to be. We are part of their process of becoming and we should constantly bear in mind the importance of this task (p. 248).” Facilitating participation in everyday occupations is the reason for occupational therapy. To

make sure participation is meaningful to individuals; clients should have senses of challenge as well as mastery feeling from the activity. This is what occupational therapists call the “just right” challenge (Law, 2002).

As participation is a multidimensional issue, occupational therapy research must examine the complex relationship among person, task, environment, and participation in occupations. When we have more knowledge about participation, we are more confident of how to enhance a client-centered and evidence-based service.

2. Model of Human Occupation

2.1 Introduction to the Model of Human Occupation

Kielhofner’s Model of Human Occupation (MOHO) was first introduced 30 years ago (Kielhofner & Burke, 1980) and, after several scrupulous revisions, resulted in the fourth edition of a text that provides an expanded theory and a wide range of practice applications (Kielhofner, 2008). Today, MOHO reflects contributions from researchers and clinicians throughout the world and has become the most frequently used model in the occupational therapy profession (Lee, 2010). The model describes humans as being composed of volition (i.e., interest, personal causation, and values), habituation (i.e., roles and habits), and performance capacity (i.e., the ability to perform daily activities, such as work, play, rest and self-care and one’s perception of his or her ability to perform). The model states that human beings interact with the physical and social environment in an open system, which means that the human system and the context are simultaneously functioning as a whole. Dr. Kielhofner stated that one can “become through doing” because humans have the capability for self-maintenance and change. That is, when people participate in work, leisure, education, or any kind of activities of daily living, they shape

and change their own abilities in varied aspects simultaneously. The environments and surroundings that people interact with also reflect and give feedback to reinforce ones' abilities. Therefore, the model views occupational therapy as a process in which clients are enabled to participate in activities in order to shape their abilities and identities.

2.2 Main Concepts of the Model of Human Occupation

MOHO provides a way of thinking about clients' occupational participation as it describes a client's occupational identity and sense of competence over time. In MOHO, human beings are described in terms of four main concepts: volition, habituation, performance capacity, and environment. Each of these components is discussed in more detail below.

Volition

Volition refers to the process by which clients are motivated toward and choose what they want to do. It includes personal causation, interests, and values (Kielhofner, 2008).

- Personal causation

Personal causation refers to clients' perceptions of their own capacities and effectiveness (Kielhofner, 2008). When people interact with their surroundings, they see themselves through the common-sense lenses of their cultures and past experiences. This allows them to acquire insight into the kind of knowledge and activity they have and what is expected from the contexts around them. When clients perform an activity, they generate thoughts along with feelings of their confidence about their physical, psychological and social interaction abilities. Consequently, they develop thoughts about how effective they are in using their capacities in each aspect (Kielhofner, 2008).

- Values

Values are inner beliefs that clients use to describe what is good and bad, right and wrong, and what constitutes a priority in their lives. According to Kielhofner (2008), values usually influence our perspectives on occupations and result in different choices. It's sometimes worked as obligations direct our views of what is worthy and correctness.

- Interests

Interests are natural dispositions toward occupations (Kielhofner, 2008). For example, people have different tendencies to enjoy exercise or social activities. In MOHO, interests are generated and accumulated from the experience of pleasure and satisfaction in engaging in occupations (Kielhofner, 2008). People are more likely to enjoy what they can perform with some level of proficiency (Kielhofner, 2008). Therefore, it is possible to develop interests through engaging in occupations with which they have had a past positive experience (Kielhofner, 2008).

Habituation

Habituation refers to a process that doing is organized and systematized into recurrent patterns of behavior. The habituated routines of behavior are governed by habits and roles (Kielhofner, 2008).

- Habits

Through repeated experience, people become familiar with tasks and environments, and learn a kind of map for doing things. Therefore, people's behaviors and responses to specific

situations become automated (Kielhofner, 2008). Habits influence how clients perform routine activities. For example, how they typically use their time, and what their style of behaviors are like. Because of one's habits, most routines of daily life unfold automatically and predictably.

- Roles

People see themselves as students, workers, volunteers, family members, etc. and recognize that they should behave in certain ways to fulfill these roles (Kielhofner, 2008). The internalized roles also give people self-identity and give them a sense of the responsibility toward these roles. Every role also places expectations on people. For a specific role, we expect some level of task performance, time use, or required activities. Therefore, roles provide structure and regularity to life.

Performance Capacity

A number of occupational therapy conceptual practice models seek to explain capacities that make occupational performance possible. These models provide detailed concepts from an objective point of view for understanding aspects of performance capacity. In MOHO, performance capacity not only focus on objective ability but also focuses on subjective experience (Kielhofner, 2008). MOHO refers both the underlying objective mental and physical abilities and also the lived experience that shapes one's occupational performance (Kielhofner, 2008).

Three skills are categorized by MOHO. Motor skills refer to the ability to move or take objects. This skill includes actions such as manipulating, lifting, and transporting objects. Process skills refer to logically sequencing actions over time, selecting and using appropriate

tools and materials, and adapting performance when encountering problems. It includes actions such as choosing appropriate objects, organizing objects in space, initiating and terminating performance. Communication and interaction skills refer to the ability to convey intentions and needs, and to coordinate social interaction with others. It includes actions such as gesturing, physically contacting a person, making eye contact, speaking, collaborating and having relationships with others.

Environment

The environment in MOHO is defined as particular physical and social features of a specific context. This context is reciprocally involved in a complex interaction between an individual's volition, habitation and performance capacity (Kielhofner, 2008). One cannot fully understand occupational participation without reference to all these contributing factors as they make simultaneous contributions to one's doing. According to Kielhofner (2008), our performance, reflection and sensation come out of that dynamic in a whole.

2.3 Model of Human Occupation and Occupational Participation

In this dissertation, occupational participation is defined in terms of MOHO. Occupational participation in MOHO can be viewed as both personal and contextual (Kielhofner, 2008). It is personal due to the types of participation in which a person will engage. This participation is influenced by the person's unique interests, background, previous experience, roles, habits, abilities and limitations. It is contextual due to fact that the environment can either facilitate, enable or restrict the person's occupational participation (Kielhofner, 2008). A recent study about the experiences of participation among clients with chronic musculoskeletal pain was

conducted by Kvam and colleagues (Kvam, Eddie, & Vik, 2012). They found that participation includes the experience of what is important and valued to clients and it is affected by the environment in which the clients are situated. This is in line with the concept of occupational participation as suggested in the Model of Human Occupation.

3. Therapeutic Communication

3.1 Introduction to Therapeutic Communication

Building and maintaining good interpersonal relations with clients are the responsibilities of a competent therapist (Croft, 1980). Since this profession began, occupational therapy has defined itself as the art and science of helping people to maximize their living function (Townsend & Polatajko, 2013). The science part of therapy play the main role as it provides the mean and justification of therapeutic theories and clinical reasoning. However, science is not the only part of clinical practice. The essence of occupational therapy lies in the art part of therapy, which applies to scientific principles of purposeful activity and human relationships; that is, establishing a pleasant client-therapist relationship and bringing the client to a renewed sense of self in relation to his or her own abilities (Gilfoyle, 1980).

To date there has been little effort to integrate all the contemporary client-therapist relationship approaches in the field of occupational therapy. Limited studies have examined how occupational therapists respond when they attempt to build up relationship with clients, but the results have been inconsistent. Therefore, it still remains less understood in the field of occupational therapy (Taylor, Lee, Kielhofner, & Ketkar, 2009). The nature of occupational therapy is to promote client-centered care (Devereaux, 1984). Framed in terms of the Intentional Relationship Model (Taylor, 2008), it is therapists' responsibility to know and understand clients'

emotions, communication styles, capacities for asserting needs, and responses to change or challenge. According to Taylor (2008), therapists must be sensitive to many variations in the emotional reactions and interpersonal behaviors of clients. Moreover, therapists must acknowledge and plan their reactions in empathic and therapeutic ways (Taylor, 2008). As a result, when clients know that therapists care enough to understand them as people, then therapists are contributing to clients' drive toward occupational participation (Taylor, 2008).

The Occupational Therapy Practice Framework (American Occupational Therapy Association, 2008) defines "therapeutic use of self" as an occupational therapy intervention. In addition, the Standards for Occupational Therapy Education (Accreditation Council of Occupational Therapy Education, 2008) also includes the following requirement as a goal of occupational therapy services: "Provide therapeutic use of self, including one's personality, insights, perceptions, and judgments as part of the therapeutic process in both individual and group interaction (Punwar & Peloquin, 2000, p. 285)."

The term "therapeutic use of self" is used to refer to the therapist's conscious efforts to optimize the therapeutic relationship (Cole & McLean, 2003). Davidson (2011) stated that therapeutic use of self was operationalized as "a set of behaviors that result from a dynamic interaction of intrapersonal and interpersonal abilities employed by therapists to facilitate clients' success in meeting agreed-upon goals". Occupational therapists, with their emphasis on daily occupations, must take advantage of this unique opportunity to develop therapeutic relationships with clients. For example, while working with a client, a good therapist may observe the client's balance and hand function to evaluate their daily participation, but at the same time, the therapist listens to the client's complaints of depression and pain, and then empathizes with the client as he or she attempts functional participation in the community (Odawara, 2005). When interacting

with a client, occupational therapists' knowledge of their own attitudes is crucial as well as an awareness of how these attitudes are being communicated to a client.

A caring attitude is the key component of therapeutic use of self. Peloquin (2002) found that clients desire more than simply technical competence from therapists. Clients value the thoughtfulness which is shown by therapists who truly listen to and learn from their experiences. The concept of caring in occupational therapy can be defined as a process of helping clients to build up relationships as well as clients' self-development. That is, to care for a client is to help them grow, develop, and re-adapt their new lives with physical or mental illness. The term "caring" is not simply to take care of the client, but assist him or her to learn strategies to take care of himself/herself (Gilfoyle, 1980). Gilfoyle further defined that a caring attitudes include components of patience, honesty, trust, humility, hope, and courage (Gilfoyle, 1980).

Researchers found that verbal interaction is a significant component of the therapeutic relationship. Eklund and Hallberg (2001) emphasized the need to study and develop the verbal strategies of occupational therapy. Christiansen (1977) stated that in order to support clients' emotional growth, therapists needed to focus on the interpersonal and communication skills they use in therapy. Cole and McLean (2003) found that therapists strongly emphasized rapport, open communication, and empathy as important strategies of interaction. Guidetti and Tham's qualitative study (2002) identified that interpersonal strategies used by clinicians are building trust, motivating clients, and providing an enabling occupational experience. Sundet (2011) interviewed therapists and family caregivers and highlighted conversation, participation, and relationship as three core areas of helpful therapy. Helpful conversation involves asking questions, giving clients enough response time, structuring the conversation, and giving and receiving feedback. Helpful participation, for example, involves using professional knowledge

and providing many possibilities for clients. A helpful relationship involves generating collaboration and giving of oneself to clients. Hough (1987) believed in the power of respect and understanding. He indicated that a client's compliance occurs when there is active involvement of both client and therapist, and this mutual involvement is based on understanding. Moreover, clients need to be able to retain their self-respect and to feel that they are valued and that they are working together with the therapist to remedy the problem rather than "having treatment done to them". Palmadottir (2006) interviewed twenty clients who have experienced occupational therapy, and found three main categories that define the client-therapist relationship. They are therapist role, power and connection. From these three categories, seven different relationship dimensions were identified; they are concern, direction, fellowship, guidance, alliance, detachment and rejection.

3.2 Introduction to the Intentional Relationship Model

As a way to integrate and conceptualize the therapeutic relationship and use of self in occupational therapy, the Intentional Relationship Model (IRM) was developed by Taylor (2008) after interviewing and observing twelve successful international occupational therapists. The IRM explains how to integrate the use of self into the clinical reasoning process with interpersonal reasoning. As part of the IRM, Taylor (2008) identified six therapeutic modes that effective therapists use in engaging their clients during occupational therapy. Therapeutic modes are defined as communication styles or a set of interpersonal behaviors that a therapist uses within his/her personality to communicate with clients (Taylor, 2008). The six modes identified in effective occupational therapy relationships include advocating, collaborating, empathizing, encouraging, instructing and problem-solving.

Dr. Renee Taylor and colleagues conducted a nationwide survey of 568 practicing occupational therapists in the United States and overviewed comprehensive knowledge such as use of self, empathy, the therapeutic relationship and caring in the field of occupational therapy. That study also contributed to the development of the model as well as define the therapeutic use of self (Taylor, Lee, Kielhofner, & Ketkar, 2009). This advanced model enables therapists to realize clients' responses in both subtle verbal and non-verbal clues in clinical practice. It guides therapists' reactions to interpersonal events and the therapists' efforts to sustain the therapeutic relationship. Therefore, positive client-therapist relationships and satisfactory therapy outcomes can be achieved.

According to the IRM, effective therapeutic use of self involves three aspects: First, the therapist needs to learn and identify the client's interpersonal characteristics. Second, the therapist must pay full attention and consciousness to the interpersonal events that inevitably occur during the therapy process. Third, the therapist uses his or her interpersonal reasoning to choose a single mode or a sequence of modes that most fit the client's interpersonal needs (Taylor, 2008). The above steps answer Moorhead and Winefield's (1991) concern about client-centered practice: "One of the most challenging dimensions of client-centered practice is how to adjust consultation style to the needs of the moment."

There are a limited number of studies that have examined what occupational therapists do when attempting to interact effectively with clients. Even fewer studies have discussed clients' interpersonal characteristics. The training of most health-care professionals, including occupational therapists, still tends to lay the most emphasis on the technical skills, but interpersonal skills are frequently lacking in the training process. Hence, the IRM provides valuable knowledge base and details strategies in this field. Moreover, what differentiates this

model from previous work is that it expands, clarifies, and illustrates the concept of interpersonal characteristics, the inevitable interpersonal events, and the interpersonal reasoning process as well as providing many useful resources and case examples.

Based on the IRM, the therapist's role could be categorized into six modes that are described by Taylor (2008) as the following:

1. Advocating mode

It is a mode that therapists use to ensure that clients have the right to self-advocacy, or expressing their needs and desires to clinicians in therapy. It also includes supporting clients in searching for resources, benefits, and modifications to physical and social environments; it ensures that clients have the chances to speak out on behalf of their rehabilitation expectations. Facilitating contact with others with disabilities, and normalizing clients' experiences also belong to this category.

2. Collaborating mode

It is a mode that emphasizes how to work collaboratively with clients during treatment. Therapists provide clients with general information and different options from which to choose, so that they can make priorities, set goals, make decisions, do their reasoning and direct their rehabilitation processes with therapists' assistance. Therapists ask clients what their goals are, and they assume that the clients are the experts on their own experiences and preferences for therapy.

3. Empathizing mode

Therapists strive to understand clients' opinions and thoughts. Therapists validate clients' negative emotions and frustrations on purpose and ask gentle, value-free, deepening questions. They make summary statements to reflect clients' affects and thought processes. In addition,

therapists try to let clients feel that therapists understand their stories and thoughts, and are emotionally in tune with them.

4. Encouraging mode

Therapists use encouraging and positive words to bolster clients and to improve their confidence throughout the treatment process. Sometimes therapists also reinforce a desired behavior through praise or rewards. Additionally, therapists use this mode to empower clients so that they believe in themselves, have the ability to overcome difficulties, and are willing to take more challenges. This mode also includes the judicious use of humor, spontaneity, and playfulness, when appropriate.

5. Instructing mode

In this mode, therapists educate clients. They structure the treatment process so that clients know what should be expected. In addition, therapists would demonstrate how to perform a task, explain the rationale for doing something, set boundaries and limits on clients, and provide corrective and professional feedback on clients' performance.

6. Problem-solving mode

Therapists ask questions to help clients clarify their thoughts, identify alternatives, and provide suggestions when needed. Furthermore, to help clients analyze the situation and strive to solve problems encountered during treatment processes, therapists weigh the pros and cons of each option with clients, help them make a list of things to do, set up calendars, and set priorities.

Based on the IRM, clients' behaviors or reactions during the therapy session are defined in terms of their interpersonal characteristics, which are divided into two categories: situational and enduring. The situational interpersonal characteristics are usually associated with current

circumstances or clients' recent conditions whereas the enduring interpersonal characteristics are more consistent and can be considered as more predictable aspects of clients' interpersonal behaviors .

The “inevitable interpersonal events” are general circumstances that occur within the context of therapy sessions. They are different from other regular events as they are usually emotionally charged and “ripe with both threat and opportunity” regarding the therapist-client relationship (Taylor, 2008). The IRM describes eleven major categories of interpersonal events that have the potential to challenge the therapeutic relationship and discusses how to respond to these events and ultimately turn these inevitable events into positive outcomes.

Regarding its evidence base, Taylor and associates (Taylor, Lee, & Kielhofner, 2010) conducted a mail-survey study on 563 occupational therapists to understand if clinical therapists used certain modes more frequently than others. They found that therapists' mode use depended on both the clinical situations and clients' responses to therapy. According to the IRM, the effectiveness of therapists' mode use is not based on the therapist's perception, but on how they are received by clients (Taylor, 2008). However, Taylor mentioned that therapists' perceptions of their mode use do not always correspond to clients' perceptions (Taylor, Lee, & Kielhofner, 2010). Therefore, the authors appealed that more research studies should be done in this area. Unlike the client-centered approach described by the Canadian model (Corring & Cook, 1999; Restall, Ripat, & Stern, 2003), the IRM is client-centered in that it points out that a successful relationship should be defined by clients rather than therapists. This means that a successful therapeutic relationship is not defined by a feeling of closeness or empowerment if those are not features that clients want for a relationship. Therefore, the IRM is much more flexible as it emphasizes the use of different therapeutic modes to best fit clients' needs.

3.3 Therapeutic Communication and Occupational Participation

A therapist effective use of self is reflected in his or her intentional uses of appropriate therapeutic modes and facilitates clients' occupational engagement, ultimately leading to the achievement of therapeutic goals. In contrast to other professions, occupational therapy focuses on clients' mutual participation (Jenkins, Mallett, O'Neill, McFadden, & Baird, 1994) and centers its core values on helping clients be involved in purposeful activities to maximize occupational participation and to live life to its fullest. This includes any treatment plan that emphasizes what clients believe to be motivating and meaningful. As Lloyd and Mass (1992) stated in earlier years, "Individuals in a helping role need a framework within which to work and training in those skills that will facilitate the development of a helping relationship." IRM (Taylor, 2008) serves this purpose. It proposes a detailed conceptualization of the interpersonal processes of occupational therapy and clarifies how therapeutic use of self can be utilized to promote occupational participation and accomplish positive therapeutic outcomes.

Congruent or matching affective states between a therapist and a client have been said to be reflective of empathy (Marci, Ham, Moran, & Orr, 2007; Robinson, Herman, & Kaplan, 1982). Therapists who do not properly use of self generally are poor in their interpersonal reasoning; therefore, have a good chance making non-therapeutic responses or using inappropriate modes when interact with clients (Taylor, 2008). This can result in a cascade of confusion and interpersonal problems with clients, eventually affecting their perceptions and participation in therapy (Taylor, 2008).

Participation involves the engagement in meaningful activities such as work, leisure and self-care tasks. In acute settings, increased client participation during therapy can help decrease clients' lengths of stay in a hospital and increase the likelihood of discharge (Lenze, Munin,

Quear, Dew, Rogers, Begley, & Reynolds, 2004). The therapeutic relationship is believed to have a positive effect on patient participation during therapy (Lenze, et al., 2004). Research has shown that institutional environmental factors (including therapists' attitudinal aspect) significantly affect the participation of clients with disabilities (Law, Haight, Milroy, Willms, Stewart, & Rosenbaum, 1999). In addition, the evidence showed that staff training and their attitudes would promote or limit clients' participation (Imrie & Kumar, 1998). In addition, when therapists believe that clients are engaged in therapy, then this belief has positive effects on clients' participation (King, Cathers, Polgar, MacKinnon, & Havens, 2000).

Although the therapeutic relationship has been subjectively perceived to be positively related to therapeutic outcomes and satisfaction, it has not been objectively measured (Cole & McLean, 2003). According to the IRM, therapeutic use of self is important in 1) the development of the therapeutic relationships and 2) selecting therapy intervention strategies that contribute to a client's occupational participation. Although assumed to be important, research is needed to validate the use of self as an important intervention in occupational therapy by determining its objective influence on participation during therapy sessions and, ultimately, overall occupational participation.

4. Justification for the use of Rasch Analysis in this study

When developing new assessments for a conceptual practice model, an assessment validation process must be chosen to evaluate the psychometric properties of these assessments. Two measurement approaches are commonly used for data analysis in the health care field: Classical Test Theory (CTT) and Item Response Theory (IRT) (Blanchin, Hardouin, Neel, Kubis, Blanchard, Mirallie, & Seville, 2011). "Both approaches provide various psychometric strategies

to examine the reliability and validity of the items and to detect problematic or biased items. Depending on the selected psychometric method, different items can be selected for the final assessment form. However, the eternal question still remains, whether one of the methods is better than the other one in terms of the assessment's reliability and validity (MacDonald & Paunonen, 2002).”

The analysis method used in this study is Many-facet Rasch analysis, developed by Linacre (Linacre, 1989). In a basic Rasch model, raw scores of ordinal data are converted into interval measures called logits. Additionally, Rasch analysis generates goodness-of-fit statistics that can be used to demonstrate the construct validity of scales. Persons, raters and items are evaluated and placed on an equal-interval scale in terms of persons' abilities, raters' severity and item difficulty. Calibration values of the logits give information about the difficulty of items, the severity/leniency of raters, and the abilities of persons. Lower logit values indicate that items are earlier (and often easier to be answered or achieved) than items with higher logit values. When conducting an assessment, the results of measurements depend on interactions between person ability, rater severity and item difficulty. Therefore, the more able the person is, the better chances for him or her to success with any item, while the easier the item is, the more likely it is that any person can solve or pass it. In addition, the more severe the rater is, the lower the likelihood that the rater will give higher scores. In the current thesis, for example, if items in the Clinical Assessment of Modes (CAM) are clearly separated, we can identify a direction along a continuum of mode use and mode expectation. Moreover, every rater is modeled to exhibit a specific leniency or severity, and to act as an independent expert, not as a “scoring machine.”

Furthermore, the results of Rasch analysis are sample independent and item independent. This is to say that the estimation of persons' abilities is not dependent on the specific items

which were used, and the estimation of the items' difficulties is likewise independent of the specific group of persons to whom they were administered (Sudweeks, Rbbve, & Bradshaw, 2005). Many-facet Rasch measurement is an extension of the Rasch model. It allows an extension of estimation of other facets of systematic error in ratings. For example, this measurement model can detect severity between raters, difficulties of task items, and different rating conditions.

Rasch analysis also provides information regarding how well the performance of each individual client, rater, or item matches the expected values from the model. These “goodness of fit statistics” are known in Rasch analysis as “infit” and “outfit” mean square values (MnSq). The extent to which an individual item contributes to the measurement of the same underlying construct is reflected in measures of the item's mean square and standardized goodness-of-fit statistics (Z score) (Fisk & Doble, 2002). MnSq is the ratio between the rated and expected scores, whereas the Z score is the significance of the MnSq. The ideal value of MnSq is 1.0 in association with a Z value 0.0. Wright and Linacre (1994) recommended that standardized infit and outfit mean square values greater than 1.4 or lesser than 0.6 with a standardized Z score value greater than 2.0 be used as the criterion to define those items and persons that fail to demonstrate acceptable goodness-of-fit with the Rasch measurement model. Items with MnSq values greater than 1.4 indicate lack of predictability, while values below 0.6 indicate overlapping and maybe redundant items.

Similarly, raters with fit values greater than 1.4 show more variation than expected in their ratings. In contrast, “raters with fit values less than 0.6 show less variation than expected in their ratings; data provided by these raters tend to “overfit” the model (Engelhard, 2002)”. It represents that raters have muted ratings that suggest a central tendency or, alternatively, a halo

effect (Engelhard, 2002; Myford & Wolfe, 2003). According to Linacre (2002), Myford and Wolfe (2003), misfit outfit values are less of a threat to measurement than misfit infit values.

Since “conventional factor analytic approaches cannot construct interval-level measures out of ordinal-level data, the picture of assessment validity provided by factor analysis is incomplete (Hickman, Piquero, & Piquero, 2004)”. However, the Rasch measurement model has solved this problem and has been successfully applied within this research area in occupational therapy. Most of the MOHO-based assessments were developed using Rasch analysis. For example, Assessment of Work Performance (AWP) (Fan, Taylor, Ekbladh, Hemmingsson, & Sandqvist, 2013), MOHOST (Pan, Fan, Chung, Chen, Kielhofner, Wu, & Chen, 2011), Work Role Interview (WRI) (Forsyth, Braveman, Kielhofner, Ekbadh, Haglund, Fenger, & Keller, 2006), Work Environment Impact Scale (WEIS) (Kielhofner, Lai, Olson, Haglund, Ekbadh, & Haglund, 1998), and A Dialogue about Ability Related to Work (DOA) (Linddahl, Norrby, & Bellner, 2003). Statistical data generated by Rasch analysis can be used to determine the extent to which individuals, items, raters, and tasks fit the expectations of the Rasch measurement model.

The computer program “Facets” implements the many-facet Rasch measurement model (Linacre, 1989). Each facet in this study interacts with other elements independently, and their measures are combined additively on the latent variable (Linacre, 2011).

CHAPTER 3

PURPOSE OF THE DISSERTATION

As outcome measures increase in their complexity, therapists will be able to evaluate the different aspects of participation and the effects of interventions on participation, which is an outcome most meaningful to clients with disabilities and their families.

The first study was a longitudinal data analysis of an existing data set derived from clinical records in forensic hospitals in England. This descriptive study aims to contribute to the understanding of forensic clients' occupational profiles and their participation over time. The second study was a self-report study of both rehabilitation patients and therapists in the University of Illinois at Chicago Hospital & Health Sciences System (UICHSS). This study examined the psychometric properties of a series of CAM questionnaires, which were developed based on the Intentional Relationship Model, to examine different perceptions of the relationship between therapists and clients undergoing rehabilitation.

CHAPTER 4

DISSERTATION STUDY: STUDY I

I.1. Background

Based on the report from PEW Charitable Trusts, over 1 in every 100 adults is confined in a correctional institution (PEW Charitable Trusts, 2008). There are three primary correctional institutions in the United States, which include: jails, prisons, and secure forensic hospitals (Farnworth & Munoz, 2009). In this study, which was conducted in England, we focused on clients in secure forensic hospitals. In secure forensic hospitals in England, there are four levels of care: High Security, Medium Security, Medium and Longer Security, and Low and Longer Security (North Thames Regional Office, 1998). High Security accepts clients with immediate danger to others. Interventions in high security settings focus on evaluating the extensive nature of risks and dangerous symptoms that pose the risk of harm to self or others. Medium Security settings accept clients with psychiatric disorders who do not pose the risk of immediate danger to themselves and others. Also, some clients may receive treatment and are waiting for treatment results, which usually show within 18 to 24 months. Clients in Medium and Longer Security are patients diagnosed with psychiatric disorders but the treatment did not have an effect after 18 to 24 months. They present a continuing risk but not an immediate risk. Low and Longer Security settings accept clients with psychiatric disorders; who receive treatment, but the treatment provided has not had the expected results over a period of several years. For example, these clients demonstrate assaultive behaviour, which exceeds the risk level for placement in an open ward.

In England, secure mental health hospitals provide accommodation, treatment and care for clients with severe mental health illness who may pose a risk to the public. These secure services

work predominantly with clients who have been imprisoned or admitted directly to the hospital following a criminal offence (Centre for Mental Health, 2011). The incarcerated population consists mainly of people with mental illness, personality disorders, and/or addiction. Among them, 70% have more than two problems (Centre for Mental Health, 2011). There is a need for forensic patients to receive mental health treatment and care.

As time goes by, the need for occupational therapy in forensic care is rapidly developing (Duncan, 1999); more and more people understand the importance and contribution of occupational therapy and feel that occupational therapy has contributed to a positive rehabilitation outcome (Donovan & Mason, 2010). Lindstedt, Soderlund, Stalenheim and Sjoden (2004) pointed out that occupational therapists at forensic psychiatry settings have dual objectives. On one hand, they treat offenders with mental illness, and on the other hand, they protect the community. Offenders who receive psychiatric treatments in a criminal justice system are frequently referred to as forensic clients (O'Connell & Farnworth, 2007).

Research should be the basis for interventions in evidence-based occupational therapy practice. Rather than expending limited resources conducting novel interventions, Hayes (2000) called for the profession to provide research-based evidence in clinical practice. Although there have been calls for further research in forensic occupational therapy, the evidence-base remains poor (Farnworth & Munoz, 2009). Duncan and his associates (Duncan, Munro, & Nicol, 2003) conducted a questionnaire survey and attempted to gain more insight into the research priorities of occupational therapists working in forensic psychiatry units. There were 71 occupational therapists who participated in the survey. The results showed that the top research priority was to develop reliable and appropriate outcome measures. Other priorities were to develop effective group-work programs and effective risk-assessment tools. The development of appropriate

outcome measurements, which was rated as the top research priority, indicates that forensic occupational therapists remain frustrated because available measurements have been limited.

I.1.1.Using the Model of Human Occupation

Lloyd (1995) suggested the need for an occupational therapy model of practice, specifically for the secure settings. Corresponding outcomes assessments need to be theoretically grounded in the same model of practice; thus, results can be applied to clinical settings quickly. Flood (1997) pointed out that “the utilization and application of an effective assessment tool, which reflects and is grounded in theory, will enhance the therapists’ ability to gather and interpret appropriate data and guide intervention planning.” In Duncan’s survey, several participants specifically mentioned the Model of Human Occupation (MOHO) and the MOHO assessments. Therefore, Duncan et al. (2003) concluded that “Research into outcome measures needs to be undertaken in a forensic setting, such as validating MOHO tools for forensic clients”.

Furthermore, the use of the MOHO in a forensic setting has been described by Crist and her colleagues (Crist, Fairman, Munoz, Hansen, Sciulli, & Eggers, 2005) as well as by Forsyth’s research team (Forsyth, Duncan, & Mann, 2005). Crist et al. (2005) conducted an occupational therapy case study, demonstrating faculty-practitioner collaboration in a county jail in the United States. In that study, the research team selected MOHO as the appropriate model and embedded a systematic evaluation process to gather evidence. They administered the Occupational Self Assessment (OSA) to 67 clients, measured their occupational competence, and tried to prioritize the impact of their environment on overall occupational adaptation. Forsyth et al. (2005) discussed a similar academic-practice partnership in the United Kingdom. Their services selected

MOHO as its primary conceptual model, which guided occupational therapists' formulation of clients' concerns, clinical reasoning, evaluation processes and interventions.

Several researchers note an absence of occupational therapy assessments for forensic settings and call for the development and validation of existing assessments for the forensic population (O'Connell & Farnworth, 2007). This highlights the need and importance of outcome measurements since validated assessments are, ultimately, the foundation for establishing the effectiveness of interventions. In other words, when the occupational therapists can sensitively evaluate changes and assess rehabilitation outcomes, then the effectiveness of therapy can be established (Farnworth & Munoz, 2009).

The Model of Human Occupation Screening Tool (MOHOST) (Parkinson, Forsyth, & Kielhofner, 2006) has been found to be useful for a forensic population. Forensic settings require therapists to understand clients' unique occupational histories, interests, habits and skills. The MOHOST has the capacity to examine clients' occupational participation. In addition, Duncan, Munro, and Nicol's study (2003) reveals that the three most frequently used assessments by occupational therapists in security settings are observational in nature. Observational measures do not require clients to have accurate insight into their own interests, habits, and capacities. Moreover, MOHOST is one of the most flexible assessment tools among all of the MOHO-based assessments. The MOHOST was designed to be flexible to meet multiple assessment needs in practice, including observations, interviews with clients/care givers/staff/relatives, or gaining information from medical records, team meetings and other resources. Another benefit of using the MOHOST is that the MOHOST was developed with common and understandable terminology. Many occupational therapists want to improve communication within the multi-disciplinary teams (Donovan & Mason, 2010) through an easily understandable assessment and a

clear interpretation; the evidence from the MOHOST can show the unique occupational therapy contribution within the forensic setting. For these reasons, the MOHOST was selected as the measure of occupational participation in this study.

I.2. Purposes of the Study and Research Aims

The United Kingdom (UK) has many security hospitals, and it is the first country that developed local secure settings (Lloyd, 1995). The development of these local settings coincided with the new focus of the health care system, which is community care. Among the community secure settings, Flood indicated that most of the occupational therapists worked in medium secure units, which is about 55% of the whole population (Flood, 1997). In 2009, Dr. Morley, the Director of Therapies from the South West London and St. Georges Mental Health NHS Trust, and her colleagues coordinated a project that connected mental health trusts in London; they collaborated with the ²gether NHS Foundation Trust and UKCORE and proposed an occupational therapy care pathway for clients with psychiatric disorders to be used by the National Health Service in London (Melton, Forsyth, Hill, & Morley, 2009).

This dissertation used retrospective data, which were collected from Dr. Morley and her research team in six trusts between the periods from June 2008 to March 2011. The research aims are listed as below:

1. Describe the occupational profiles of forensic clients who received occupational therapy.
2. Examine the relationships between psychiatric symptoms (HoNOS), risk behaviors (HCR-20) and occupational participation (using the MOHOST).
3. Explore clients' occupational participation changes over time at six months intervals (the most recent MOHOST = time 5; 6 months ago MOHOST = time 4; 12 months ago

MOHOST = time 3; 18 months ago MOHOST = time 2; 24 months ago MOHOST = time 1).

I.2.1. Hypotheses

Hypothesis I: We expected that clients in low security settings would have higher average scores in each of the MOHOST subdomains as well as higher total MOHOST scores than clients in medium security settings. This is because clients in low security settings should have more freedom and thus more chances for occupational participation.

Hypothesis II: We hypothesized that certain psychiatric symptoms (as measured by items in the HoNOS) may be associated with clients' participation. Therefore, there should be an association between the scores of the HoNOS and the MOHOST.

Hypothesis III: Moreover, five Clinical items in the HCR-20 reflect current risk factors for violence. We hypothesized that these items may associate with clients' participation more than items in the Historical and Risk Management subdomains of the HCR-20.

Hypothesis IV: Finally, as clients were continually receiving treatment, we expected to see their participation improve over time.

I.3. Methods

I.3.1 Participants and Institutions

There were 489 subjects and 78 occupational therapists from 6 trusts in England who participated in this study. Among the clients, most of them were male (N=453, 92.6%). All

patients had been diagnosed by psychiatrists according to the ICD-10 criteria. The main diagnosis of clients was schizophrenia disorder. The six trusts involved in this study were: Barnet Enfield & Haringey Trust, East London Trust, West London Trust, South West London & St. Georges Trust, South West Yorkshire Trust, Northumberland, Tyne & Wear Trust. Clients who were admitted to the low and medium security settings in these six institutes during the time period of June 2008 to March 2011 were enrolled.

I.3.2 Instruments

Model of Human Occupation Screening Tool (MOHOST)

The MOHOST aims to give a broad overview of all the concepts of the MOHO which, collectively, define occupational participation. The MOHOST first grew out of a group of OTs in Great Britain who were concerned about their clients' limited function and short lengths of stay in the hospital. Therefore, lengthy and complicated assessments were not feasible for their settings. They designed the original MOHOST in 2001 (version 1.0) and revised it in 2004 (version 1.1) and 2006 (version 2.0). The MOHOST version 2.0 was newly revised based on recent research studies; the rating scale criteria have been changed from S, D, W, and P (S = Strength, D = Difficulty, W = Weakness, P = Problem) to rating scale labels as follows: F, A, I, and R (F = Facilitates occupational participation, A = Allows occupational participation, I = Inhibits occupational participation, R = Restricts occupational participation). In this study, we used the MOHOST version 2.0.

A previous study of 166 participants employed confirmatory factor analysis and found items which make up each of the 6 subdomains were well designed to capture each of the subdomains (Kielhofner, Fogg, Braveman, Forsyth, Kramer, & Duncan, 2009). In addition, a study with 54

clients found that the MOHOST item calibrations remained stable over time indicating that therapists interpret MOHOST items consistently over time. Therefore, it was argued that “the MOHOST could be used to detect changes in clients from initial assessment to discharge” (Kramer, Kielhofner, Lee, Ashpole, & Castle, 2009). Another study use both the Classical Test Theory and Rasch measurement model to examine the psychometric properties of the Chinese version of the MOHOST with 101 patients with mental illness (Pan, Fan, Chung, Chen, Kielhofner, Wu, & Chen, 2011). Findings revealed that the subdomains measuring volition, habituation, communication and interaction, process, and motor skills showed adequate goodness of fit, excellent item separation reliability, and unidimensionality in measurement.

Health of the Nation Outcome Scales (HoNOS) - Secure

The first version of the HoNOS-secure was developed by Drs. Sugarman and Walker in United Kingdom. The scale contains 7 security items which were from the Mentally Disordered Offenders (MDO) scale and other HoNOS items so that the completed score sheet provided a profile of 19 severity ratings. Through the years, the HoNOS-secure went through several revisions: the main change is that the authors simplifies the scale instructions as well as modifies some wording. The HoNOS-secure version was highly useful in secure setting; therefore, most of the security hospitals in United Kingdom adopt this assessment as a routine evaluation to understand clients’ overall health status and their need for care.

Historical, Clinical, Risk-Management – 20 (HCR-20)

The HCR-20 (Webster, Douglas, Eaves, & Hart, 1997) “is a broad violence risk assessment instrument with potential applicability to a variety of settings.” The main concept of this

assessment includes risk factors concerning clients' past, present and future. The 10 historical items measure clients' past risk factor. The 5 clinical items indicate clients' current risk factors of violence. The 5 risk management items represent the situational factors that might have potential to increase client's risk in the future. The name of the HCR-20 was formed from its initials of the three subscales (Historical, Clinical, Risk Management) as well as the number of its total items. The HCR-20 is a commonly used assessment to evaluate factors that are related to violence. The items are rated as present or not present.

I.3.3 Research Designs/Procedures

The occupational therapists who worked at forensic settings in London were expected to use the MOHO-based forensic care pathway to guide their interventions. As part of their standard procedures, occupational therapists administered the Model of Human Occupation Screening Tool (MOHOST); the multidiscipline team member or a senior clinician (e.g. psychiatrist) made the rating of the Health of the Nation Outcome Scales (HoNOS) and the Historical, Clinical, Risk-Management – 20 (HCR-20) when clients were admitted to the settings. The report of the MOHOST represented clients' basic conditions and was discussed at the first Care Program Approach (CPA) meeting. The CPA meetings were formal, multidisciplinary team meetings that were held every 6 months in forensic settings. The MOHOST was administered repeatedly every six months to follow up on clients' conditions at each CPA meeting. The MOHOST assessments were entered into the electronic medical records system in most Trusts. The data for this study were collected by six institutions in London.

I.3.4 Ethical Permission

The study protocol was reviewed and approved by the ethics committees by *the Office for the Protection of Research Subjects, University of Illinois at Chicago* and *the South West London and St. Georges Mental Health NHS Trust* to share de-identified, clinically gathered assessment data that were initially administered for non-research purposes.

I.3.5 Data Analysis

The demographic statistics were calculated with SPSS 19.0 software (SPSS Inc., 2011) to determine means, percentages and standard deviations.

The Many-facet Rasch analysis (Linacre, 1989) was chosen to convert clients' ordinal raw scores from the MOHOST into interval measures, which are called logits, for calculating the Rasch person measures (i.e. the clients' occupational participation) and standard deviation. The Rasch measurement model has been successfully applied within research areas in occupational therapy. Statistical analysis was carried out with the latest Facets version 3.86.1 (Linacre, 2011).

In order to establish the occupational profiles for forensic patients within the different levels of security settings, we drew a line plot and used the independent sample t-test analysis to examine whether there were significant MOHOST score differences given distinct ward types (low security and medium security). A significance level of 0.05 was implemented in this two-group comparison.

Additionally, the average MOHOST person measure scores from Rasch conversion were compared with the risk factors of the HCR-20 (not present and present). The independent t-test analysis was employed to examine the difference of each of MOHOST subdomain and total scores of clients who had and did not have specific risks identified in the HCR-20. A correlation

analysis between the MOHOST person measure and the HoNOS was conducted. Finally, regression analysis was used to explore clients' occupational participation changes over time.

A regression is a statistical analysis assessing the association between two variables. In this case, we used it to examine if clients' occupation participation (variable: converted Rasch measures of person, Y axis) improved across time (variable: different assessing time points, gender, age, X axis). The slope of a regression line represented the rate of change in *Y (person measure)* as *X (time, gender and age)* changed. The slope of a regression line then was used with a t-statistic to test the significance of a linear relationship between *X* and *Y*.

The repeated measures of the MOHOST were coded as follows in the data analysis processes: most recent MOHOST = time 5; 6 months ago MOHOST = time 4; 12 months ago MOHOST = time 3; 18 months ago MOHOST = time 2; 24 months ago MOHOST = time 1. The scatter plot with the regression line and the 95% Confidence Interval (CI) are presented.

CHAPTER 5

RESULTS: STUDY I

I.1. Demographic Characteristics

Data were collected from 489 patients in low and medium secure units across six organizations. Seventy-eight occupational therapists across the six institutes participated in this study.

The main diagnosis of clients was schizophrenia disorder (n=305, 62.3%). The enrolled clients included 453 (92.6%) males and 36 (7.4%) females, with an average age of 38.7 years old (S.D.=11.01); maximum age was 72 and minimum age was 19.

The subjects were retrieved from two different settings: Three hundred and twenty-six clients were from the medium security settings, and 163 clients were from low security settings.

The demographic and clinical characteristics of the clients are presented in Table 1.

Table 1. Characteristics of Clients in the MOHO Study (N=489)

| Characteristic | N (%) |
|--|------------|
| Gender | |
| Male | 453 (92.6) |
| Female | 36 (7.4) |
| Diagnosis | |
| Mental/behavioral disorders due to psychoactive substance use | 10 (2.0) |
| Schizophrenia, schizotypal, delusional disorders | 305 (62.3) |
| Mood [affective] disorders | 22 (4.5) |
| Anxiety, dissociative, stress-related, somatoform mental disorders | 1 (0.2) |
| Disorders of adult personality and behavior | 58 (11.9) |
| Intellectual disabilities | 6 (1.2) |
| Pervasive and specific developmental disorders | 6 (1.2) |

| | |
|---|--------------|
| Behavioral and emotional disorders (onset occurring in childhood/adolescence) | 2 (0.4) |
| Missing or Unknown | 79 (16.2) |
| Trust | |
| BEH: Barnet Enfield & Haringey Trust | 190 (38.9) |
| ELF: East London Trust | 32 (6.5) |
| WLT: West London Trust | 52 (10.6) |
| SWL: South West London & St. Georges Trust | 95 (19.4) |
| SWY: South West Yorkshire Trust | 76 (15.5) |
| NTW: Northumberland Tyne & Wear Trust | 44 (9.0) |
| Settings | |
| Medium security | 326 (66.7) |
| Low security | 163 (33.3) |
| Mean age | 38.7 y/o |
| | (S.D.=11.01) |

I.2. Occupational Profiles of Forensic Clients

Three hundred and twenty-six clients were from medium security settings and one hundred and sixty-three clients were from low security settings. The results showed that clients from low security settings had higher average scores in each of the MOHOST subdomain as well as total MOHOST scores than clients from medium security settings, which represented that clients in low security settings had more positive and active occupation participation. All the comparison achieved statistical significance, except for the motor skills subdomain ($p=0.236$). Please refer to Table 2 and Figure 1.

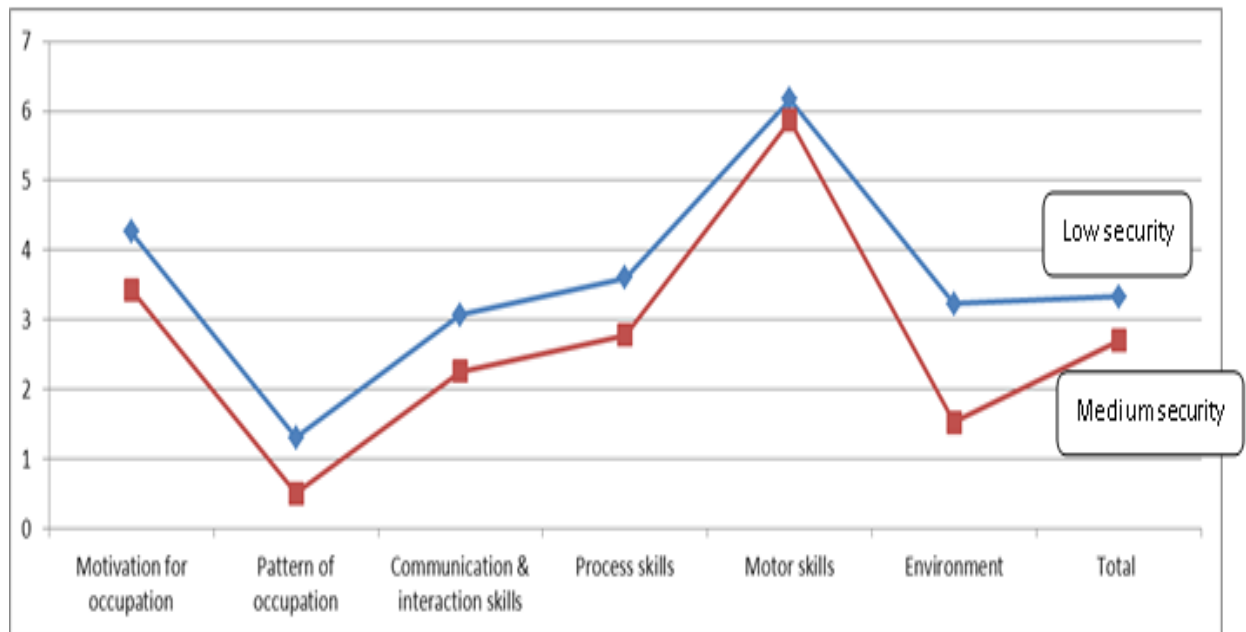
Table 2. Descriptive-Statistics and T-test Analysis Given Different Security Settings

| Statistics | Std. | | | | | |
|------------------------------------|-----------|------|-----------|-------|--------|-----------------|
| MOHOST | Ward type | Mean | Deviation | t | df | Sig. (2-tailed) |
| Motivation for Occupation | Low | 4.26 | 3.66 | 2.443 | 296.62 | 0.015* |
| | Medium | 3.43 | 3.31 | | | |
| Pattern of Occupation | Low | 1.30 | 3.37 | 2.492 | 322.14 | 0.013* |
| | Medium | 0.50 | 3.35 | | | |
| Communication & Interaction Skills | Low | 3.06 | 3.03 | 2.762 | 325.39 | 0.006* |
| | Medium | 2.26 | 3.04 | | | |
| Process Skills | Low | 3.60 | 3.76 | 2.286 | 326.68 | 0.023* |
| | Medium | 2.77 | 3.79 | | | |
| Motor Skills | Low | 6.17 | 2.65 | 1.187 | 321.74 | 0.236 |
| | Medium | 5.87 | 2.63 | | | |
| Environment | Low | 3.23 | 2.71 | 6.649 | 310.84 | 0.000* |
| | Medium | 1.52 | 2.59 | | | |
| Total MOHOST items | Low | 3.33 | 1.89 | 3.655 | 275.85 | 0.000* |
| | Medium | 2.70 | 1.57 | | | |

Note.

1. Low= low security (N=163); Medium=medium security (N=326).
2. Equal variances between groups were not assumed for the t-test.
3. * $p < 0.05$.

Figure 1. Descriptive-MOHOST Mean Scores in Clients of Different Security Settings



Note.

The blue line represents the clients from low security settings, and the red line represents the clients from medium security settings.

I.3. Correlations between Risk Factors and Occupational Participation

The MOHOST person measures were calculated against all the risk factors of the HCR-20 (not present and present). The independent t-test was employed to examine the MOHOST differentiations between clients who had specific risks or clients who had no risks in the HCR-20. Please refer to Table 3.

For the historical risk factors, five factors influenced clients' occupational participation: relationship instability (H3), employment problems (H4), substance misuse problem (H5), major mental illness (H6), and psychopathy (H7). The results showed that clients with the problem of relationship instability (H3) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores than clients without relationship instability. Among all the subdomains, the process skills achieved statistical significance ($p=0.030$). Clients with employment problems (H4) had lower occupational participation in each of the MOHOST subdomains and lower total MOHOST scores than clients without employment problems. Among all the subdomains, the process skills achieved statistical significance ($p=0.021$). Clients with substance misuse problems (H5) had lower occupational participation in each of the MOHOST subdomains and for total MOHOST scores than clients without substance misuse problems. Among all the subdomains, the motor skills achieved statistical significance ($p=0.012$). Clients with major mental illness (i.e., schizophrenia, depression, schizoaffective disorders, etc) (H6) had higher occupational participation in each of the MOHOST subdomains and total MOHOST scores than those clients without major mental illness (those were clients with substance use disorders or personality disorders). Among all the subdomains, the Motivation for Occupation ($p=0.012$), Pattern of Occupation ($p=0.008$), Environment ($p=0.039$), and total MOHOST scores ($p=0.024$) achieved statistical significance. Clients with psychopathy (H7) had

lower occupational participation in each of the MOHOST subdomains and total MOHOST scores than clients without psychopathy. All the subdomains achieved statistical significance, except for the motor skills subdomain.

For the current risk factors, all five risk factors were highly related to clients' occupational participation. Clients who had lack of insight (C1) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all the subdomains, the Motivation for Occupation ($p=0.000$), Pattern of Occupation ($p=0.000$), Communication and Interaction Skills ($p=0.000$), Process Skills ($p=0.000$), Environment ($p=0.024$), and total MOHOST scores ($p=0.000$) achieved statistical significance. Clients with negative attitudes (C2) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all the subdomains, the Motivation for Occupation ($p=0.020$), Pattern of Occupation ($p=0.000$), Communication and Interaction Skills ($p=0.000$), Process Skills ($p=0.000$), Environment ($p=0.024$), and total MOHOST scores ($p=0.004$) achieved statistical significance. Clients who had active symptoms of major mental illness (C3) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all these subdomains, the Motivation for Occupation ($p=0.000$), Pattern of Occupation ($p=0.000$), Communication and Interaction Skills ($p=0.000$), Process Skills ($p=0.000$), Motor Skills ($p=0.028$), Environment ($p=0.001$), and total MOHOST scores ($p=0.000$) achieved statistical significance. Clients who had impulsivity (C4) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all the subdomains, the Motivation for Occupation ($p=0.000$), Pattern of Occupation ($p=0.000$), Communication and Interaction Skills ($p=0.000$), Process Skills ($p=0.000$), Motor Skills ($p=0.030$), Environment ($p=0.005$), and total MOHOST scores ($p=0.000$) achieved statistical significance. Clients who

were unresponsive to treatment (C5) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all the subdomains, the Motivation for Occupation ($p=0.000$), Pattern of Occupation ($p=0.000$), Communication and Interaction Skills ($p=0.000$), Process Skills ($p=0.000$), Motor Skills ($p=0.000$), Environment ($p=0.000$), and total MOHOST scores ($p=0.000$) achieved statistical significance.

For the risk management factors, all five factors to some extent related to clients' occupation participation. Clients whose plans lacked feasibility (R1) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. All the subdomains achieved statistical significance: the Motivation for Occupation ($p=0.000$), Pattern of Occupation ($p=0.000$), Communication and Interaction Skills ($p=0.000$), Process Skills ($p=0.000$), Motor Skills ($p=0.000$), Environment ($p=0.002$), and total MOHOST scores ($p=0.000$). Clients who were exposed to destabilizers (R2) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all these subdomains, the Environment ($p=0.041$) achieved statistical significance. Clients who lacked personal support (R3) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all the subdomains, the Motivation for Occupation ($p=0.004$), Pattern of Occupation ($p=0.001$), Communication and Interaction Skills ($p=0.006$), Environment ($p=0.001$), and total MOHOST scores ($p=0.001$) achieved statistical significance. Clients who were not compliant with remediation attempts (R4) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. All these subdomains achieved statistical significance: the Motivation for Occupation ($p=0.000$), Pattern of Occupation ($p=0.000$), Communication and Interaction Skills ($p=0.000$), Process Skills ($p=0.000$), Motor Skills ($p=0.001$), Environment ($p=0.016$), and total MOHOST scores ($p=0.000$). Clients who

were stressed (R5) had lower occupational participation in each of the MOHOST subdomains and total MOHOST scores. Among all these subdomains, the Environment ($p=0.041$) achieved statistical significance.

Table 3. MOHOST+HCR 20 Independent T-Test Analysis

| MOHOST HCR 20 | | Motivation for occupation | Pattern of occupation | Communicat ion and interaction skills | Process skills | Motor skills | Environment | Total scores |
|------------------|---------------------------------------|---------------------------------|--------------------------|--|----------------|--------------|-------------|--------------|
| H | Previous Violence t | 1.022 | 0.199 | 1.080 | 1.439 | -0.577 | 0.238 | 0.736 |
| | Sig. (2-tailed) | 0.340 | 0.847 | 0.314 | 0.191 | 0.581 | 0.818 | 0.485 |
| | Young age at first violent incident t | -0.302 | -0.259 | -0.546 | 0.114 | -0.086 | -1.183 | -0.603 |
| | Sig. (2-tailed) | 0.764 | 0.797 | 0.587 | 0.909 | 0.931 | 0.240 | 0.548 |
| | Relationship instability t | 1.082 | 1.386 | 1.024 | 2.372 | 1.395 | 0.991 | 1.561 |
| | Sig. (2-tailed) | 0.295 | 0.189 | 0.321 | 0.030* | 0.181 | 0.336 | 0.138 |
| | Employment problems t | 1.950 | 1.509 | 1.807 | 2.431 | 0.679 | 1.602 | 2.019 |
| | Sig. (2-tailed) | 0.061 | 0.142 | 0.081 | 0.021* | 0.502 | 0.120 | 0.053 |
| | Substance misuse problem t | 0.138 | 0.298 | 0.693 | 0.034 | 2.564 | 0.628 | 0.924 |
| | Sig. (2-tailed) | 0.891 | 0.766 | 0.490 | 0.973 | 0.012* | 0.532 | 0.358 |
| | Major mental illness t | -2.674 | -2.878 | -1.642 | -1.923 | 0.337 | -2.140 | -2.379 |
| | Sig. (2-tailed) | 0.012* | 0.008* | 0.112 | 0.064 | 0.738 | 0.039* | 0.024* |
| | Psychopathy t | 2.083 | 3.584 | 3.533 | 2.442 | 0.323 | 3.323 | 3.521 |

| MOHOST HCR 20 | | Motivation for occupation | Pattern of occupation | Communicat ion and interaction skills | Process skills | Motor skills | Environment | Total scores |
|------------------|--|---------------------------------|--------------------------|--|----------------|--------------|-------------|--------------|
| | Sig. (2-tailed) | 0.039* | 0.000* | 0.001* | 0.016* | 0.747 | 0.001* | 0.001* |
| | Early maladjustment t | 1.202 | 1.892 | 0.668 | 1.778 | 1.295 | 0.934 | 1.618 |
| | Sig. (2-tailed) | 0.234 | 0.064 | 0.507 | 0.081 | 0.200 | 0.355 | 0.112 |
| | Personality disorder t | 0.904 | 1.779 | 1.103 | -0.291 | -0.294 | 2.663 | 1.303 |
| | Sig. (2-tailed) | 0.367 | 0.077 | 0.271 | 0.771 | 0.694 | 0.009* | 0.195 |
| | Prior supervisions failure t | 1.528 | 1.249 | 0.986 | 1.677 | -0.652 | 1.074 | 1.237 |
| | Sig. (2-tailed) | 0.130 | 0.251 | 0.327 | 0.097 | 0.516 | 0.285 | 0.219 |
| C | Lack of insight t | 4.250 | 4.627 | 4.100 | 4.101 | 1.444 | 2.331 | 4.293 |
| | Sig. (2-tailed) | 0.000* | 0.000* | 0.000* | 0.000* | 0.155 | 0.024* | 0.000* |
| | Negative attitudes t | 2.341 | 3.693 | 3.595 | 1.658 | 0.144 | 1.866 | 2.931 |
| | Sig. (2-tailed) | 0.020* | 0.000* | 0.000* | 0.098 | 0.886 | 0.063 | 0.004* |
| | Active symptoms of major mental illness t | 5.156 | 4.818 | 5.079 | 3.669 | 2.214 | 3.280 | 5.302 |
| | Sig. (2-tailed) | 0.000* | 0.000* | 0.000* | 0.000* | 0.028* | 0.001* | 0.000* |
| | Impulsivity t | 4.728 | 5.560 | 5.019 | 4.584 | 2.175 | 2.841 | 5.112 |

| MOHOST HCR 20 | | Motivation for occupation | Pattern of occupation | Communicat ion and interaction skills | Process skills | Motor skills | Environment | Total scores |
|------------------|--|---------------------------------|--------------------------|--|----------------|--------------|-------------|--------------|
| | Sig. (2-tailed) | 0.000* | 0.000* | 0.000* | 0.000* | 0.030* | 0.005* | 0.000* |
| | Unresponsive to treatment t | 8.273 | 8.482 | 5.719 | 6.230 | 5.402 | 3.780 | 8.034 |
| | Sig. (2-tailed) | 0.000* | 0.000* | 0.000* | 0.000* | 0.000* | 0.000* | 0.000* |
| R | Plans lack feasibility t | 5.639 | 5.636 | 4.997 | 4.039 | 3.790 | 3.129 | 5.935 |
| | Sig. (2-tailed) | 0.000* | 0.000* | 0.000* | 0.000* | 0.000* | 0.002* | 0.000* |
| | Exposure to destabilizers t | 0.451 | 0.687 | -0.329 | 0.562 | 1.130 | 2.121 | 0.863 |
| | Sig. (2-tailed) | 0.655 | 0.497 | 0.744 | 0.578 | 0.266 | 0.041* | 0.395 |
| | Lack of personal support t | 2.895 | 3.416 | 2.787 | 1.633 | 1.380 | 3.410 | 3.399 |
| | Sig. (2-tailed) | 0.004* | 0.001* | 0.006* | 0.105 | 0.170 | 0.001* | 0.001* |
| | Noncompliance with remediation attempts t | 5.659 | 5.458 | 4.108 | 4.103 | 3.336 | 2.437 | 5.509 |
| | Sig. (2-tailed) | 0.000* | 0.000* | 0.000* | 0.000* | 0.001* | 0.016* | 0.000* |
| | Stress t | 2.105 | 1.396 | 1.799 | 0.916 | 1.337 | 2.826 | 2.051 |
| | Sig. (2-tailed) | 0.045* | 0.175 | 0.083 | 0.368 | 0.192 | 0.009* | 0.051 |

Note. * p value < 0.05.

I.4. Correlations between Psychiatric Symptomatology and Occupational Participation

The results show that clients' cognitive problems are significantly correlated with their Process Skills ($r=0.383$, $p=0.000$), and Total MOHOST scores ($r=0.363$, $p=0.000$); clients' other mental and behavioral problems, such as phobic, anxiety, obsessive-compulsive, stress, dissociative, somatoform, eating, sleep and sexual problems, are significantly correlated with their Total MOHOST scores ($r=0.366$, $p=0.000$); clients' relationship problems are significantly correlated with their Communication and Interaction Skills ($r=0.350$, $p=0.000$); clients' activities of daily living problems are significantly correlated with their Pattern of Occupation ($r=0.369$, $p=0.000$), Process Skills ($r=0.412$, $p=0.000$), and Total MOHOST scores ($r=0.381$, $p=0.000$). Please refer to Table 4.

Table 4. Correlations between Symptomology and Occupational Participation

| MOHOST HONOS (current) | Motivation for occupation | Pattern of occupation | Communicati on and interaction skills | Process skills | Motor skills | Environment | Total scores |
|--|--|----------------------------------|--|-----------------------|---------------------|--------------------|---------------------|
| Overactive, aggressive, disruptive or agitated behaviour | 0.211 | 0.235 | 0.218 | 0.164 | 0.031 | 0.152 | 0.227 |
| Non-accidental self-injury | 0.121 | 0.106 | 0.101 | 0.080 | 0.128 | 0.156 | 0.146 |
| Problem-drinking or drug-taking | -0.077 | -0.078 | -0.080 | -0.072 | -0.092 | -0.021 | -0.109 |
| Cognitive problems | 0.270 | 0.278 | 0.334 | 0.383* | 0.310 | 0.155 | 0.363* |
| Physical illness or disability problems | 0.081 | 0.100 | 0.105 | 0.152 | 0.285 | 0.155 | 0.169 |
| Problems associated with hallucinations and delusions | 0.216 | 0.192 | 0.220 | 0.150 | 0.092 | 0.078 | 0.188 |
| Problems with depressed mood | 0.226 | 0.156 | 0.134 | 0.120 | 0.135 | 0.062 | 0.183 |
| Other ¹ mental and behavioral problems | 0.232 | 0.335 | 0.293 | 0.297 | 0.237 | 0.291 | 0.366* |
| Problems with relationships | 0.336 | 0.330 | 0.350* | 0.225 | 0.144 | 0.200 | 0.343 |
| Problems with activities of daily living | 0.335 | 0.369* | 0.311 | 0.412* | 0.279 | 0.163 | 0.381* |
| Problems with living conditions | 0.113 | 0.090 | 0.109 | 0.145 | 0.118 | 0.092 | 0.137 |
| Problems with occupation and activities | 0.157 | 0.138 | 0.081 | 0.074 | 0.118 | 0.140 | 0.148 |

Note. * Correlation coefficient $r > 0.35$, moderate correlation (Taylor, 1990).

¹Other mental and behavioral problems may include but is no limited to: phobic, anxiety, obsessive-compulsive, stress, dissociative, somatoform, eating, sleep, and sexual, etc.

I.5. Clients' Occupational Participation at Different Time Points

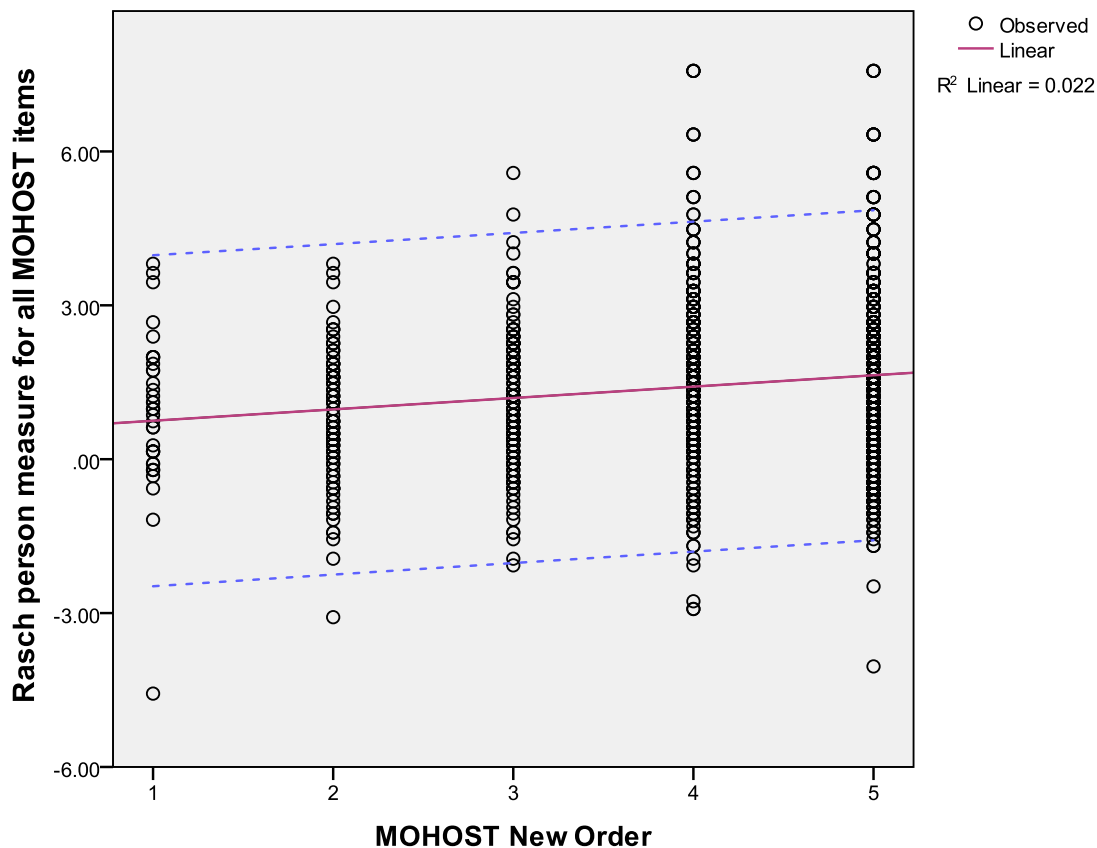
The regression analysis was used to explore whether clients' occupational participation changes over time. The regression estimates for person measures at each time point fall along the regression line showed in Table 5 and Figure 2. The line's slope increased and it achieved statistical significant ($p < 0.001$). This implies that clients' overall occupation participation did improve over time. The average age of female clients was 39.47 (S.D. = 9.51) and male clients was 37.72 (S.D. = 11.25). The regression coefficients of age and sex are negative, which means that the older clients had less participation than younger clients; the male clients had more participation than female clients.

Table 5. Clients' Total MOHOST Scores Regression Analysis

| Overall | Regression variables | Estimates | t | Sig. |
|---|----------------------|-----------|--------|--------|
| Occupational Participation (MOHOST total 24 items) | Constant | 1.094 | 2.923 | 0.004* |
| | MOHOST order (Time) | .217 | 4.973 | 0.000* |
| | Age | -.010 | -2.321 | 0.020* |
| | Sex | -.553 | -2.884 | 0.004* |

Note. * $p < 0.05$

Figure 2. Clients' Total MOHOST Scores Regression Analysis



Note. The red line in plot is the regression line; the blue and dashed lines in plot are the 95% Confidence Interval (CI).

Regarding the subdomains, please refer to Table 6 and Figure 3 to Figure 8. The clients' person measures in five of the six MOHOST subdomains improved over time; the only subdomain that did not improve was Motor skills. The negative estimates for gender indicated that the male subjects had better participation in Pattern of Occupation ($p=0.024$), Process Skills ($p=0.033$), Motor Skills ($p=0.001$), and Environment ($p=0.000$) subdomains, and achieved statistical significance. Younger clients had better participation in the Motor Skills ($p=0.001$)

subdomain. The effect of occupational therapy was not significant in the Motor Skills subdomain. Instead, clients' age ($p=0.000$) and sex ($p=0.001$) dominated their participation.

Table 6. Clients' MOHOST Subdomain Regression Analysis

| Subscales | Regression variables | Estimates | t | Sig. |
|--|-----------------------------|------------------|----------|-------------|
| Motivation for occupation (Domain 1) | Constant | -.533 | -.668 | 0.504 |
| | MOHOST order (Time) | .408 | 4.392 | 0.000* |
| | Age | -.006 | -.661 | 0.509 |
| | Sex | -.672 | -1.644 | 0.100 |
| Pattern of occupation (Domain 2) | Constant | -.449 | -.574 | 0.566 |
| | MOHOST order (Time) | .373 | 4.105 | 0.000* |
| | Age | -.007 | -.768 | 0.442 |
| | Sex | -.906 | -2.263 | 0.024* |
| Communication and Interaction Skills (Domain 3) | Constant | .625 | .869 | 0.385 |
| | MOHOST order (Time) | .304 | 3.636 | 0.000* |
| | Age | -.012 | -1.445 | 0.149 |
| | Sex | .328 | .891 | 0.373 |
| Process Skills (Domain 4) | Constant | 1.485 | 1.774 | 0.076 |
| | MOHOST order (Time) | .409 | 4.204 | 0.000* |
| | Age | -.006 | -.618 | 0.536 |
| | Sex | -.913 | -2.132 | 0.033* |
| Motor Skills (Domain 5) | Constant | 8.546 | 13.495 | 0.000* |
| | MOHOST order (Time) | .040 | .540 | 0.590 |
| | Age | -.058 | -7.850 | 0.000* |
| | Sex | -1.086 | -3.349 | 0.001* |
| Environment (Domain 6) | Constant | 1.938 | 3.119 | 0.002* |
| | MOHOST order (Time) | .367 | 5.078 | 0.000* |
| | Age | -.009 | -1.175 | 0.240 |
| | Sex | -1.831 | -5.755 | 0.000* |

Note. * $p < 0.05$

Figure 3. MOHOST Subdomain Regression Analysis: Motivation for Occupation

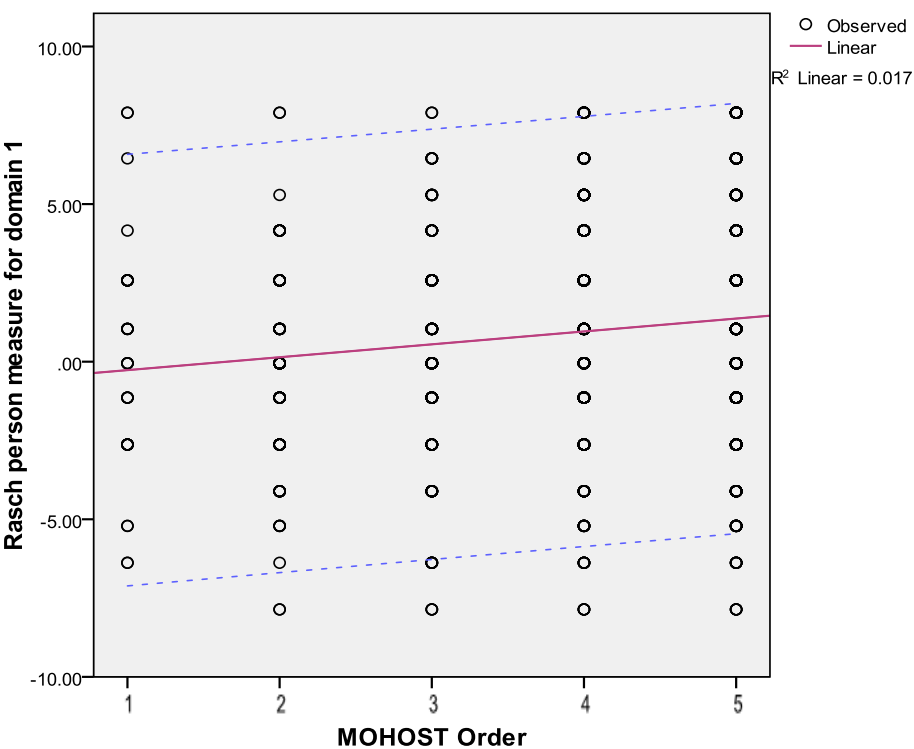


Figure 4. MOHOST Subdomain Regression Analysis: Pattern of Occupation

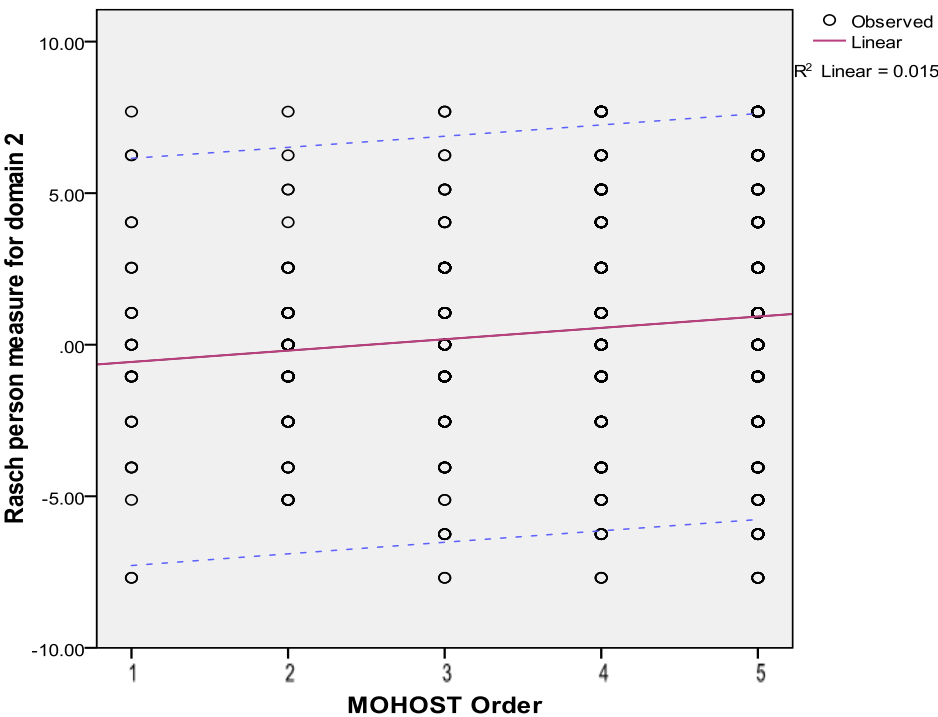


Figure 5. MOHOST Subdomain Regression Analysis: Communication and Interaction Skills

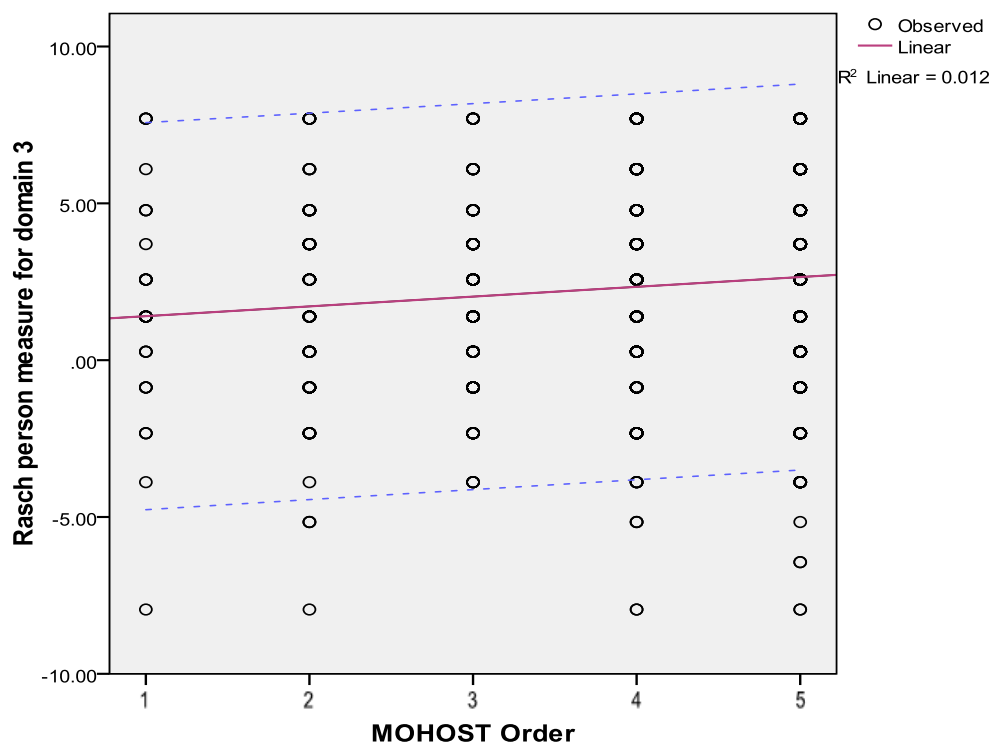


Figure 6. MOHOST Subdomain Regression Analysis: Process Skills

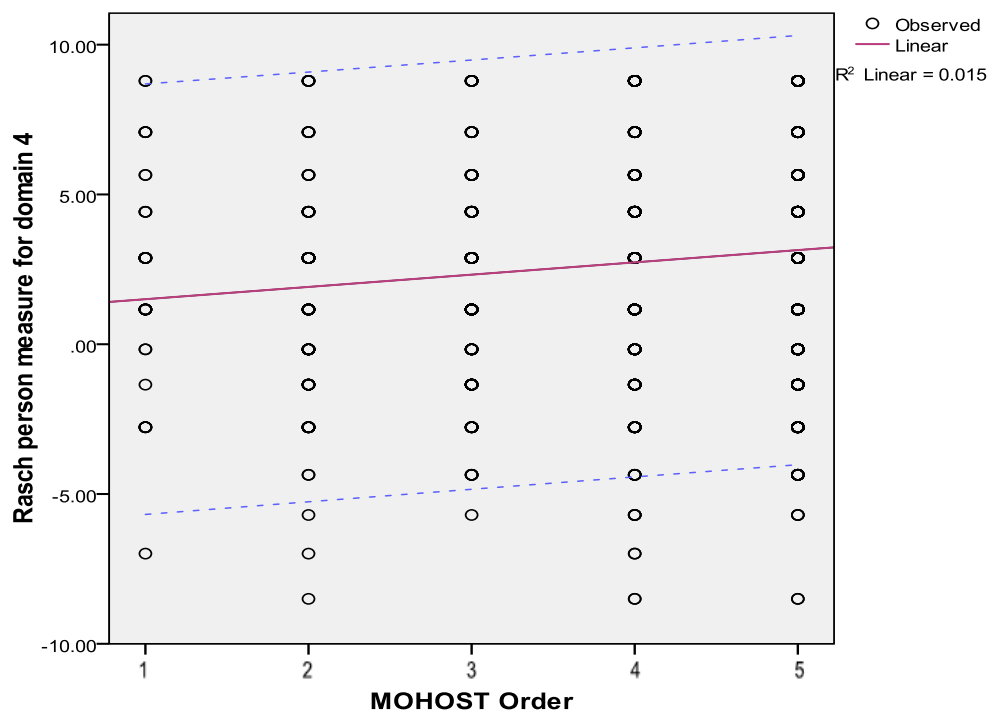


Figure 7. MOHOST Subdomain Regression Analysis: Motor Skills

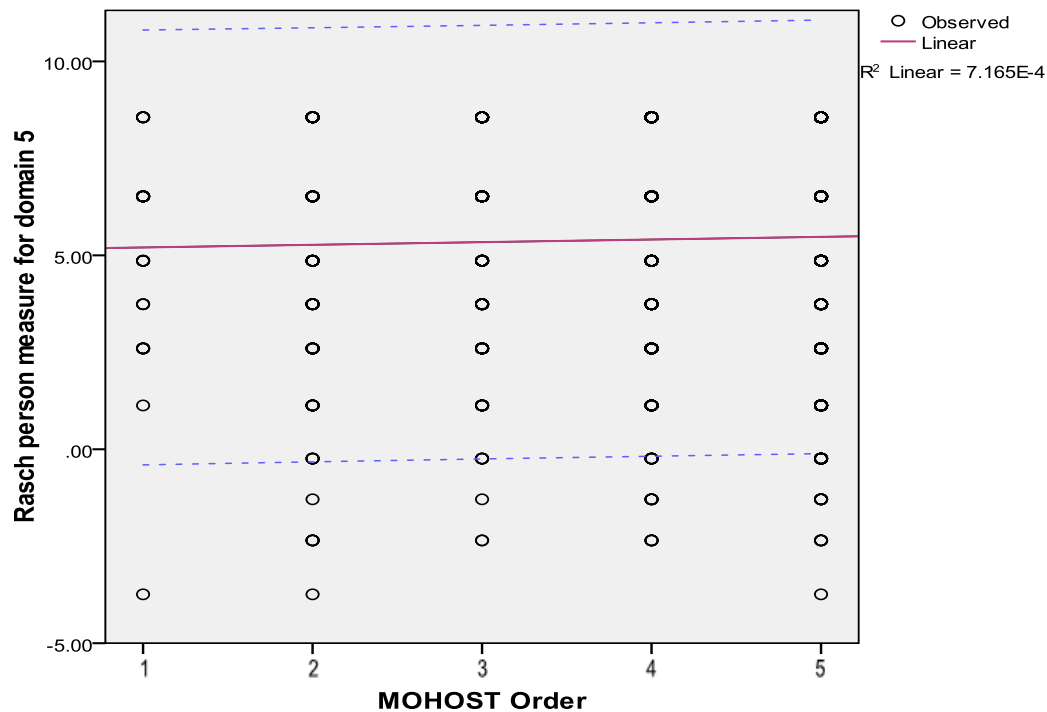
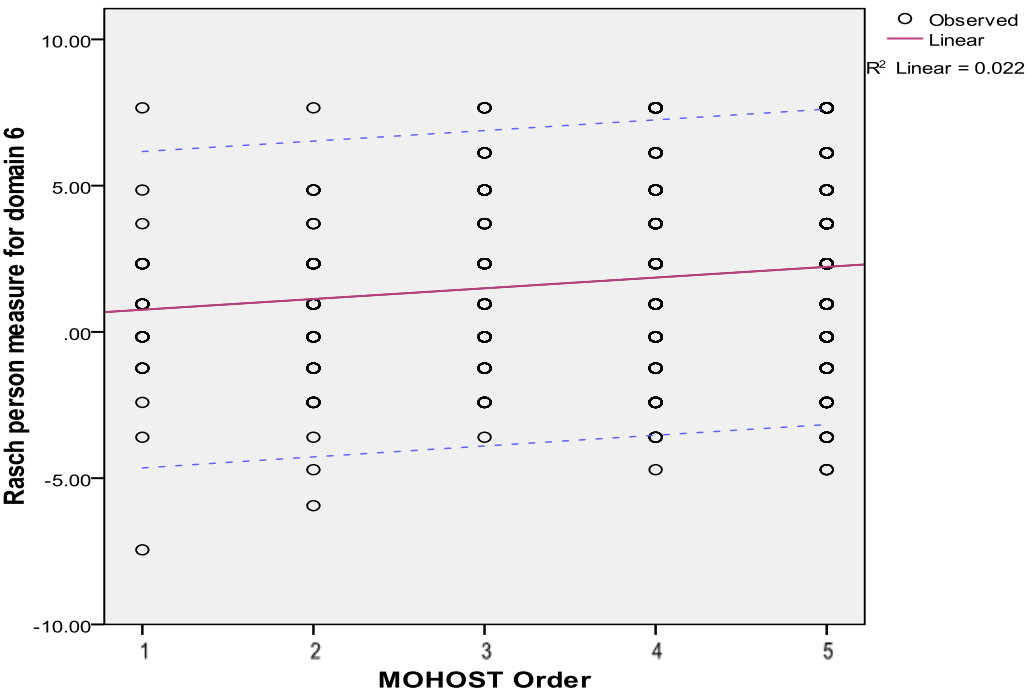


Figure 8. MOHOST Subdomain Regression Analysis: Environment



CHAPTER 6

DISCUSSION: STUDY I

The United Kingdom (UK) was the first country to develop secure settings in regional areas to support the already existing security hospitals (O'Connell & Farnworth, 2007). Previous research has demonstrated that occupational therapists were using MOHO successfully to frame assessment and intervention methods in a general psychiatric setting (Lloyd, 1987); however, no research has been published on its application in a forensic setting until 2005. Forsyth and her colleague (Forsyth, Duncan, & Summerfield-Mann, 2005) conducted a case study and identified that the focus for occupational therapy in forensic settings is to support clients' participation in occupation in order to promote health and manage risk and offending behaviors. In their study, they used the Model of Human Occupation as a framework foundation to inform occupational therapy services. In addition, they outlined the timing, place, and content of occupational therapy services, and how various interventions should be graded.

I.1. Summary of Psychometric Findings

The primary contribution of this study is that we built up a picture for forensic clients with assessments that have already been regularly used in clinic. Routine outcome measurements used in the forensic settings such as the MOHOST, HCR 20, and HoNOS help to describe the intervention progress as well as clients' ongoing and dynamic needs, so that therapists have a guideline to follow and can further move their services into a reflective and evidence-based practice. This would not be achieved if these routine measurements were not documented using research. Based on the assessment results, the ratings can be incorporated into an individual's care plan. Then once progress is met, the client's treatment goals/objectives can be quantified.

Demographic differences have been found between males and females in secure settings. In the current study, the female clients were older than male clients; the older clients had less participation than younger clients did; the male clients had more participation than female clients. In other research projects, Long and his colleagues (Long, Webster, Waine, Motala & Hollin, 2008) conducted a study to measuring forensic clients' treatment needs in medium or low secure hospital. They provided demographic information of enrolled clients and found that 77.8% of male clients were diagnosed as schizophrenia, and 66.7% of female clients were diagnosed as personality disorder. In addition, they reported that male clients were likely to be older and to have longer admissions. Lart, Payne, Beaumont, MacDonald and Mistry (1999) also conducted a literature review and they focused on females in secure psychiatric services. They found that female clients were likely to have committed less severe offences than male clients, but were more likely to have had past psychiatric admissions.

In the security settings, although all the treatment programs are personalized and allow maximum participation of each individual in his or her own care pathway (NHS Commissioning Board, 2013), we still found that clients from less secure settings had better participation than clients from medium secure settings. In addition, whether clients had a history of relationship instability, employment problems, substance misuse problems, major mental illness, and psychopathy were associated with their occupational participation. Cordingley and Ryan (2009) conducted a study to investigate forensic occupational therapists' ideas about risk assessment and what risks they assessed. They used a qualitative approach and had forensic therapists discuss these issues in three focus groups. They concluded that occupational therapists in forensic settings believe that knowing about client risk factors supports their occupational assessments and interventions. Hence, they use an essential risk assessment, such as the HCR-20 to gain

client's historical, current and risk management information, and then consider these risk behaviors when develop treatment plans that address the core concepts of occupational participation.

Regarding clients' psychiatric symptomatology problems, we found that only a few factors had moderate correlations with clients' occupation participation, These included cognitive problems, other mental and behavioural problems, relationship problems and activities of daily living problems. Other problems were not significantly associated with clients' occupational problems, which is consistent with previous study. A previous study (Lee, Morley, Taylor, Kielhofner, Garnham, Heasman, & Forsyth, 2011) documented the occupational profiles from 645 forensic clients who were categorized into 20 clusters by the HoNOS. They found that there was significant variation in the occupational characteristics of clients within the PbR clusters. Therefore, the researchers concluded, "Although the PbR clusters may be useful as a general guide to identifying the overall service needs of service users with mental illness, care packages for occupational therapy services may be complemented by other measures that delve more deeply into the occupational problems among individual service users. (Lee, Forsyth, Morley, Garnham, Heasman, & Taylor, 2013, p.42)" Afterwards, the same research group conducted another study to examine the relationship between the PbR clusters and forensic clients' occupational engagement (Lee, Forsyth, Morley, Garnham, Heasman, & Taylor, 2013). They examined the naturally occurring groupings of forensic clients based on ratings from the MOHOST. The results showed that clients' categorization to the PbR clusters had a relatively low relationship to the level of their occupational participation. They concluded that, except for the psychiatric symptomatology and risk factor evaluation, occupational therapists would need to

include some occupation-focused assessments to completely understand client's occupational functioning and occupational needs as a foundation for intervention planning.

There is always a need for teamwork for clients with complicated needs. The multidisciplinary team in forensic settings includes “forensic psychiatrists, clinical psychologists, mental health nurses, social workers and allied health professionals such as occupational therapists, art therapists, specialist clinical pharmacists, forensic psychologists, and speech and language therapists (NHS Commissioning Board, 2013)”.

In rehabilitation, there has been an increased interest in the concept of participation and its changes over time (Rochette, Korner-Bitensky, & Levasseur, 2006). The amount of change in participation is an important indicator of rehabilitation quality. In order to conclude that it is indeed the clients who have changed over the course of the therapy and not the item difficulty, constant "anchor" values are required to fix item difficulties at different time points so the clients are measured by a common frame of reference. By converting clients' raw scores into Rasch measures, we did find that clients' MOHOST scores improved over time. However, occupational therapy is one aspect of an overall program and there were other professionals involved in the treatment within the forensic settings. Therefore, from our perspective, we could say that occupational therapists may be one of the efficient multidisciplinary team members who enable clients have better participation during their hospitalization.

I.2. Occupational Participation/Choices for Forensic Patients

Occupational therapy in forensic settings can be considered as similar to that which occurs in general psychiatry settings, but within the restrictions of a secure environment (Flood, 1997; Chacksfield, 1997). According to Chacksfield (1997), occupational therapists use the

environment and everyday activities to design purposeful tasks so that clients can involve themselves in meaningful participation. This is the unique difference between occupational therapists and other professionals in security settings. Cordingley and Ryan (2009) pointed out,

“Patients in therapeutic groups have demands, opportunities and restrictions placed upon them and all therapeutic work in the forensic setting is subject to security procedures. The security control of items affects everyone entering a forensic organization (Duncan, 2008). Although therapeutic occupations may not have inherent means of harming oneself or others, restricted access to tools and materials can limit occupational choices of the patients, increasing boredom and frustration” (p.536).

The following information was obtained from the occupational therapists in the settings from where the clients were drawn.

Clients in security settings have limited choices in occupational participation due to the nature of the risks that need to be avoided, especially during the earlier stages of their admission. From the perspective of occupational participation, there are a few factors that would influence clients’ choices in secure settings. For example, clients’ illness condition, personality and risk. Therefore, sometimes providing “free choice” to clients may mean that clients could continue to engage in anti-social activities and reoffend. For instance, clients with pedophilic tendencies that choose to habitually watch children’s television because that is what they find personally meaningful. Hence, the occupational therapy programs at the forensic hospital have another important purpose, and that involves treating clients based on their therapeutic needs. There is still a range of occupations, from sports to vocation, creative, life skills, education etc., which helps to promote choice in a restrictive environment. Once people achieve leave and are

progressing towards discharge, many more choices become available with increased options for therapists to become even more client-centered.

Spontaneous activity comes in the form of a game of pool or playing on the Nintendo Wii. These activities tend to occur more naturally between the patients - these do not require facilitation but do require staff supervision so they are not literally spontaneous. Genuinely spontaneous things like listening to music and reading a book are also limited but less so. For example, according to one enrolled therapist, clients could keep up to 10 CDs in their room at any one time and have to get staff to rotate them. Meaning of occupation in the forensic context is about providing a basic structure and routine for those clients, ensuring their skills are developed and maintained, developing their social skills and interests, assessing and managing risk, and gradually increasing personal responsibilities over time so that they can be transferred back into the community. Whether clients engage in occupational therapy out of a genuine desire to change themselves or to play the game to move on is still debatable. Therapists found that clients were able to find meaning in activities they may not have considered before. In addition, some activities have built in purpose – particularly creative activities, where the end product provides opportunities for both meaning and purpose. For example, a client who is making a doll's house as a Christmas present for his daughter.

While in the forensic hospital setting, clients would sit down once a week with their therapist and select from a range of possible activities on the timetable. Over time, as their health improves and their risk diminishes, more 'choice' opens up to them, including activities using sharp objects and activities in the community. Ultimately, it is a client's choice whether or not to participate in these activities but there is an expectation for them to participate.

The MOHOST was assessed for each client as he or she admitted to the hospital, and was re-assessed at six-month intervals. The ratings on the MOHOST were based on a combination of 1) clients' participation in one-on-one occupational therapy, 2) clients' overall ward participation, and 3) participation in the community. The one-on-one occupational therapy session may include but is not limited to: Goal setting/Review, weekly therapy planning, discussing / planning / reviewing current interventions, skills training – for example cooking sessions or support with developing community skills, such as shopping, public transport, engaging with a leisure activity or a vocational occupation. The ward participation is defined as group participation. Each unit may offer a variety of groups, such as debate group, cooking, gardening, and art group that provided by occupational therapists. For the participation in the community, there are some groups, such as the gym workout group, swimming group, walking group, and certain voluntary placements in the community.

The choice of treatment is determined by clients' interest, functional needs and risk. The one-on-one therapeutic activities are mostly used to establish a therapeutic relationship. Clients' MOHOST scores in the early stages of admission, with no leave, would be based largely on one-on-one therapy session and group observations. The scores would also reflect any evidence about their past functioning – particularly during early stages in the admission. And depending on the degree of engagement / stage of clients' stability, the therapist may have more chance to obtain MOHOST scores by clients' community participation.

I.3. An Occupational Approach using MOHOST in a Secure Setting

Below is a case example provided by a forensic occupational therapist. It shows how occupational functioning can contribute to a patient being detained or are impacted on by being in a secure environment.

[Note: This case example is provided by Mark Garnham, a forensic occupational therapist]

“Alan was a 20 year old student, brought up on an isolated rural farm. He came from a deeply religious background and had conformed to the norms, habits and structure provided by his upbringing into his adult life. On finishing school he decided to pursue an academic career and won a place at a university. Moving to Leeds was his first prolonged period of time away from home on his own.

He placed high value on the need for academic achievement, as did his family. The change to living in a city however caused a marked social and environmental dislocation from his former habits and routines. He became gradually more stressed living away from home, fending for himself, and trying to make new friends. He described himself as socially awkward with little in common with the individuals he was working with academically and living with.

In an attempt to relieve his sense of dislocation he attempted to integrate with his new social group by drinking. The initial period of alcohol use quickly escalated to social drug use and what started as a coping mechanism became habituated, resulting in him becoming addicted to illicit drugs. Alan withdrew both socially and academically leading to a breakdown in his

relationship with his peers, family and the university. His drug use triggered a psychotic episode resulting in complete withdrawal from any normalized social interaction with others.

Following an attack on his roommate Alan was admitted to a low secure unit. On admission, he presented as withdrawn, markedly paranoid and very difficult to engage. After settling in and with medication he became more amenable to working with the therapy team and the baseline assessment (MOHOST) was performed which highlighted the following areas of need:

- Volition - Alan had limited interests compared to his premorbid levels, his value set was intact and he still set a high value on personal achievement, but had lost the confidence (personal causation) to engage in any interests.*
- Habituation – All his past roles had been disrupted by his admission, and he retained belief in habits and routines that maintained his illness and were not supportive of his current situation.*
- Performance – He perceived his performance as much reduced and this was a source of concern to him.*
- Environment – The secure environment was completely alien to his norms.*

From this early assessment, a programme of interventions was agreed. This included using a computer, working in the therapeutic garden which reflected his family background and provided opportunities for success, and work on his self-care and ADL skills. These were identified as relevant and meaningful to him from his past and student life.

A picture began to emerge of his limited expectation of success and poor appraisal of his existing abilities, and interventions were put in place to address some of his perceived deficits and to challenge his belief in his levels of performance. This included a grading of sessions to maintain

his skill base, gradually increasing his confidence in his skills, developing supportive habits and routines and helping him accept slightly lower standards than previously valued. There was a rapid improvement in his ADL skills, with Alan once again taking a pride in his appearance and developing supportive routines and relationships.

Alan engaged in a gradual process of re-introduction to the community. He initially identified using the local internet café as a meaningful and purposeful activity and from this engaged in some short-term classes at the local college. After a successful period of rehabilitation back to the community, Alan decided that he was ready to return to his course at the university. With the support of academic staff and the forensic outreach OT, Alan made a staged return to the course and went on to complete his degree. The process in total from admission to successful return to university took a total of 17 months.”

I.4. Limitations

Caution in interpreting these results is warranted. The largest portion of enrolled clients in this study was diagnosed with schizophrenia, so other psychiatric disorders were under-represented. Additionally, the clients were retrieved as a convenience sample from six mental health trusts, where information of the MOHOST, HCR-20 and HoNOS were in their clinical records. Because of the nature of the retrospective study, data were limited to demographic variables. We did not have information for therapists who did the ratings as well. In addition, the selective nature of the sample should be considered. All the clients in the current study were from low security and medium security settings, so that the results of this study will not be used to convey information for clients in high security settings as it is possible that those clients in high security settings might perform differently. Generalization of the results should be conducted cautiously.

I.5. Conclusion

This study built up a picture for forensic clients with three assessments that have been used in clinic regularly. Clients from less secure settings had better participation than clients from medium secure settings. Clients with a history of relationship instability, employment problems, substance misuse problems, major mental illness, psychopathy, cognitive problems, and activities of daily living problems were associated with their occupational participation. In addition, clients' overall occupation participation improved over the two year when receiving occupational therapy. Routine outcome measurements used in the forensic settings help to describe the intervention progress as well as clients' ongoing and dynamic needs.

CHAPTER 7

DISSERTATION STUDY: STUDY II

II.1. Background

Patient perception of therapy has often been viewed as “an abstract and multidimensional phenomenon” (Hudak & Wright, 2000). As a health professional, an occupational therapist seeks to maximize clients’ satisfaction and strives to create a positive perception of therapy, which is the ultimate goal from both the clinical and research perspectives. Clients with positive perceptions are more likely to adhere to therapists’ advice to follow treatment plans and continue to seek therapy when needed (Mitchell & Selmes, 2007). Therefore, Norrby and Bellner (1995) stated that “success or failure in the helping process is a function of the interaction of both patient and therapist variables.”

The results from Palmadottir’s study indicate that the client-therapist relationship is one of the aspects that influence clients’ perception of occupational therapy outcome (Palmadottir, 2003). Goldstein and his colleagues’ study (Goldstein, Elliott, & Guccione, 2000) supports this conclusion as well. They propose a 15-item questionnaire to measure clients’ perception of physical therapy and indicate that client-therapist interaction is the most important dimension. In another study, Bressington, Stewart, Beer, and MacInnes (2011) investigates 44 clients inside secure settings and points out that clients’ satisfaction with forensic services is strongly associated with their experiences of the therapeutic relationships with their main therapists and the social climate of the ward. Moreover, researchers find that whether or not a therapist spend adequate time with a client, demonstrate strong listening and communication skills, offer a clear explanation of treatment (Beattie, Pinto, Nelson, & Nelson, 2002), and whether or not clients are treated with respect and involved in treatment decisions (Cleary & Edgman-Levitan, 1997) are

aspects significantly related to clients' satisfaction. Other factors such as the hospital location, the equipment quality and the availability of parking are less important (Beattie, Pinto, Nelson, & Nelson, 2002; Cleary & Edgman-Levitan, 1997).

Due to the complexity of clients' perception of therapy, aspects of the therapeutic relationship are often difficult to directly observe. Most of the previous researchers and clinicians get this information in an indirect manner, that is, have the clients fill out a self-report assessment and ask them to answer a general question such as, "Overall, I am satisfied with my therapy/treatment." Although these kind of questions are easy to administer, they cannot provide more detailed information about why or why not these clients are satisfied with treatment (Baker, 1990). Given their lack of details, surveys such as these have limited utility, since therapists won't be able to improve both the treatment outcome and care. Even though they have clients' feedback, it is often too vague to lead therapists to change their approach to communication in therapy.

Therefore, researchers have recommended using multidimensional measures (Beattie, Pinto, Nelson, & Nelson, 2002). However, a standardized tool to evaluate the client-therapist interaction remains lacking in the field of occupational therapy (Vegni, Mauri, D'Apice, & Moja, 2010). Also, it is interesting to note that it is sometimes indicated that the client-therapist relationship be explored by qualitative, narrative research methods and few quantitative research studies have been conducted (Crepeau, 1991).

II.2. Purposes of the Study and Research Questions

The purpose of this present study is to examine the psychometric properties of a set of newly developed assessments based on the Intentional Relationship Model (Taylor, 2008) and designed

to quantify aspects of therapeutic communication in rehabilitation: the Clinical Assessment of Modes Questionnaires (CAM) – including the Therapist version (CAM-T) (Taylor, Wong, Fan, Kjellberg, Alfredsson-Agren, Andersson, & Zubeil, 2013c), the Client version (CAM-C) [including pre-test (CAM-C1) (Taylor, Wong, Fan, Kjellberg, Alfredsson-Agren, Andersson, & Zubeil, 2013a) and post-test (CAM-C2) (Taylor, Wong, Fan, Kjellberg, Alfredsson-Agren, Andersson, & Zubeil, 2013b)], and an Observational version (CAM-O) (Fan, Taylor, Wong, & Zubeil, 2013). In addition, these assessments would be used to show the descriptive characteristics of clients. In this study, we used Rasch analysis and Classical Test Theory to examine the reliability and validity of the CAM measures.

II.2.1. Objectives

The following questions were addressed in this study:

1. Does the Clinical Assessment of Modes (CAM) Questionnaire (including CAM-C1, CAM-C2, CAM-T, and CAM-O) demonstrate acceptable internal consistency?
2. Does the CAM questionnaire (including CAM-C1, CAM-C2, CAM-T, and CAM-O) demonstrate acceptable construct validity?
3. Does the CAM-O demonstrate acceptable inter-rater reliability?
4. What are the mode preferences and perceived mode experiences of orthopedic and neurological clients in rehabilitation sciences?

II.2.2. Hypotheses

Hypothesis I: The items that belong to the six modes should have acceptable internal consistency, and

Hypothesis II: Each mode should form a unidimensional construct representing the underlying latent trait.

Hypothesis III: The CAM-O should demonstrate acceptable inter-rater reliability provided that raters are adequately trained in interpreting the six modes within the Intentional Relationship Model (Taylor, 2008).

II.3. Methods

II.3.1 Participants and Institutions

- Clients

One hundred and twenty clients who were receiving rehabilitation treatment (including all diagnoses) at the University of Illinois Hospital and Health Sciences System (UICHSS) participated in this project. To be included in this study, participants had to be referred to rehabilitation therapy services (including physical therapy, occupational therapy and speech therapy). They had to be above 18 years old, cognitively and medically stable, able to respond to the questionnaires, and had at least scheduled three treatment sessions with the assigned therapists. Clients with significant brain injury, cognitive problems, and clients with psychiatric disorders that involved an acute episode of self or other harm and were under 24 hour supervision were excluded.

- Therapists

Therapists (including physical therapists, occupational therapists and speech therapists) who were working at the University of Illinois Hospital during the study period were invited to participate in this study; student therapists who worked under the supervision of licensed therapists were invited to participate as well. One therapist may have been paired with multiple

clients. If a client was being seen by more than one consenting therapist, only one therapist was randomly chosen by the research team to be included in this study in order to constitute a unique client-therapist pairing.

II.3.2 Instruments

Clinical Assessment of Modes Questionnaires (CAM)

The Clinical Assessment of Mode Questionnaires is a set of questionnaires based on the Intentional Relationship Model (Taylor, 2008). The model and questionnaires were developed by Dr. Renee Taylor and her research team. These questionnaires aim to measure therapeutic mode use (a specific approach to therapeutic communication) during therapy. The CAM questionnaires contain three sections, which include demographic information (section 1, 8 items), items related to therapists' ability to communicate (section 2, 30 items), and overall satisfaction (section 3, 2 items). The CAM was developed in four versions, which were a Therapist version (CAM-T), a Client version (CAM-C) [including pre-test (CAM-C1) and post-test (CAM-C2)], and an Observational version (CAM-O). Each version contains the same items but is designed to be used from different points of view. Each is scored on a 5-point ordinal scale with the range from 1 = not at all important / never, 2 = slightly important / rarely, 3 = moderately important / occasionally, 4 = very important / frequently, and 5 = extremely important / very frequently. As it was developed based on the Intentional Relationship Model (IRM), the main 30 items can be divided into 6 modes, which are the different types of communication styles: Advocating, Collaborating, Empathizing, Encouraging, Instructing and Problem-solving. Each mode is measured as a unique five-item subdomain. The higher the score for a given mode may indicate that the specific approach to communication was expected/used more frequently than the others.

II.3.3 Research Designs/Procedures

This study used a quantitative study design with a single group of subjects. First, the study information was provided to therapists and student therapists at the University of Illinois at Chicago Hospital & Health Sciences System (UICHSS). The main collaborating therapist at the UICHSS helped screen all new rehabilitation therapy referrals by checking their medical records and by personal contact with patients to ensure that patients were in a mentally stable condition to comprehend all research procedures and were able to complete the study questionnaires. Information then was provided to eligible patients. Participants were further informed that the data would be treated confidentially and they could withdraw from the study at any time. Written consent was gathered prior to the observations.

Once the clients agreed to participate, they were asked to fill out the CAM-C1 (pre-test) to understand their expectations for being treated. Their therapists were informed that their clients have been included in the study. The research assistant assigned to the patients also confirmed with the therapists that the clients were projected to have at least three treatment sessions of therapy.

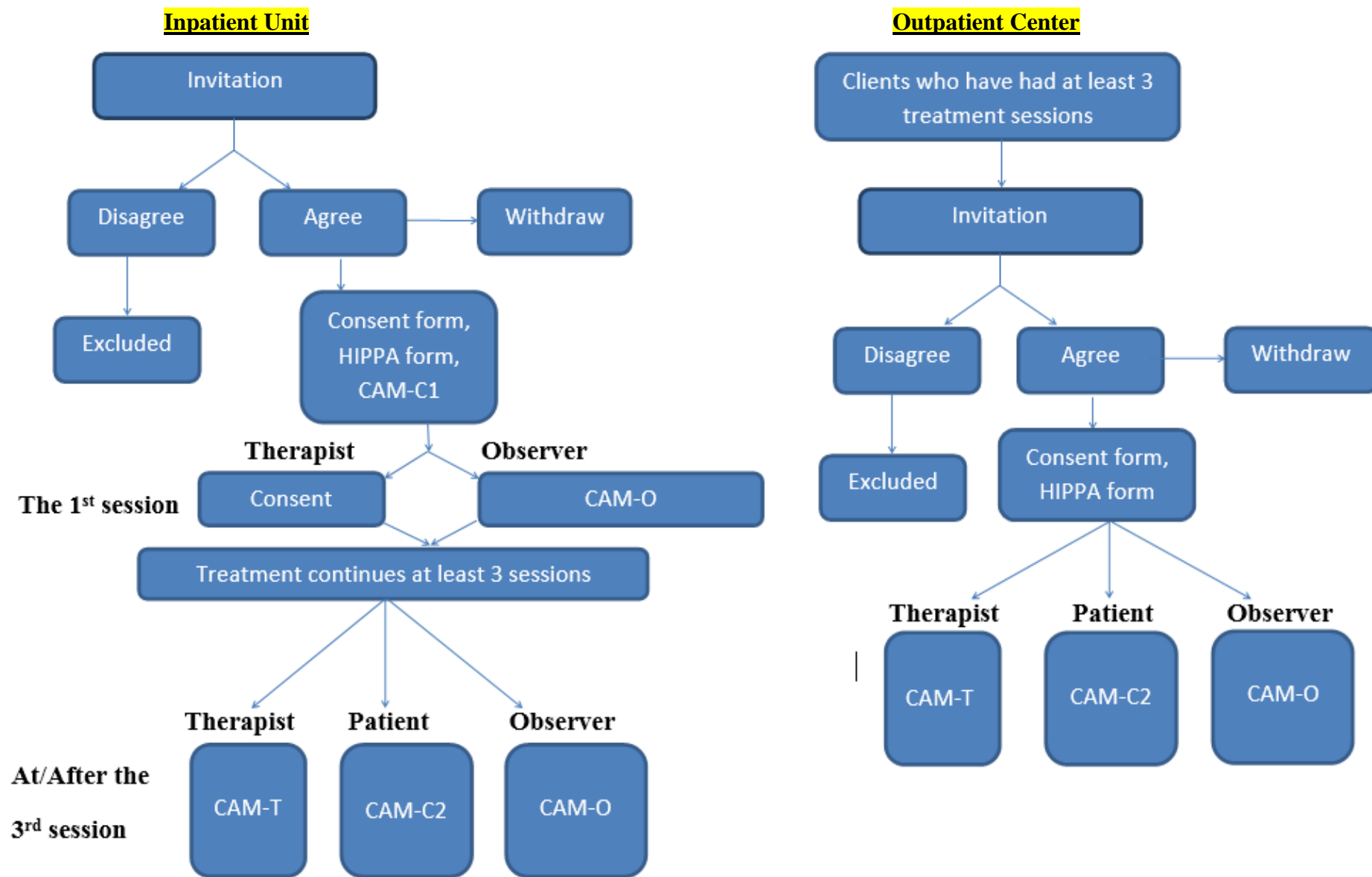
The treatment sessions were conducted by the following professionals: occupational therapists (OT), physical therapists (PT), and speech therapists (ST) based on clients' needs. Once the therapists were provided with a referral, they initiated an evaluation to have a basic idea about the client's function and limitations, and then the therapists set up treatment goals based on the client's needs. Based on the treatment goals (e.g. ADL training, consultation of discharge plan, and fall prevention, etc.), the therapists then created activities/exercise and used

different strategies to work on the client's goals. The treatment sessions last from 30 minutes to 1 hour in the inpatient unit and lasted up to 4 hours for outpatients.

The research assistants (raters) were randomly assigned to one of the professionals' treatment sessions for observation. They observed clients' treatment sessions two times, which included the first treatment session that the therapist first met with clients. Then at or after the client had received at least 3 treatment sessions, the raters observed the treatment session as a follow-up. The principal researcher made sure that both the first and follow-up observations were conducted by the same therapists so that the patient could rate their patient-therapist relationship for the same therapist. After the follow-up observation, the clients were asked to fill out the CAM-C2 (post-test) to show their perception of mode use of their therapists. The therapists were asked to fill out the CAM-T to represent their self-identified mode use during the treatment session. The research assistants (raters) completed the CAM-O at both observations.

Please refer to Figure 9 for more details of study procedures and the questionnaire that we used for each stage.

Figure 9. UICHHS Study Data Collection Procedures



II.3.4 Ethical Permission

The researchers recruited clients from two settings, including the inpatient rehabilitation unit and the outpatient rehabilitation unit at the University of Illinois Hospital. The study protocol had been reviewed and approved by the ethics committees of the University of Illinois at Chicago (IRB protocol number: 2012-0463) before the study was conducted.

II.3.5 Data Analysis

We enrolled 120 patients and 38 therapists (including 13 occupational therapists/students, 24 physical therapists/students, and 1 speech therapist) to the current study. All the statistical were carried out by the SPSS 19.0 for Windows (SPSS Inc., 2011) and Facets version 3.86.1 (Linacre, 2011). A significance level of 0.05 was implemented.

In this study, we examined the psychometric properties of the Clinical Assessment of Modes Questionnaires (CAM). The data from CAM-C1, CAM-C2, CAM-T and CAM-O were analyzed individually.

The data analyses were conducted in the following four steps:

(1). *CAM rating scale analysis*

The following criteria (Linacre, 2002) were adopted to examine the CAM rating scale:

- Each rating category should have more than 10 clients for precise estimates;
- Average measures of each rating category should advance monotonically;
- The unweighted mean-square (Outfit MnSq) fit statistic should be less than 2;
- Four step calibrations should increase within the five CAM rating categories.

Additionally, to investigate whether the 5-point Likert scale of CAM was appropriately used by clients, therapist and observers, the category probability curves were inspected.

(2). *CAM test unidimensionality*

Goodness-of-fit statistics generated by the Rasch analysis were used to examine how well the CAM items fit with the model's expectations. The criteria were set at MnSq = 0.6 to 1.4 with Zstd = -2 to +2. If the items achieved the criteria, then it indicated that the CAM items validly represented the latent trait, i.e. therapeutic communication mode (Bond & Fox, 2007).

In the current study, we examined whether the CAM items in each mode formed a unidimensional construct based on the theoretical objective that each mode can be used effectively depending on clients' preferences and perceptions.

(3). *CAM test targeting*

The Rasch analysis converts the raw scores into logits in terms of item difficulty and person ability so that they can be displayed along the same linear interval continuum. *Perfect targeting* between item and person has been defined as the equivalence of the mean person ability and the mean item difficulty (Linacre, 2011). Previous researchers suggested using the criterion at 0.5 logits as the acceptable differences (Lai & Eton, 2002). In addition, the map generated by Rasch analysis provided a visual inspection of the appropriateness of targeting between items and clients, which also assisted the identification of ceiling effects and floor effects. These effects detract the reliability of assessments because variability of assessment items cannot be demonstrated in clients with extremely high or low values. Researchers suggested that, the ceiling effect is confirmed if more than 15% of the total clients achieved the maximum scores; on the other hand, the floor effect is identified if more than 15% of the total clients met the minimum possible scores (McHorney & Tarlov, 1995).

(4) Item and person separation

In the current study, we use the item separation reliability to examine CAM questionnaires' internal consistency (Linacre, 2011). The separation reliability is comparable to Cronbach's alpha in classical test theory and ranges from 0 to 1. The higher the item separation reliability is preferred as it represents the scale is more reliable. The separation reliability value of 0.80 or greater (Arnadottir & Fisher, 2008) was adopted to indicate that the CAM questionnaires had satisfactory internal consistency. Moreover, we use the item separation index and person separation index to examine the distribution of item and person, respectively. Given the strata formula $= (4G+1)/3$, when the separation index (G) is over 2.0 (Arnadottir & Fisher, 2008), it indicates that the clients can be separated into at least three distinct groups of therapeutic communication and the CAM items can define at least three levels of therapeutic communication. If the above criteria are achieved, we determine that the CAM can be used as a valid estimation of clients-therapist therapeutic mode use.

Inter-rater reliability

To determine inter-rater reliability and discriminate rater severity, 59 clients were randomly chosen to be observed by more than one research assistant at the same time. We invited 7 trained research assistants who had taken part in the pilot study to participate in data collection. Clients were randomly assigned to raters. In all the cases, each research assistant in the pair was unaware of the others' ratings. They all completed their own ratings independently. The observed percentage and expected percentage generated by Rasch analysis were used to analyze inter-rater reliability on the CAM-O. Observed percentage is the exact agreement between raters on ratings under identical conditions, whereas the expected percentage is the exact agreement between

raters on ratings under identical conditions based on Rasch measures. When the observed percentage and the expected percentage are almost equal, it represents good inter-rater reliability (Linacre, 2011).

CHAPTER 8

RESULTS: STUDY II

II.1. Demographic Characteristics

One hundred and twenty clients were enrolled to the current study. Among them, a total of one hundred and ten clients completed the study. The ages of clients range from 18 to 89 years old, with the mean of 50.14 years old (S. D. =15.46). The majority of enrolled clients were diagnosed with a stroke (15.5%) or a fracture (14.5%); about 51% were male clients. There were 57.3% of clients from inpatient rehabilitation unit and 42.7% of clients from the outpatient center. About half of the clients were employed full time and had high school diploma, and one third of the subjects were married. We did not have individual ethnicity information, but the population information for the rehabilitation unit for the calendar year 2013 was: African American 55.5%, Hispanic 17.7%, Caucasian 21.2%, Asian 4.1% and others/unknown 1.5%. Please refer to Table 7 for further demographic details. The ages of therapists range from 21 to 52 years old, with the mean of 32.51 years old (S. D. =11.03). Please refer to Table 8 for further details.

Table 7. Characteristics of Clients in the IRM Study (N=110)

| Characteristic | N (%) |
|-------------------|-----------|
| Gender | |
| Male | 54 (49.1) |
| Female | 56 (50.9) |
| Diagnosis | |
| Stroke | 17 (15.5) |
| Joint replacement | 7 (6.4) |
| Cancer | 4 (3.6) |
| Arthritis | 5 (4.5) |

| | |
|---|------------------------------|
| Fracture | 16 (14.5) |
| Spinal cord injury | 10 (9.1) |
| Traumatic head injury | 4 (3.6) |
| Carpal tunnel syndrome | 9 (8.2) |
| Others (AIDS, gun shot, multiple sclerosis, etc.) | 25 (22.7) |
| Unknown | 13 (11.8) |
| Setting | |
| Inpatients | 63 (57.3) |
| Outpatients | 47 (42.7) |
| Occupational Role | |
| Employed full time | 44 (40.0) |
| Employed part time | 6 (5.5) |
| Receiving disability pension | 21 (19.1) |
| Retired | 16 (14.5) |
| Students | 9 (8.2) |
| Unknown | 14 (12.7) |
| Marital status | |
| Single, Never married | 37 (33.6) |
| Married | 40 (36.4) |
| Separated | 5 (4.5) |
| Divorced | 16 (14.5) |
| Widowed | 12 (10.9) |
| Education | |
| Less than high school | 9 (8.2) |
| High school diploma or equivalent | 53 (48.2) |
| Associate's or technical degree | 18 (16.4) |
| Bachelor's degree | 17 (15.5) |
| Post-graduate degree (Doctorate, Law, etc.) | 13 (11.8) |
| Living status | |
| Living alone | 32 (29.1) |
| Living with partner or spouse | 45 (40.9) |
| Living with other family member | 28 (25.5) |
| Unknown | 5 (4.5) |
| Mean Age | 50.14 y/o (S. D. =15.46 y/o) |

Table 8. Characteristics of Therapists in the IRM Study (N=38)

| Characteristic | N (%) |
|--|------------------------------|
| Gender | |
| Male | 11 (28.9) |
| Female | 27 (71.1) |
| Professional | |
| Occupational therapist/student | 13 (34.2) |
| Physical therapist/student | 24 (63.2) |
| Speech therapist | 1 (2.6) |
| Setting | |
| Inpatient therapist | 34 (89.5) |
| Outpatient therapist | 4 (10.5) |
| The Degree that was Earned to Become Therapists | |
| Bachelors | 10 (26.3) |
| Entry masters | 14 (36.8) |
| OTD, DPT | 14 (36.8) |
| The Highest Degree Earned | |
| Bachelors | 16 (42.1) |
| Masters | 12 (31.6) |
| Doctorate (OTD, DPT, PhD, EdD, DrPH, etc.) | 10 (26.3) |
| Practicing Time as a Therapist | |
| Less than 1 year | 26 (68.4) |
| 1 to 5 years | 7 (18.4) |
| 6 to 10 years | 0 (0) |
| 11 to 20 years | 2 (5.3) |
| More than 20 years | 3 (7.9) |
| Mean Age | 32.51 y/o (S.D. = 11.03 y/o) |

II.2. Clinical Assessment of Modes, Client Preferences version (CAM-C1)

Only the inpatients completed the CAM-C1. Therefore, below analyses were based on the 63 enrolled inpatients.

(1). CAM-C1 rating scale analysis

Among the 30 CAM-C1 items, nine items (2, 3, 10, 11, 12, 14, 15, 22, and 26) had data fewer than 10 clients per rating category (Table 9). The least used category was “Not at all important”. The outfit mean-square was less than 2.0. One third of the items were found to have disordered step measures, especially in category 2 (Slightly important) and category 3 (Moderately important). Average measures across rating categories for each item can be found in Table 9.

The ordering of thresholds of the six modes in the CAM-C1 were graphically demonstrated in the rating category probability curves shown in Figure 11 to Figure 16. Five of the six modes showed disordered thresholds. In Figure 11- the Advocating mode, the point at which the lines for adjacent rating categories cross indicated that the transition between rating categories 2 and 3 was lower on the trait (less communication expectation) than between categories 1 and 2, which was not how the variable was intended to work. In Figure 12, the Collaborating mode showed clearly how item thresholds were properly ordered, where each rating category (1, 2, 3, 4 and 5) systematically has a point along the expectation continuum where it was the most likely response, as indicated by a peak in the curve. In Figure 13 to Figure 16, the Empathizing, Encouraging, Instructing and Problem-solving mode, the transition between rating categories 2 and 3 was lower on the trait (less communication expectation) than between categories 1 and 2, which indicated crossover points were disordered as well. Moreover, the step calibrations for

five of the six modes (shown in Table 21) from category 2 to category 3, were less than those from category 1 to category 2. Therefore, it confirmed the step calibration was disordered.

(2). *CAM-C1 test mode unidimensionality*

Except for item 8 (I want my therapist to tell me how to improve my performance or behavior) and item 18 (I want my therapist to say things that help me to feel normal and like other people), all other 28 items of the CAM-C1 fitted to the Rasch model with acceptable values of MnSq and Zstd (Table 9). Item 8 has Infit MnSq of 1.51 with Zstd 2.1 and item 18 has Infit MnSq of 1.49 with Zstd 2.1.

(3). *CAM-C1 test targeting*

The least expected items in each domain were item 28 (Advocating- I want my therapist to help me contact people who have a similar experience or disability), item 6 (Collaborating- I want my therapist to allow me to choose what will happen next), item 20 (Empathizing- I want my therapist to share something about his/her personal experience so that I do not feel alone), item 25 (Encouraging- I want my therapist to give me a compliment or other kind of reward for something I did), item 22 (Instructing- I want my therapist to show a sense of conviction when making a recommendation), and item 4 (Problem-solving- I want my therapist to help me to think about a problem or activity in a different way). The most expected items in each domain were item 18 (Advocating- I want my therapist to say things that help me to feel normal and like other people), item 10 (Collaborating- I want my therapist to make sure that I work on what matters most to me), item 2 (Empathizing- I want my therapist to listen to me with true interest), item 11 (Encouraging- I want my therapist to make me feel confident about what I am doing), item 3 (Instructing- I want my therapist to explain what is happening or tell me what will happen

next), and item 12 (Problem-solving- I want my therapist to explain different choices to me when guiding me to make a decision). The measure logits ranged from 1.17 to -0.85 (Table 9).

The difference (1.27 logits) of mean logit calibration of item and person exceeded the acceptable criterion of 0.5 logits. Close scrutiny of the actual pattern of rating for the test items, revealed that items in Instructing and Problem-solving mode showed a tendency of ceiling effect with 26.8% and 18.3% of clients who reached maximum scores. No floor effects were found (0~1.4%).

(4) Item and person separation

The item separation reliabilities were found to be 0.91, 0.93, 0.94, 0.89, 0.80, and 0.80 (Table 10) for each mode, respectively, which indicated that the CAM-C1 items in each mode showed acceptable internal consistency as well as defined the construct of clients' expectation of different therapeutic communication mode. The person separation reliability was fair; it was considered as the reliability of the person ordering. Overall, the clients' expectations in different therapeutic modes were reliably estimated by the Rasch analysis. Additionally, the enrolled clients can be differentiated into at least 3 to 5 strata (Table 10).

Table 9. Fit Statistics and Category Average Measures of the CAM-C1

| Mode | Item | Infit MnSq ¹ | Infit Zstd ² | Outfit MnSq ³ | Outfit Zstd ⁴ | Calibration ⁵ | SE ⁶ | Category Average Measure ^{7,8} | | | | |
|----------------------|------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-----------------|---|--------|-------|-------|------|
| | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| Advocating | 28 | 1.03 | 0.2 | 1.02 | 0.1 | 0.41 | 0.13 | -0.78 | -0.20 | 0.38 | 0.91 | 2.29 |
| | 1 | 0.93 | -0.3 | 0.90 | -0.4 | 0.37 | 0.13 | -0.80 | -0.02 | 0.35 | 0.75 | 2.54 |
| | 24 | 0.82 | -1.0 | 0.88 | -0.6 | 0.07 | 0.13 | -0.90 | -0.98* | 0.30 | 0.69 | 2.30 |
| | 9 | 0.76 | -1.4 | 0.75 | -1.3 | -0.15 | 0.13 | -1.26 | -0.56 | 0.10 | 0.35 | 2.17 |
| | 18 | 1.49 | 2.1 | 1.35 | 1.5 | -0.70 | 0.15 | -1.59 | -0.13 | -0.05 | 0.54 | 1.38 |
| Collaborating | 6 | 1.04 | 0.3 | 1.07 | 0.4 | 1.17 | 0.16 | 0.30 | 0.91 | 1.26 | 2.11 | 3.89 |
| | 14 | 0.79 | -1.1 | 0.80 | -1.0 | -0.03 | 0.18 | - | 0.08 | 0.65 | 1.57 | 3.21 |
| | 26 | 0.86 | -0.7 | 0.89 | -0.5 | -0.25 | 0.18 | - | -0.63 | 0.71 | 1.52 | 2.97 |
| | 19 | 1.36 | 1.7 | 1.29 | 1.3 | -0.32 | 0.18 | 0.23 | -0.63* | 0.75 | 1.38 | 2.85 |
| | 10 | 0.94 | -0.2 | 0.94 | -0.2 | -0.57 | 0.19 | - | -0.01 | 0.55 | 1.10 | 2.87 |
| Empathizing | 20 | 0.80 | -1.1 | 0.82 | -1.0 | 1.09 | 0.15 | -0.53 | 0.35 | 1.25 | 1.74 | 4.09 |
| | 13 | 1.11 | 0.6 | 1.14 | 0.7 | 0.10 | 0.17 | -0.32 | -0.07 | 0.52 | 1.31 | 3.12 |
| | 7 | 0.82 | -0.9 | 0.79 | -1.1 | 0.02 | 0.17 | -0.83 | 0.09 | 0.14 | 1.31 | 3.27 |
| | 29 | 1.05 | 0.3 | 0.96 | -0.1 | -0.35 | 0.18 | -0.44 | -0.25 | 0.05 | 1.22 | 2.85 |
| | 2 | 1.15 | 0.7 | 1.21 | 0.9 | -0.85 | 0.20 | - | 1.26 | 0.47* | 0.71* | 2.79 |
| Encouraging | 25 | 1.24 | 1.3 | 1.21 | 1.1 | 0.87 | 0.15 | 0.26 | 0.44 | 0.68 | 1.75 | 3.26 |
| | 5 | 1.07 | 0.4 | 1.36 | 1.7 | 0.16 | 0.17 | 0.76 | 0.76* | 0.19* | 1.67 | 2.93 |
| | 21 | 0.61 | -2.0 | 0.65 | -1.8 | -0.14 | 0.18 | -1.53 | -0.07 | 0.33 | 1.14 | 3.08 |
| | 16 | 1.13 | 0.6 | 1.06 | 0.3 | -0.39 | 0.19 | 1.12 | -0.36* | 0.12* | 0.94* | 2.84 |
| | 11 | 0.74 | -1.2 | 0.68 | -1.5 | -0.50 | 0.20 | - | -0.80 | 0.04 | 1.12 | 2.76 |
| Instructing | 22 | 0.70 | -1.4 | 0.84 | -0.7 | 0.68 | 0.19 | - | -1.16 | 1.08 | 2.21 | 4.26 |
| | 27 | 1.39 | 1.6 | 1.31 | 1.4 | 0.10 | 0.21 | 0.09 | -1.16* | 1.06 | 1.62 | 3.74 |
| | 8 | 1.51 | 2.1 | 1.38 | 1.6 | 0.06 | 0.21 | 0.90 | -0.86* | 1.28 | 1.65 | 3.67 |
| | 15 | 0.77 | -1.0 | 0.75 | -1.1 | -0.22 | 0.22 | - | -1.16 | 0.66 | 1.46 | 3.77 |
| | 3 | 0.67 | -1.5 | 0.63 | -1.7 | -0.63 | 0.24 | - | -0.28 | -0.24 | 1.36 | 3.59 |
| Problem- | 4 | 1.10 | 0.5 | 1.22 | 1.1 | 0.42 | 0.16 | 1.10 | 0.14* | 0.48* | 1.29 | 3.87 |

| | | | | | | | | | | | | |
|----------------|----|------|------|------|------|-------|------|-------|--------|-------|------|------|
| solving | 23 | 0.93 | -0.3 | 0.91 | -0.4 | 0.32 | 0.16 | -0.25 | -0.47* | 0.42 | 1.46 | 3.39 |
| | 17 | 1.12 | 0.6 | 1.08 | 0.4 | -0.02 | 0.17 | -0.11 | 0.57 | 0.07* | 1.14 | 3.28 |
| | 30 | 0.97 | 0.0 | 1.01 | 0.1 | -0.18 | 0.18 | 0.00 | -0.92* | 0.34 | 1.36 | 2.92 |
| | 12 | 0.85 | -0.7 | 0.85 | -0.7 | -0.54 | 0.19 | - | -0.77 | 0.27 | 0.93 | 2.90 |

Note.

The below definition 1 to 4 were retrieved from the Facet software manual (Linacre, 2013).

¹ Infit MnSq = The information-weighted mean-square fit statistics, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean square is a chi-squared fit statistic divided by its degrees of freedom

² Infit Zstd = The Infit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score.

³ Outfit MnSq = The unweighted, outlier-sensitive, mean-square fit statistic, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean-square is a chi-squared fit statistic divided by its degrees of freedom.

⁴ Outfit Zstd = The Outfit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score (Linacre, 2013)."

⁵ Rasch measure of item difficulty. Item with higher calibrations are more difficult for client-therapist communication. Items with lower calibrations are easier for client-therapist communication.

⁶ Model S.E. = the asymptotic standard error when the data fit the model.

⁷ The average measure is expected to increase with category value.

⁸ Category 1 represents "Not at all important", category 2 represents "Slightly important", category 3 represents "Moderately important", category 4 represents "Very important" and category 5 represents "Extremely important".

* indicates the average expectation does not ascend with category score. - indicates its rating category has less than 10 clients.

Table 10. Separation and Reliability of the CAM

| | | Person | | | Item | | |
|---------------------|------------------------|----------------------|-----------------|-------------|----------------------|-----------------|-------------|
| | | Separation index (G) | Strata (4G+1)/3 | Reliability | Separation index (G) | Strata (4G+1)/3 | Reliability |
| CAM-C1 items | Advocating | 1.63 | 2.50 | 0.73 | 3.26 | 4.67 | 0.91* |
| | Collaborating | 1.32 | 2.09 | 0.64 | 3.68 | 5.24 | 0.93* |
| | Empathizing | 1.53 | 2.38 | 0.70 | 3.95 | 5.60 | 0.94* |
| | Encouraging | 1.46 | 2.28 | 0.86 | 2.90 | 4.20 | 0.89* |
| | Instructing | 1.15 | 1.87 | 0.62 | 2.02 | 3.03 | 0.80* |
| | Problem-solving | 1.46 | 2.28 | 0.68 | 2.01 | 3.01 | 0.80* |
| CAM-C2 items | Advocating | 1.88 | 2.84 | 0.78 | 10.32 | 14.09 | 0.99* |
| | Collaborating | 1.02 | 1.73 | 0.52 | 4.72 | 6.63 | 0.96* |
| | Empathizing | 1.06 | 1.75 | 0.53 | 5.85 | 8.14 | 0.97* |
| | Encouraging | 1.05 | 1.73 | 0.72 | 3.33 | 4.78 | 0.92* |
| | Instructing | 0.69 | 1.26 | 0.63 | 3.37 | 4.82 | 0.92* |
| | Problem-solving | 1.26 | 2.02 | 0.61 | 1.21 | 1.95 | 0.70 |
| CAM-O items | Advocating | 1.08 | 1.77 | 0.54 | 11.46 | 15.61 | 0.99* |
| | Collaborating | 1.44 | 2.26 | 0.68 | 7.50 | 10.34 | 0.98* |
| | Empathizing | 1.40 | 2.20 | 0.68 | 11.15 | 15.19 | 0.99* |
| | Encouraging | 1.51 | 2.35 | 0.70 | 1.72 | 2.63 | 0.75 |
| | Instructing | 1.41 | 2.21 | 0.67 | 5.19 | 7.25 | 0.96* |
| | Problem-solving | 1.58 | 2.45 | 0.72 | 3.69 | 5.25 | 0.93* |

| | | | | | | | |
|--------------------|------------------------|------|------|------|-------|-------|-------|
| CAM-T items | Advocating | 0.74 | 1.31 | 0.65 | 17.04 | 23.06 | 0.99* |
| | Collaborating | 1.29 | 2.06 | 0.63 | 6.34 | 8.78 | 0.98* |
| | Empathizing | 1.13 | 1.84 | 0.56 | 11.37 | 15.49 | 0.99* |
| | Encouraging | 1.43 | 2.25 | 0.67 | 1.96 | 2.94 | 0.89* |
| | Instructing | 0.81 | 1.41 | 0.69 | 4.60 | 6.46 | 0.95* |
| | Problem-solving | 0.74 | 1.31 | 0.65 | 17.04 | 23.06 | 0.99* |

Note.

The below definition were retrieved from the Facet software manual (Linacre, 2013).

“Separation = True S.D. / Average measurement error

This estimates the number of statistically distinguishable levels of performance in a normally distributed sample with the same "true S.D." as the empirical sample, when the tails of the normal distribution are modelled as due to measurement error.

www.rasch.org/rmt/rmt94n.htm (Linacre, 2013).”

“Strata = (4*Separation + 1)/3

This estimates the number of statistically distinguishable levels of performance in a normally distributed sample with the same "true S.D." as the empirical sample, when the tails of the normal distribution are modelled as extreme "true" levels of performance.

www.rasch.org/rmt/rmt163f.htm (Linacre, 2013).”

Separation Reliability = is the Rasch equivalent of the KR-20 or Cronbach Alpha "test reliability" statistic, i.e., the ratio of "True variance" to "Observed variance" for the elements of the facet. This shows how reproducibly different the measures are. High (near 1.0) person and item reliabilities are preferred.

* Separation reliability > 0.80 (Arnadottir & Fisher, 2008).

Figure 10. Map of Person and the CAM-C1 Items

MEASURE patients - MAP - CAM-C1

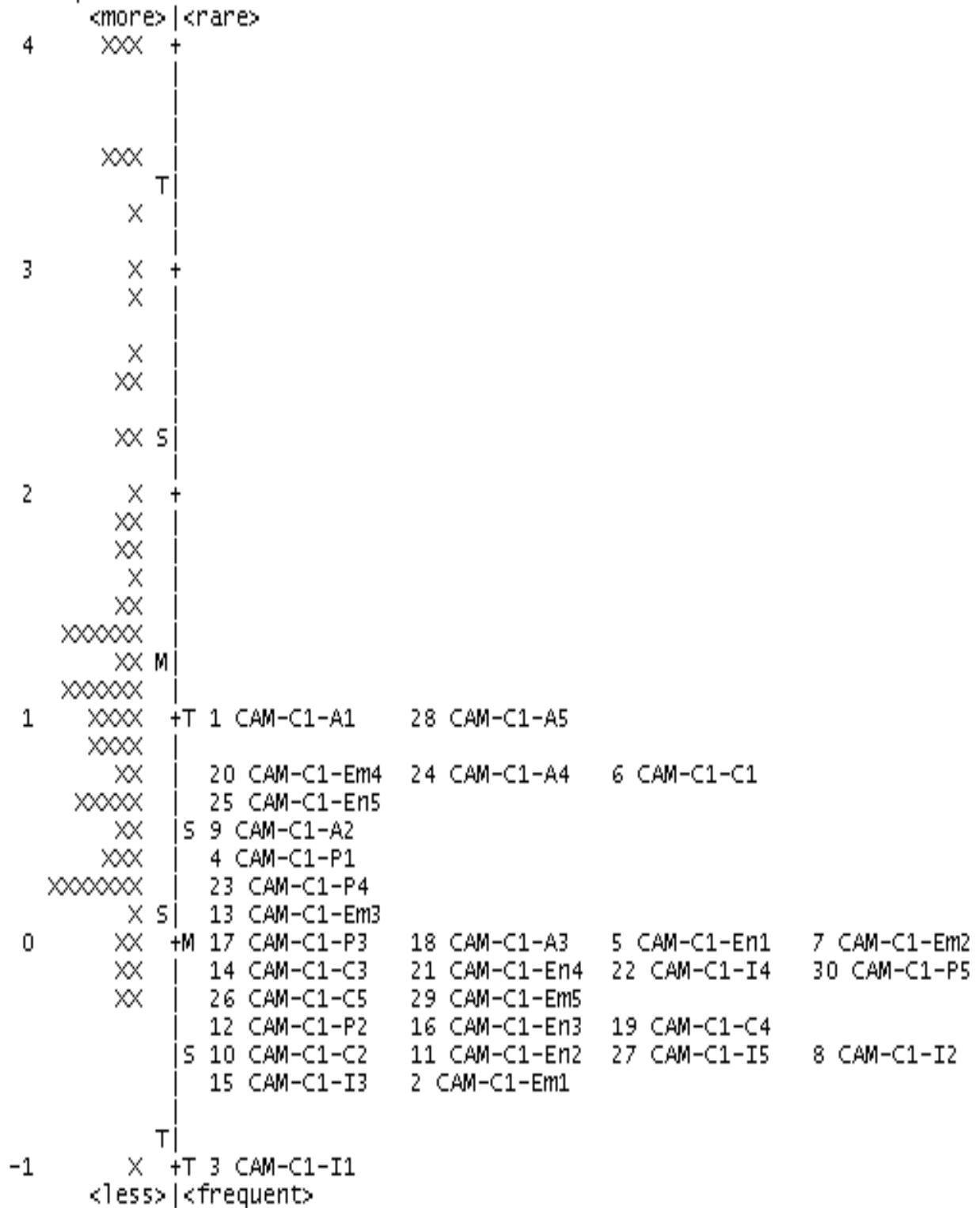


Figure 11. Probability Curves of the CAM-C1-Advocating Mode

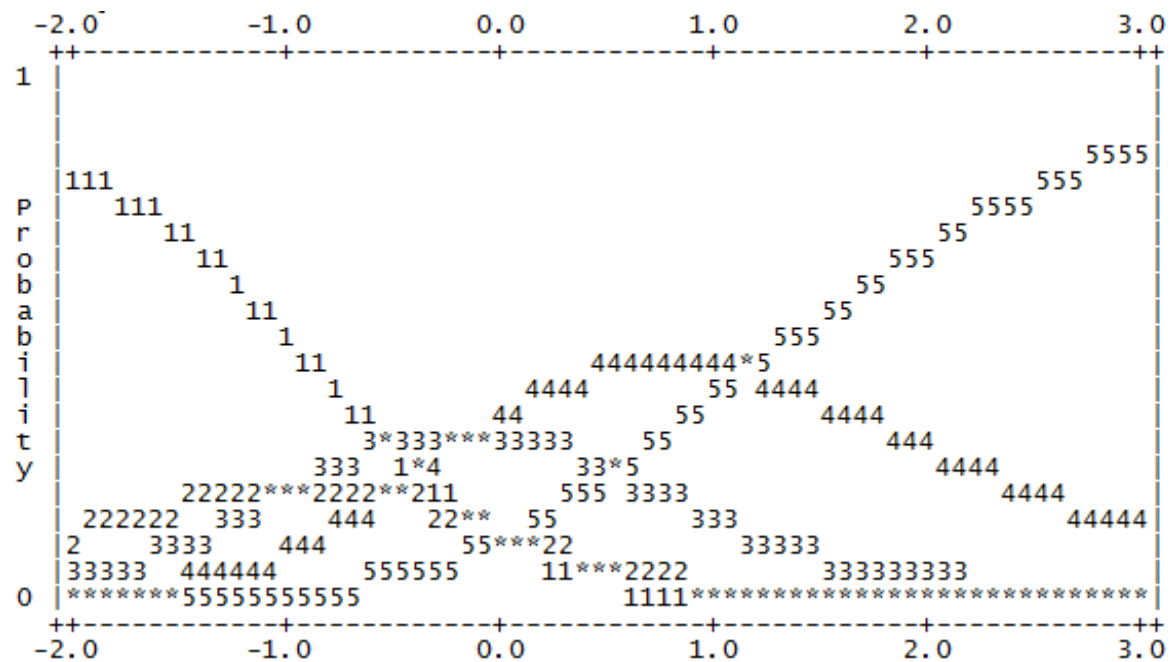


Figure 12. Probability Curves of the CAM-C1-Collaborating Mode

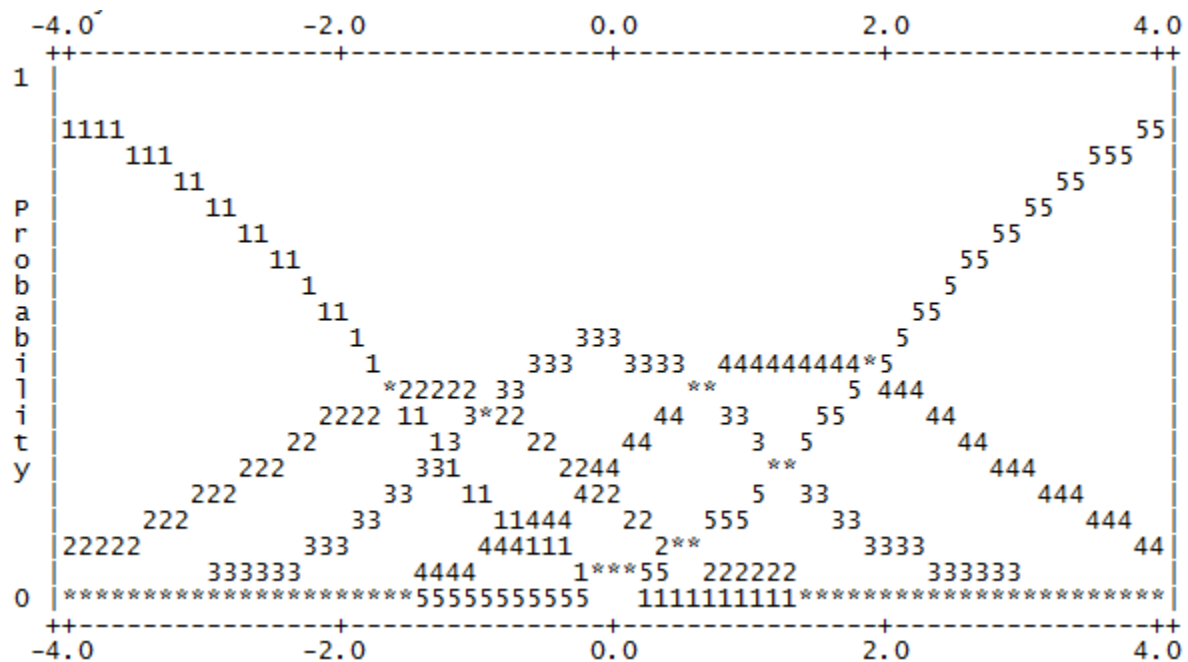


Figure 13. Probability Curves of the CAM-C1-Empathizing Mode

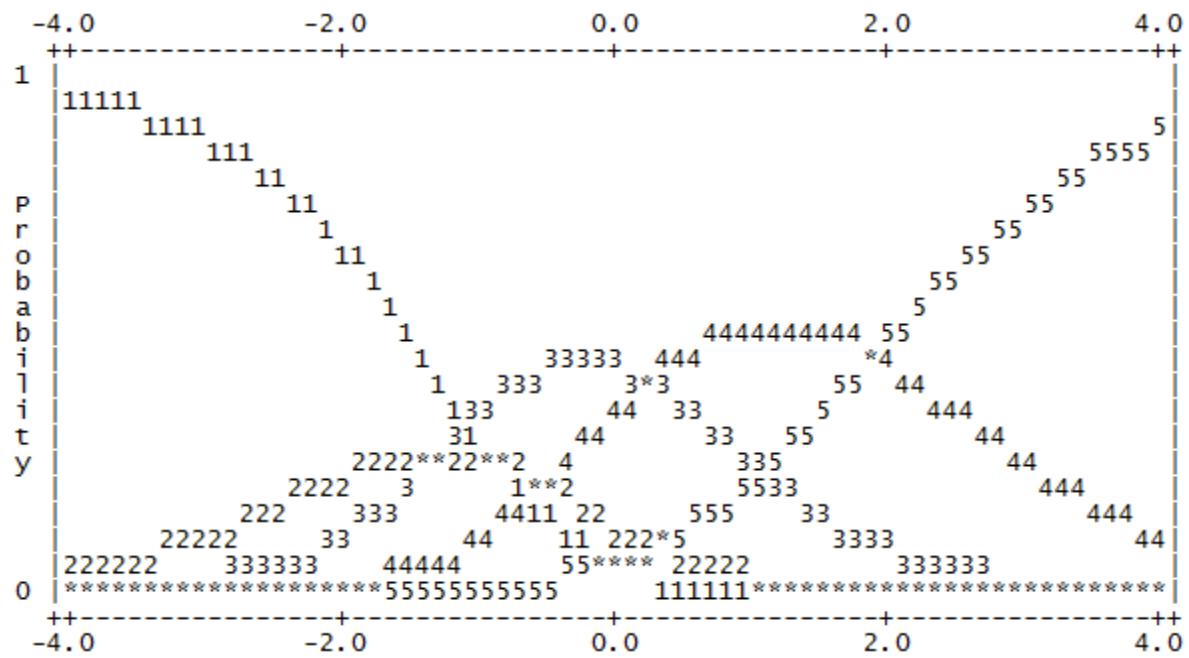


Figure 14. Probability Curves of the CAM-C1-Encouraging Mode

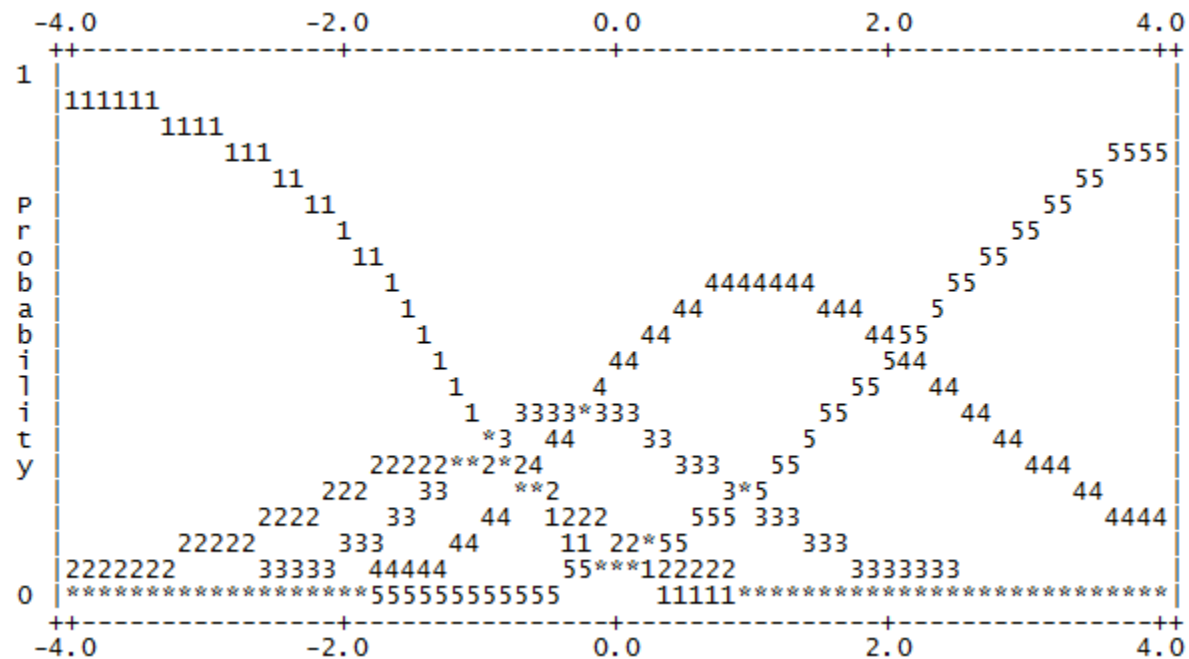


Figure 15. Probability Curves of the CAM-C1-Instructing Mode

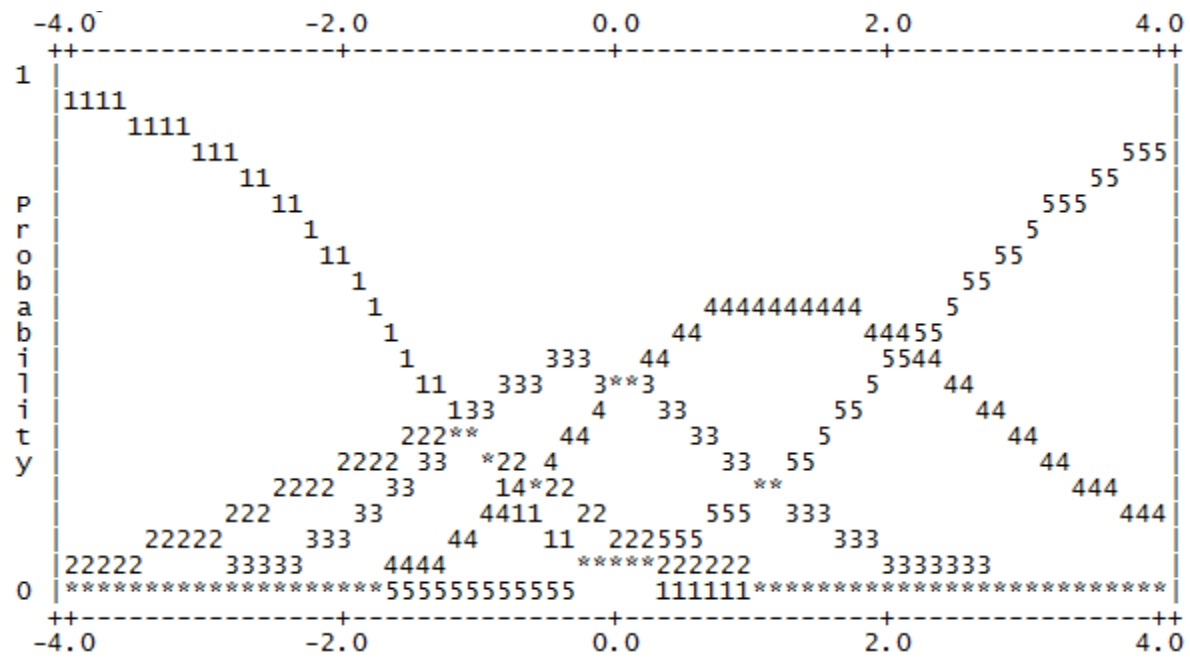
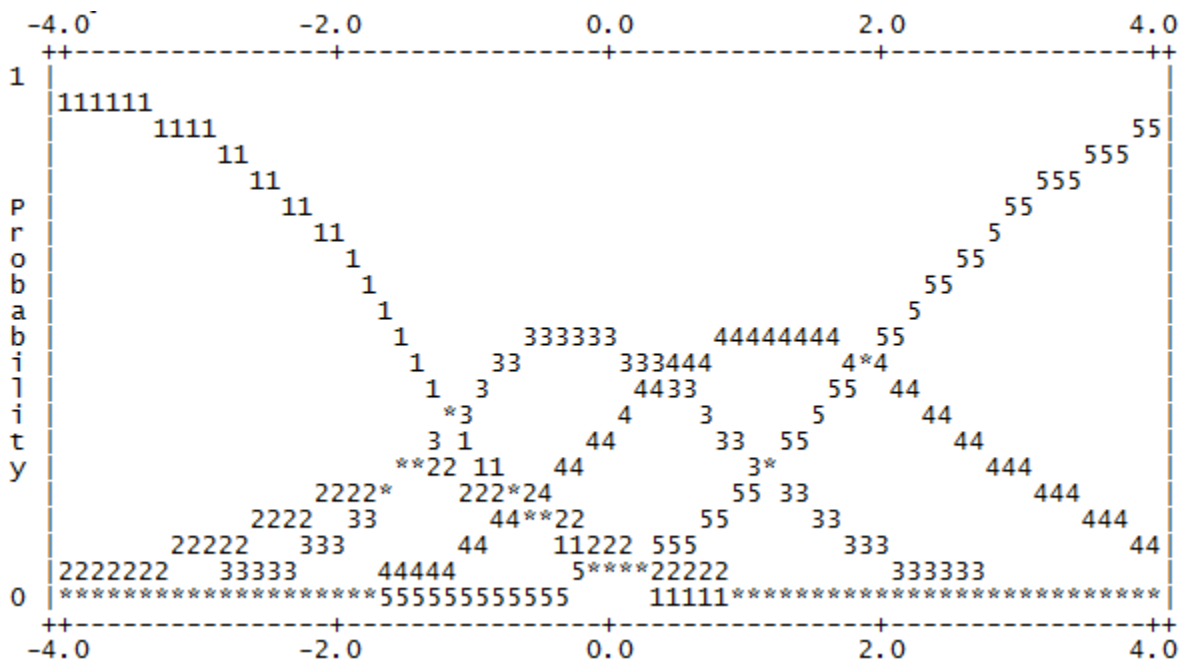


Figure 16. Probability Curves of the CAM-C1-Problem-solving Mode



II.3. Clinical Assessment of Modes, Client Outcomes version (CAM-C2)

Both the inpatients and outpatients had completed the CAM-C2. To ensure differences of the CAM-C2 score of these two groups were not influenced by natural characteristics, we used the Chi-square and independent sample t test to examine the demographic characteristics. The Chi-square test was used to check the nominal data, and the results showed that gender ($p=0.254$), marital status ($p=0.368$), and education ($p=0.369$) did not have significant differences between inpatients and outpatients. Independent sample t test was used to check the interval data. The results showed that age ($F=10.37$, $p=0.311$) did not have significant differences between groups. Therefore, the inpatients ($N=63$) and outpatients ($N=47$) data were combined in the following analyses.

(1). CAM-C2 rating scale analysis

Among the 30 CAM-C2 items, eight items (2, 3, 4, 5, 8, 15, 16 and 17) had data fewer than 10 clients per rating category (Table 11). The least used categories were “Never” and “Rarely”. The outfit mean-square was less than 2.0. Almost half of the items were found to have disordered step measures, especially in category 2 (Rarely) and category 3 (Occasionally). Average measures across rating categories for each item can be found in Table 11.

The ordering of thresholds of the six modes in CAM-C2 were graphically demonstrated in the rating category probability curves shown in Figure 18 to Figure 23. All the six modes showed disordered thresholds. In Figure 18 to Figure 23, the transitions between rating categories 2 and 3 were lower on the trait (less communication perception) than between categories 1 and 2; in addition, the transitions between rating categories 3 and 4 were lower on the trait (less communication perception) than between categories 1 and 2. Moreover, the step calibrations for

each mode (shown in Table 21) from category 2 to category 3, were less than those from category 1 to category 2. Therefore, it confirmed the step calibration was disordered.

(2). *CAM-C2 test mode unidimensionality*

All the 30 items of the CAM-C2 fitted to the Rasch model with acceptable values of MnSq and Zstd (Table 11).

(3). *CAM-C2 test targeting*

The least perceived items in each domain were item 9 (Advocating- We talked about legal rights for people with disabilities), item 6 (Collaborating- My therapist allowed me to choose what would happen next), item 20 (Empathizing- My therapist shared something about his/her personal experience so that I did not feel alone), item 25 (Encouraging- My therapist gave me a compliment or other kind of reward for something I did), item 22 (Instructing- My therapist showed a sense of conviction when making a recommendation), and item 30 (Problem-solving- My therapist helped me look at a problem by breaking it down into smaller parts). The most perceived items in each domain were item 18 (Advocating- My therapist said things that helped me to feel normal and like other people), item 19 (Collaborating- My therapist said things that made me feel that we were working together as a team), item 2 (Empathizing- My therapist listened to me with true interest), item 11 (Encouraging- My therapist made me feel confident about what I was doing), item 3 (Instructing- My therapist explained what was happening or told me what would happen next), and item 4 (Problem-solving- My therapist helped me to think about a problem or activity in a different way). The measure logits ranged from 1.47 to -2.18 (Table 11).

The difference (1.27 logits) of mean logit calibration of item and person exceeded the acceptable criterion of 0.5 logits. Close scrutiny of the actual pattern of rating for the test items,

revealed that items in Collaborating, Empathizing, Instructing and Problem-solving mode showed a tendency of ceiling effect with 16.4%, 23.6%, 33.6% and 24.5% of clients who reached maximum scores. No floor effects were found (0~5.5%).

(4) Item and person separation

The item separation reliabilities were found to be 0.99, 0.96, 0.97, 0.92, 0.92, and 0.60 (Table 10) for each mode, respectively, which indicated that the CAM-C2 items in each mode showed acceptable internal consistency as well as defined the construct of clients' perception of different therapeutic communication mode. The person separation reliability was fair; it was considered as the reliability of the person ordering. Overall, the clients' perceptions in different therapeutic modes were reliably estimated by the Rasch analysis. Additionally, the enrolled clients can be differentiated into at least 1 to 14 strata (Table 10).

Table 11. Fit Statistics and Category Average Measures of the CAM-C2

| Mode | Item | Infit MnSq ¹ | Infit Zstd ² | Outfit MnSq ³ | Outfit Zstd ⁴ | Calibration ⁵ | SE ⁶ | Category Average Measure ^{7,8} | | | | |
|---------------|------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-----------------|---|--------|--------|-------|------|
| | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| Advocating | 9 | 0.96 | -0.2 | 0.75 | -0.8 | 0.72 | 0.11 | -1.29 | -0.11 | 0.57 | 0.50* | 1.65 |
| | 28 | 0.94 | -0.3 | 0.76 | -0.8 | 0.66 | 0.11 | -1.32 | -0.10 | 0.30 | 1.03 | 1.11 |
| | 24 | 0.54 | -1.6 | 0.42 | -1.7 | 0.50 | 0.11 | -1.50 | -0.36 | 0.24 | 0.82 | 1.59 |
| | 1 | 1.39 | 2.3 | 1.77 | 1.6 | 0.31 | 0.11 | -1.29 | -0.84 | -0.20 | 0.43 | 0.90 |
| | 18 | 0.90 | -0.4 | 1.51 | 1.8 | -2.18 | 0.15 | -3.52 | -0.62 | -0.97* | -0.48 | 0.01 |
| Collaborating | 6 | 1.32 | 1.9 | 1.31 | 1.7 | 0.88 | 0.11 | 0.48 | 0.90 | 1.07 | 1.51 | 3.09 |
| | 26 | 0.79 | -1.2 | 0.79 | -1.1 | 0.34 | 0.13 | 0.27 | 0.09* | 0.60 | 1.40 | 2.85 |
| | 14 | 0.94 | -0.2 | 0.97 | 0.0 | 0.23 | 0.13 | 0.09 | 0.24 | 0.61 | 1.40 | 2.74 |
| | 10 | 1.06 | 0.3 | 0.94 | -0.2 | -0.52 | 0.17 | -0.33 | -0.70* | 0.38 | 1.13 | 2.37 |
| | 19 | 1.01 | 0.1 | 0.72 | -1.2 | -0.94 | 0.19 | -0.70 | 0.67 | -0.14* | 0.70 | 2.33 |
| Empathizing | 20 | 1.21 | 1.3 | 1.24 | 1.4 | 1.47 | 0.11 | 0.79 | 0.93 | 1.15 | 2.00 | 4.03 |
| | 13 | 1.03 | 0.2 | 1.14 | 0.7 | 0.37 | 0.14 | 0.43 | 0.03* | 0.63 | 1.58 | 3.23 |
| | 29 | 1.15 | 0.7 | 0.95 | -0.1 | -0.14 | 0.16 | 0.53 | 0.03* | 0.45* | 1.13 | 3.03 |
| | 7 | 0.91 | -0.3 | 0.70 | -1.4 | -0.55 | 0.18 | 0.03 | 0.03* | 0.04 | 0.99 | 2.90 |
| | 2 | 0.80 | -0.8 | 0.61 | -1.5 | -1.15 | 0.22 | - | - | -0.04 | 0.80 | 2.68 |
| Encouraging | 25 | 0.80 | -1.1 | 0.77 | -1.4 | 0.83 | 0.14 | 0.37 | 0.40 | 0.82 | 1.58 | 3.63 |
| | 5 | 1.06 | 0.3 | 1.11 | 0.6 | 0.51 | 0.15 | - | 0.85 | 1.29 | 2.08 | 3.11 |
| | 16 | 1.02 | 0.1 | 0.93 | -0.3 | -0.30 | 0.20 | - | - | 0.53 | 1.57 | 2.99 |
| | 21 | 1.20 | 0.9 | 0.95 | -0.2 | -0.34 | 0.20 | 0.04 | 0.04* | 0.32 | 1.42 | 3.03 |
| | 11 | 1.36 | 1.6 | 1.05 | 0.2 | -0.69 | 0.21 | -0.15 | -0.15* | 0.05 | 1.40 | 2.86 |
| Instructing | 22 | 1.18 | 0.9 | 1.17 | 0.8 | 0.79 | 0.14 | 0.73 | 0.56* | 0.83 | 1.75 | 3.64 |
| | 27 | 1.20 | 0.9 | 1.17 | 0.8 | 0.64 | 0.15 | 0.70 | 0.50* | 1.03 | 1.52 | 3.39 |
| | 8 | 0.74 | -1.1 | 0.74 | -1.1 | -0.33 | 0.21 | -0.04 | - | 0.40 | 1.23 | 3.23 |
| | 15 | 0.73 | -1.1 | 0.81 | -0.7 | -0.38 | 0.21 | - | - | 0.42 | 1.23 | 3.20 |
| | 3 | 0.84 | -0.6 | 0.87 | -0.4 | -0.72 | 0.23 | - | - | 0.37 | 1.02 | 3.06 |
| Problem- | 30 | 0.87 | -0.6 | 0.98 | 0.0 | 0.14 | 0.14 | -0.34 | -0.01 | 0.30 | 1.09 | 3.19 |

| | | | | | | | | | | | | |
|----------------|----|------|------|------|------|------|------|-------|--------|-------|------|------|
| solving | 23 | 1.16 | 0.8 | 1.36 | 1.7 | 0.14 | 0.14 | 0.30 | 0.86 | 0.17* | 1.08 | 3.32 |
| | 17 | 1.06 | 0.3 | 0.97 | -0.1 | 0.15 | 0.15 | -0.35 | - | 0.09 | 0.88 | 3.08 |
| | 12 | 0.89 | -0.5 | 0.98 | 0.0 | 0.15 | 0.15 | -0.30 | -0.65* | 0.38 | 0.85 | 3.17 |
| | 4 | 0.89 | -0.4 | 0.96 | -0.1 | 0.16 | 0.16 | -0.36 | - | -0.04 | 1.04 | 2.95 |

Note.

The below definition 1 to 4 were retrieved from the Facet software manual (Linacre, 2013).

¹ Infit MnSq = The information-weighted mean-square fit statistics, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean square is a chi-squared fit statistic divided by its degrees of freedom.

² Infit Zstd = The Infit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score.

³ Outfit MnSq = The unweighted, outlier-sensitive, mean-square fit statistic, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean-square is a chi-squared fit statistic divided by its degrees of freedom.

⁴ Outfit Zstd = The Outfit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score (Linacre, 2013)."

⁵ Rasch measure of item difficulty. Item with higher calibrations are more difficult for client-therapist communication. Items with lower calibrations are easier for client-therapist communication.

⁶ Model S.E. = the asymptotic standard error when the data fit the model.

⁷ The average measure is expected to increase with category value.

⁸ Category 1 represents "Never", category 2 represents "Rarely", category 3 represents "Occasionally", category 4 represents "Frequently" and category 5 represents "Very Frequently".

* indicates the average ability does not ascend with category score. - indicates its rating category has less than 10 clients.

Figure 17. Map of Person and the CAM-C2 Items

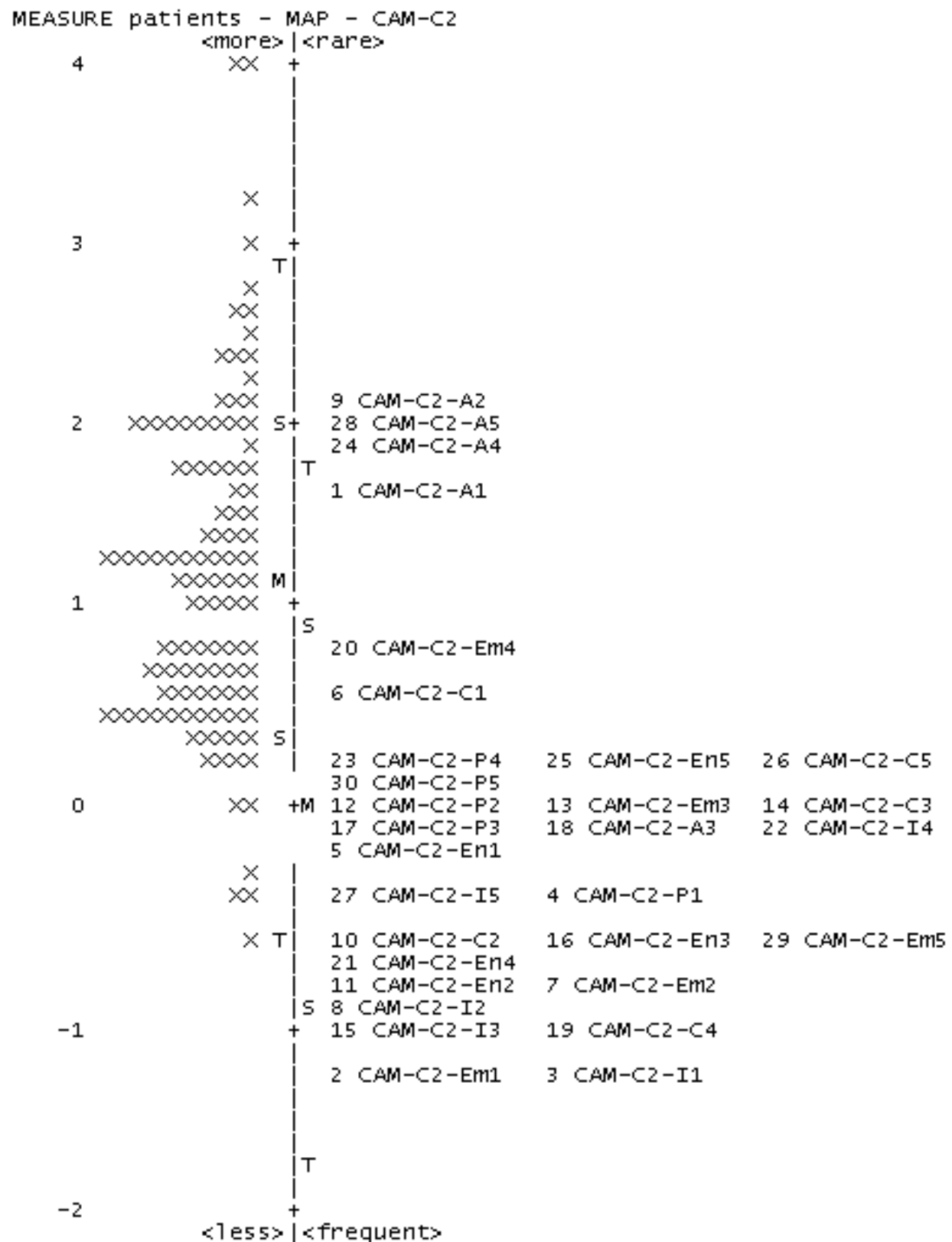


Figure 18. Probability Curves of the CAM-C2-Advocating Mode

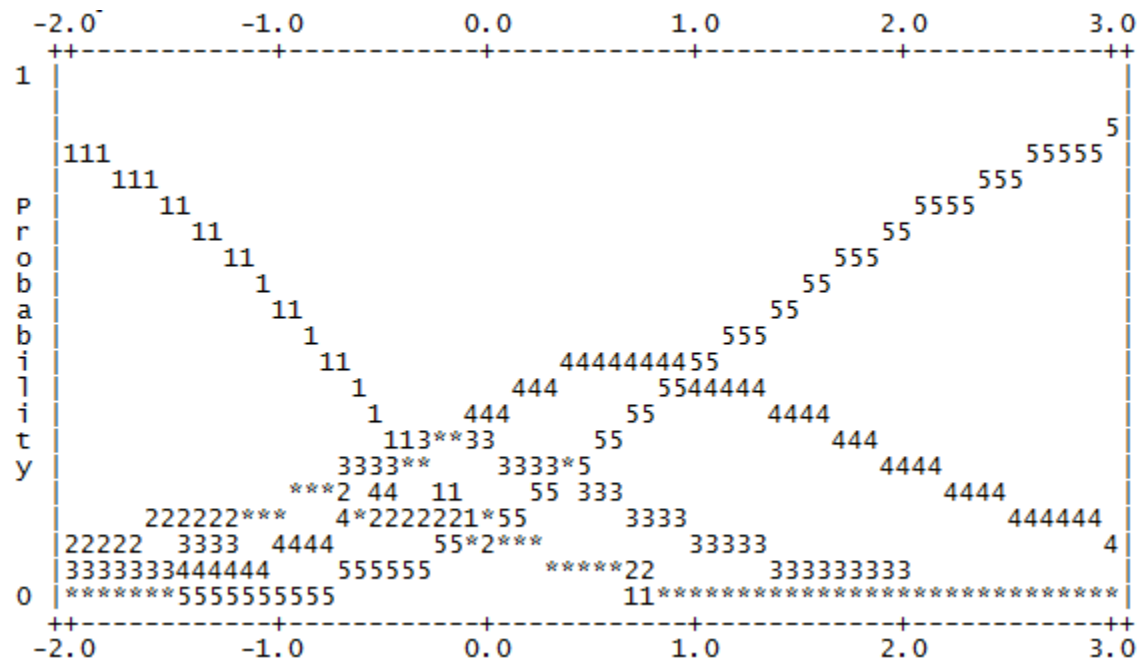


Figure 19. Probability Curves of the CAM-C2-Collaborating Mode

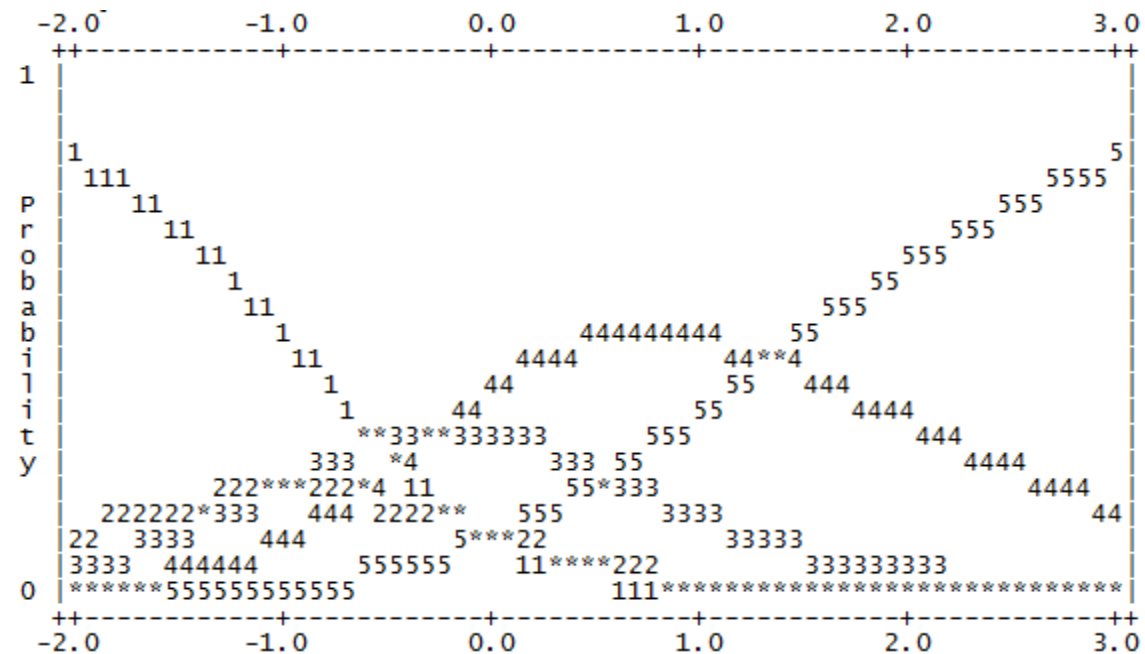


Figure 20. Probability Curves of the CAM-C2-Empathizing Mode

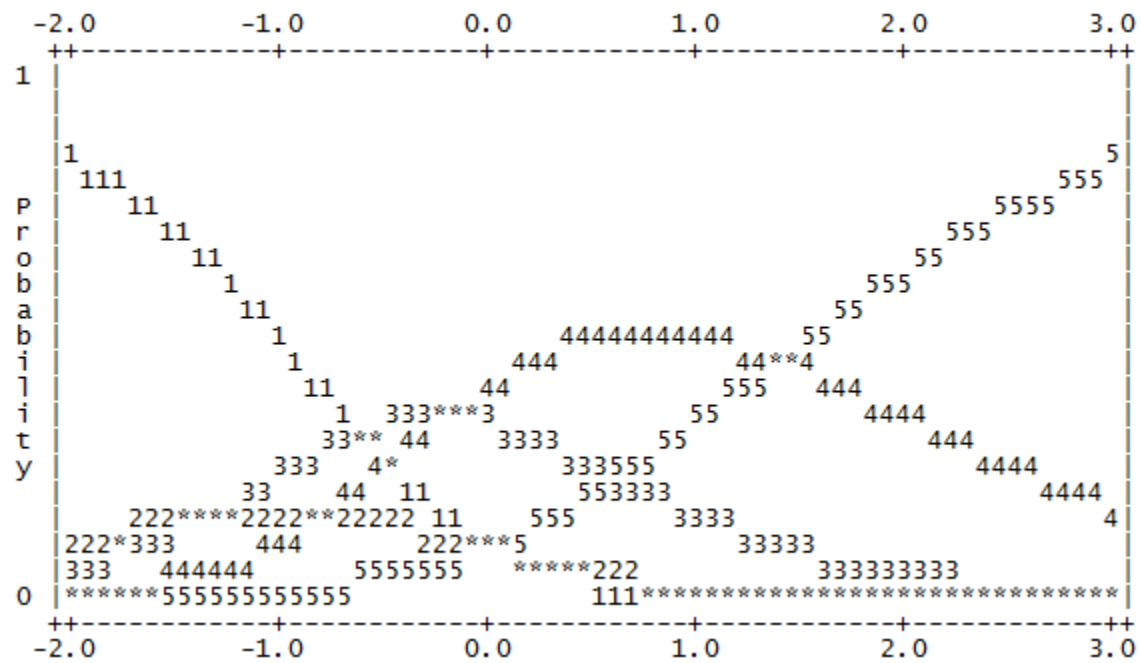


Figure 21. Probability Curves of the CAM-C2-Encouraging Mode

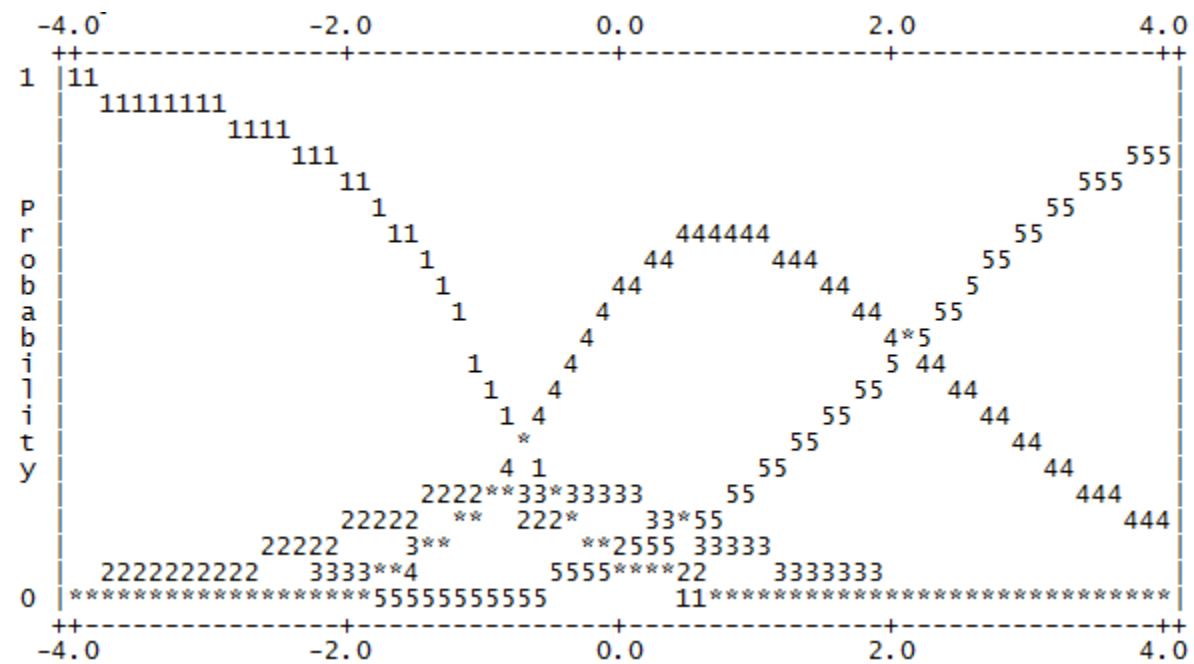


Figure 22. Probability Curves of the CAM-C2-Instructing Mode

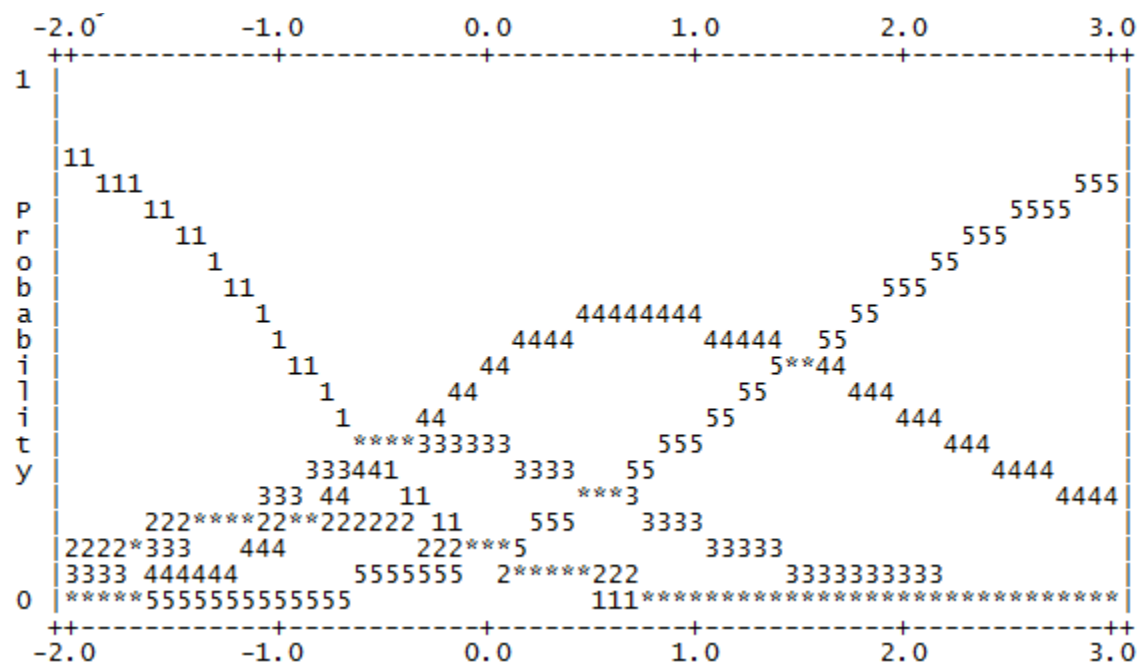
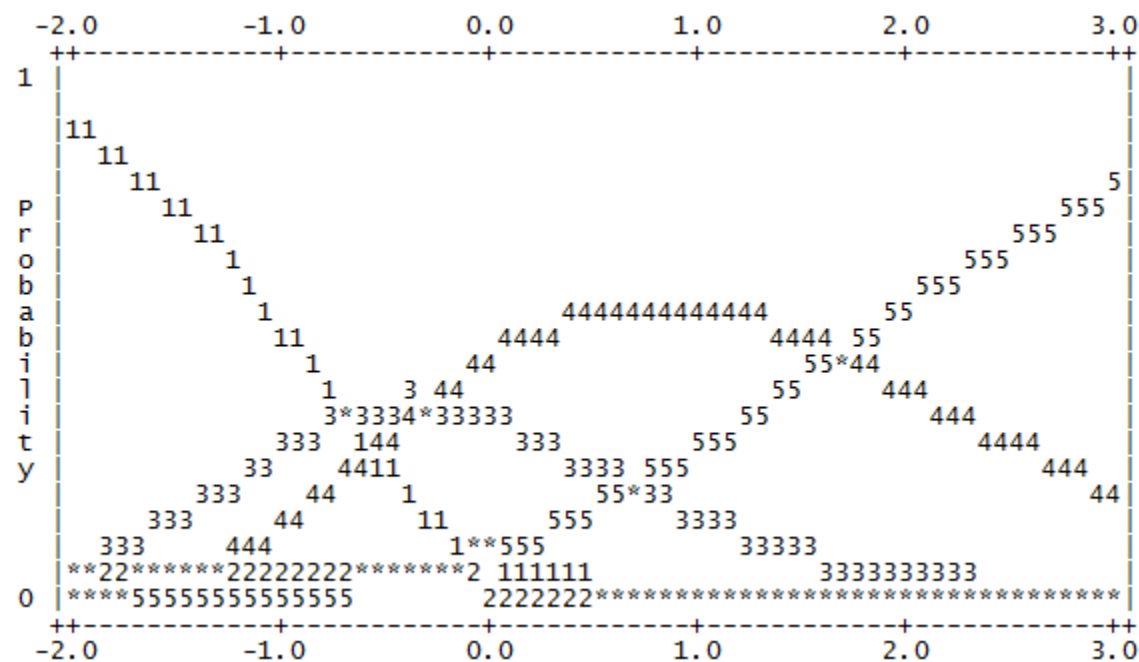


Figure 23. Probability Curves of the CAM-C2-Problem-solving Mode



II.4. Clinical Assessment of Modes, Observational version (CAM-O)

Seven trained research personnel (one PhD candidate and six undergraduate research assistants) randomly assessed a group of 59 clients from the 110 clients. The PhD candidate evaluated all the 59 patients, and each of the undergraduate assistants assessed at least 13 patients (from 13 patients to 43 patients, see Table 13 for details).

(1). CAM-O rating scale analysis

Among the 30 CAM-O items, nine items (2, 3, 5, 7, 11, 13, 15, 21 and 22) had data fewer than 10 clients per rating category (Table 12). The least used category was “Never”. The outfit mean-square was less than 2.0. Six items were found to have disordered step measures, especially in category 2 (Rarely) and category 3 (Occasionally). Average measures across rating categories for each item can be found in Table 12.

The ordering of thresholds of the six modes in CAM-O were graphically demonstrated in the rating category probability curves shown in Figure 25 to Figure 30. Only the Advocating mode showed disordered thresholds. In Figure 25- the Advocating mode, the point at which the lines for adjacent rating categories cross indicated that the transition between rating categories 2 and 3 was lower on the trait (less communication mode observed) than between categories 1 and 2, which was not how the variable was intended to work. In Figure 26 to Figure 30, the Collaborating, Empathizing, Encouraging, Instructing and Problem-solving modes showed clearly how item thresholds were properly ordered, where each rating category (1, 2, 3, 4 and 5) systematically has a point along the communication mode use observation continuum where it was the most likely response, as indicated by a peak in the curve. Moreover, the step calibrations

for Advocating mode (shown in Table 21) from category 2 to category 3, were less than those from category 1 to category 2. Therefore, it confirmed the step calibration was disordered.

(2). *CAM-O test mode unidimensionality*

All the 30 items of the CAM-O fitted to the Rasch model with acceptable values of MnSq and Zstd (Table 12).

(3). *CAM-O test targeting*

The least observed items in each domain were item 9 (Advocating- The therapist and client talked about legal rights for people with disabilities), item 6 (Collaborating- The therapist allowed the client to choose what would happen next), item 20 (Empathizing- The therapist shared something about his/her personal experience so that the client did not feel alone), item 25 (Encouraging- The therapist gave the client a compliment or other kind of reward for something he/she did), item 22 (Instructing- The therapist showed a sense of conviction when making a recommendation), and item 30 (Problem-solving- The therapist helped the client look at a problem by breaking it down into smaller parts). The most observed items in each domain were item 18 (Advocating- The therapist said things that helped the client to feel normal and like other people), item 19 (Collaborating- The therapist said things that made the client feel that they were working together as a team), item 2 (Empathizing- The therapist listened to the client with true interest), item 11 (Encouraging- The therapist made the client feel confident about what he/she was doing), item 3 (Instructing- The therapist explained what was happening or told the client what would happen next), and item 4 (Problem-solving- The therapist helped the client to think about a problem or activity in a different way). The measure logits ranged from 1.87 to -2.28 (Table 12).

The difference (0.75 logits) of mean logit calibration of item and person exceeded the acceptable criterion of 0.5 logits. Close scrutiny of the actual pattern of rating for the test items, revealed that items in Instructing mode showed a tendency of ceiling effect with 16.3% of clients who reached maximum scores. No floor effects were found (0~2.6%).

(4) Item and person separation

The item separation reliabilities were found to be 0.99, 0.98, 0.99, 0.75, 0.96, and 0.93 (Table 10) for each mode, respectively, which indicated that the CAM-O items in each mode showed acceptable internal consistency as well as defined the construct of different therapeutic communication mode. The person separation reliability was fair; it was considered as the reliability of the person ordering. Overall, the therapeutic communications in different modes were reliably estimated by the Rasch analysis. Additionally, the enrolled clients can be differentiated into at least 2 to 15 strata (Table 10).

Table 12. Fit Statistics and Category Average Measures of the CAM-O

| Mode | Item | Infit MnSq ¹ | Infit Zstd ² | Outfit MnSq ³ | Outfit Zstd ⁴ | Calibration ⁵ | SE ⁶ | Category Average Measure ^{7,8} | | | | |
|---------------|------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-----------------|---|--------|-------|-------|--------|
| | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| Advocating | 9 | 1.03 | 0.1 | 0.41 | -1.9 | 1.06 | 0.15 | -2.32 | -0.26 | 0.61 | 0.13* | 1.66 |
| | 28 | 1.04 | 0.2 | 0.81 | -0.5 | 0.76 | 0.13 | -2.38 | -0.92 | 0.15 | 0.72 | -0.01* |
| | 24 | 1.06 | 0.4 | 0.84 | -0.5 | 0.33 | 0.10 | -2.53 | -1.21 | -0.44 | 0.72 | 0.51 |
| | 1 | 1.23 | 1.5 | 0.96 | 0.0 | 0.13 | 0.09 | -2.58 | -1.24 | -0.62 | -0.08 | 0.48 |
| | 18 | 0.90 | -0.9 | 1.30 | 2.2 | -2.28 | 0.08 | -5.25 | -3.83 | -2.60 | -1.79 | -1.20 |
| Collaborating | 6 | 1.09 | 1.0 | 1.06 | 0.6 | 0.80 | 0.08 | -0.17 | 0.65 | 1.27 | 1.58 | 2.53 |
| | 26 | 0.73 | -2.1 | 0.80 | -2.2 | 0.46 | 0.08 | -0.56 | 0.27 | 0.99 | 1.60 | 2.52 |
| | 19 | 1.13 | 1.2 | 1.08 | 0.7 | -0.10 | 0.09 | 0.31 | 0.36 | 0.78 | 1.25 | 1.98 |
| | 14 | 1.12 | 1.1 | 1.05 | 0.4 | -0.23 | 0.09 | -1.03 | 0.34 | 0.51 | 1.39 | 1.90 |
| | 10 | 0.97 | -0.2 | 0.92 | -0.5 | -0.93 | 0.11 | 1.37 | -0.41* | 0.45 | 0.83 | 1.81 |
| Empathizing | 20 | 1.39 | 2.4 | 1.88 | 1.8 | 1.87 | 0.08 | 0.65 | 1.49 | 1.70 | 2.68 | 4.12 |
| | 29 | 0.89 | -1.0 | 1.05 | 0.4 | 0.03 | 0.09 | -0.54 | -0.52 | 0.61 | 1.57 | 2.78 |
| | 13 | 0.76 | -1.9 | 0.85 | -0.9 | -0.40 | 0.10 | - | -1.07 | -0.06 | 1.24 | 2.64 |
| | 7 | 0.79 | -1.5 | 0.97 | -0.1 | -0.63 | 0.11 | - | -0.65 | -0.23 | 0.90 | 2.55 |
| | 2 | 0.66 | -2.5 | 0.65 | -2.1 | -0.86 | 0.12 | - | -1.28 | -0.50 | 0.68 | 2.52 |
| Encouraging | 25 | 1.04 | 0.3 | 1.03 | 0.3 | 0.24 | 0.10 | 2.54 | 0.35* | 1.01* | 2.55 | 4.25 |
| | 21 | 0.85 | -1.5 | 0.88 | -1.0 | 0.10 | 0.11 | - | 0.32 | 1.02 | 2.43 | 4.22 |
| | 5 | 1.04 | 0.3 | 1.06 | 0.5 | 0.01 | 0.11 | - | -0.33 | 1.29 | -0.33 | 1.29 |
| | 16 | 1.08 | 0.7 | 1.16 | 1.3 | -0.01 | 0.11 | 1.23 | 0.63* | 1.02* | 2.29 | 4.06 |
| | 11 | 0.92 | -0.7 | 0.95 | -0.3 | -0.34 | 0.11 | - | -0.48 | 0.96 | 2.14 | 3.92 |
| Instructing | 27 | 1.11 | 1.0 | 1.14 | 1.2 | 0.77 | 0.10 | 1.11 | 0.45* | 1.71 | 2.40 | 4.33 |
| | 8 | 1.13 | 1.1 | 1.08 | 0.6 | 0.29 | 0.11 | 0.23 | 0.35 | 1.35 | 2.24 | 3.94 |
| | 22 | 0.80 | -1.9 | 0.79 | -1.8 | 0.10 | 0.11 | - | 0.24 | 1.44 | 2.12 | 3.96 |
| | 3 | 1.06 | 0.5 | 1.05 | 0.4 | -0.22 | 0.12 | - | 0.06 | 1.31 | 1.91 | 3.68 |
| | 15 | 0.91 | -0.6 | 0.98 | 0.0 | -0.93 | 0.14 | - | -1.03 | 0.66 | 1.76 | 3.41 |
| Problem- | 12 | 0.79 | -2.3 | 0.77 | -2.5 | 0.38 | 0.08 | -1.15 | 0.08 | 0.94 | 1.65 | 2.84 |

| | | | | | | | | | | | | |
|----------------|----|------|------|------|------|-------|-----|-------|-------|------|------|------|
| solving | 30 | 1.19 | 1.9 | 1.16 | 1.5 | 0.22 | .09 | -0.57 | 0.25 | 0.96 | 1.35 | 2.60 |
| | 4 | 0.85 | -1.5 | 0.85 | -1.5 | 0.09 | .09 | -2.33 | 0.06 | 0.69 | 1.48 | 2.55 |
| | 17 | 0.85 | -1.5 | 0.81 | -1.8 | -0.24 | .09 | -1.58 | -0.06 | 0.49 | 1.36 | 2.29 |
| | 23 | 1.35 | 3.0 | 1.31 | 2.5 | -0.45 | .10 | 0.12 | 0.45 | 0.74 | 1.21 | 1.98 |

Note.

The below definition 1 to 4 were retrieved from the Facet software manual (Linacre, 2013).

¹ Infit MnSq = The information-weighted mean-square fit statistics, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean square is a chi-squared fit statistic divided by its degrees of freedom.

² Infit Zstd = The Infit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score.

³ Outfit MnSq = The unweighted, outlier-sensitive, mean-square fit statistic, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean-square is a chi-squared fit statistic divided by its degrees of freedom.


⁴ Outfit Zstd = The Outfit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score (Linacre, 2013)."

⁵ Rasch measure of item difficulty. Item with higher calibrations are more difficult for client-therapist communication. Items with lower calibrations are easier for client-therapist communication.

⁶ Model S.E. = the asymptotic standard error when the data fit the model.

⁷ The average measure is expected to increase with category value.

⁸ Category 1 represents "Never", category 2 represents "Rarely", category 3 represents "Occasionally", category 4 represents "Frequently" and category 5 represents "Very Frequently".

 indicates the average ability does not ascend with category score. - indicates its rating category has less than 10 clients.

```

MEASURE patients - MAP - CAM-O
      <more> | <rare>
4      +
      |
      | 9 CAM-O-A2
      |
      | 28 CAM-O-A5
3      # +
      |
      | # T 24 CAM-O-A4
      | . 1 CAM-O-A1
      | ##
      | .# T
2      ## +
      |
      | .
      | .##
      | ##### S
      | ##### S 20 CAM-O-Em4
      | #####
1      ##### +
      | #####
      | ##### M
      | #####
      | ##### 6 CAM-O-C1
      | #####
      | ##### 12 CAM-O-P2 26 CAM-O-C5
0      ##### S+M 30 CAM-O-P5 4 CAM-O-P1
      | .#### 18 CAM-O-A3
      | ## 17 CAM-O-P3 19 CAM-O-C4 25 CAM-O-En5 27 CAM-O-I5
      | .## 14 CAM-O-C3 16 CAM-O-En3 21 CAM-O-En4 23 CAM-O-P4
      | 29 CAM-O-Em5 5 CAM-O-En1
      | ## 8 CAM-O-I2
      | . T 11 CAM-O-En2 13 CAM-O-Em3 22 CAM-O-I4
-1      . + 3 CAM-O-I1
      | 10 CAM-O-C2 7 CAM-O-Em2
      | S 2 CAM-O-Em1
      |
      | 15 CAM-O-I3
-2      +
      |
      | <less> | <frequent>
EACH "#" IS 2: EACH "." IS 1

```


Figure 25. Probability Curves of the CAM-O-Advocating Mode

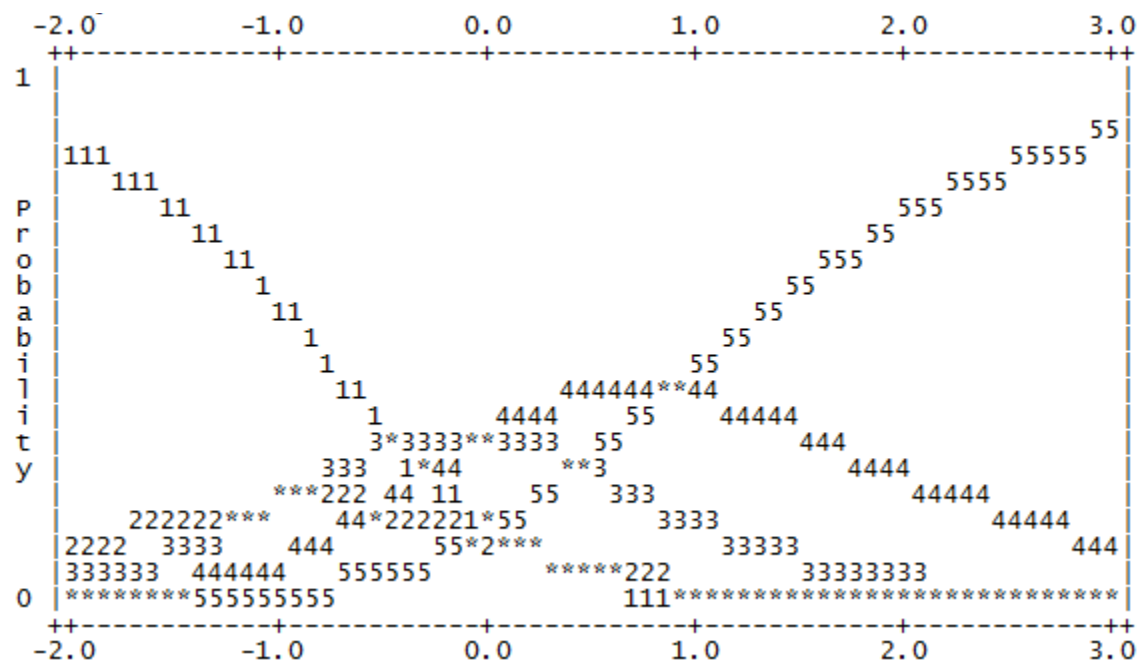


Figure 26. Probability Curves of the CAM-O-Collaborating Mode

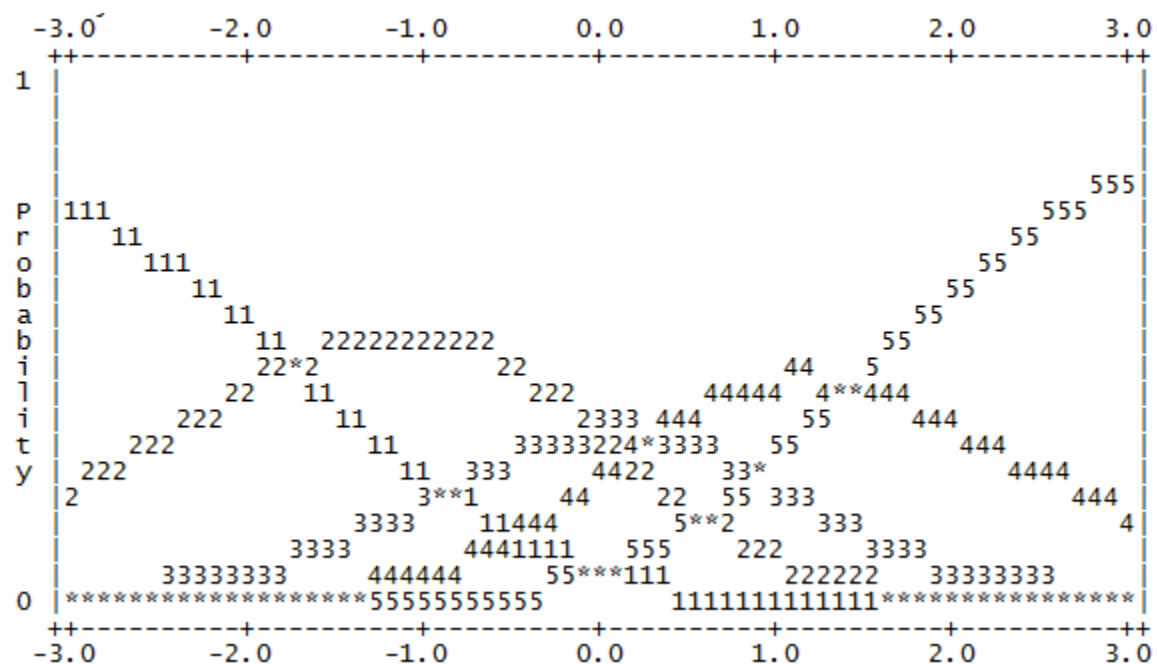


Figure 27. Probability Curves of the CAM-O-Empathizing Mode

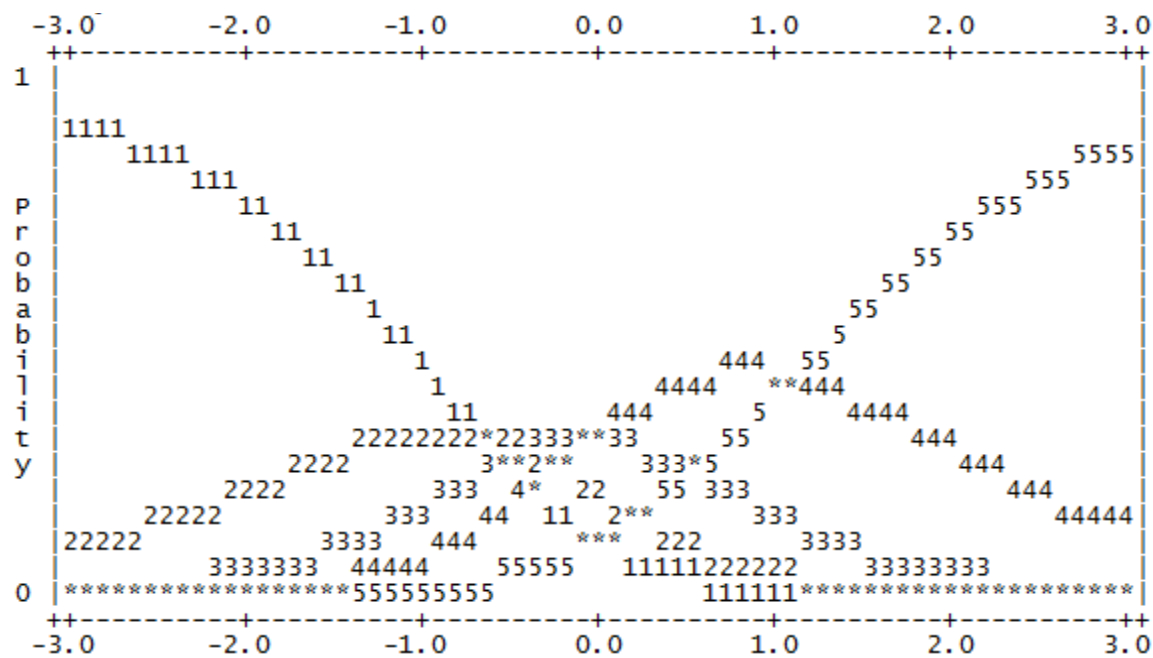


Figure 28. Probability Curves of the CAM-O-Encouraging Mode

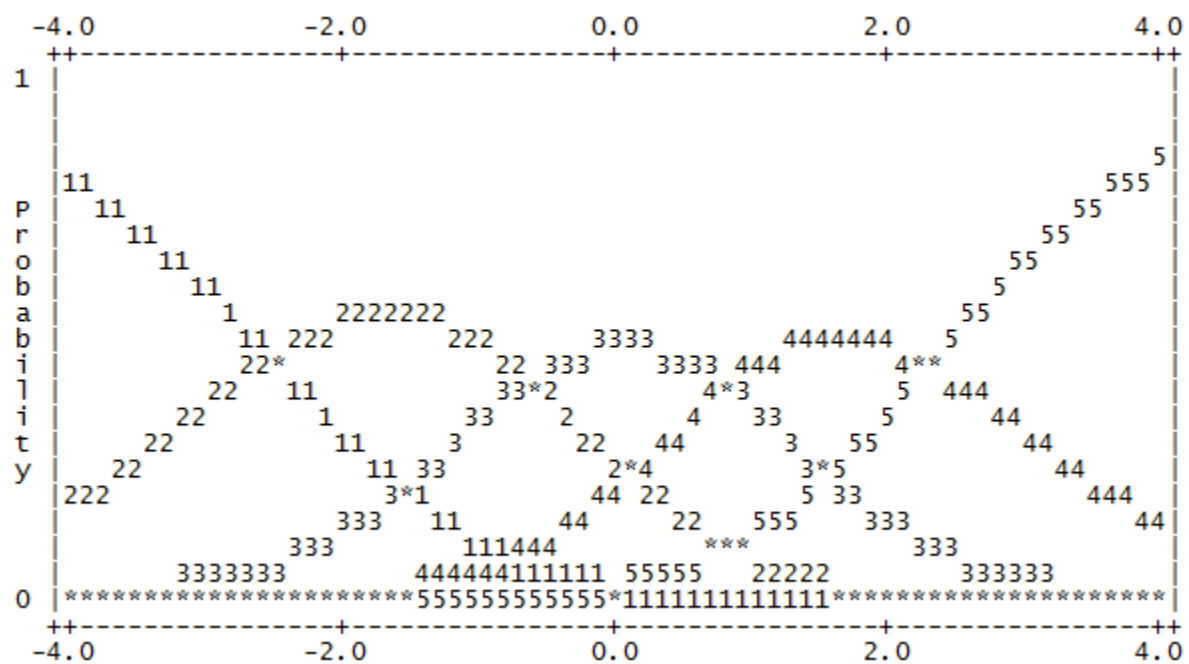


Figure 29. Probability Curves of the CAM-O-Instructing Mode

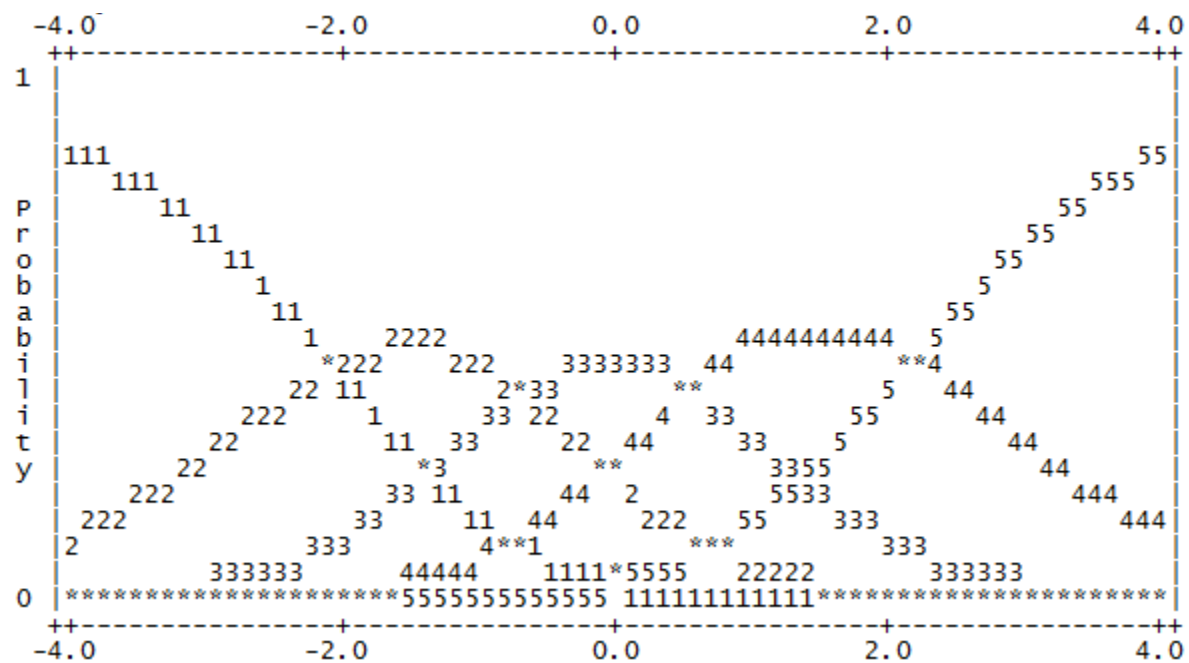
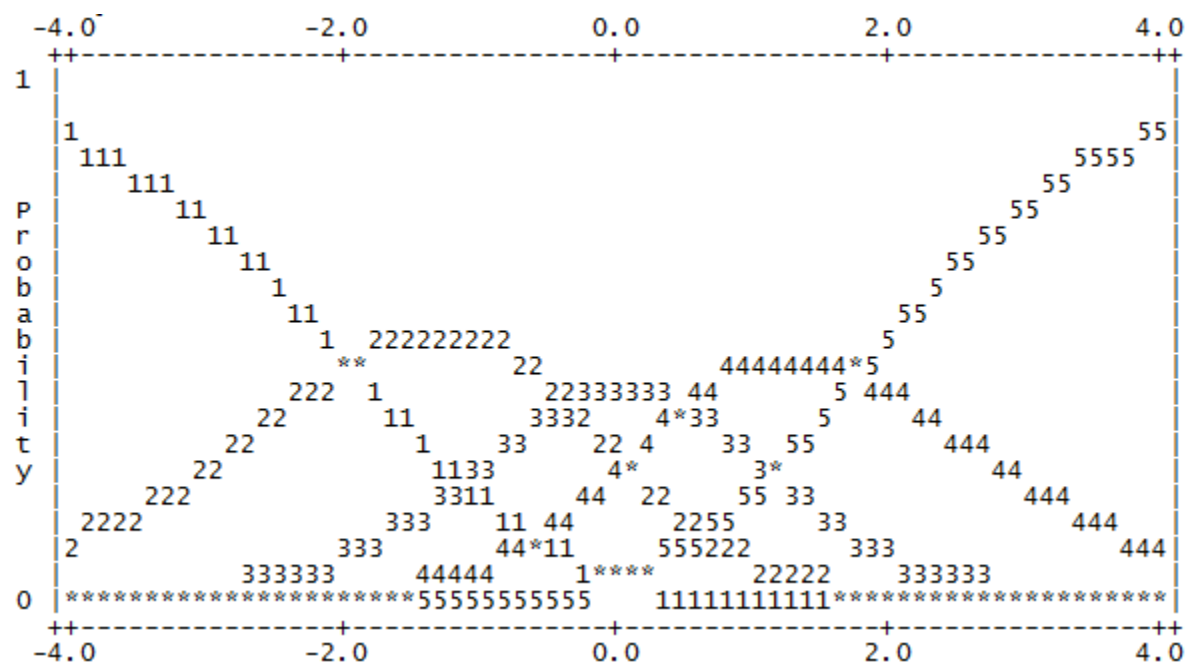


Figure 30. Probability Curves of the CAM-O-Problem-solving Mode



II.4.1. Inter-rater Reliability

The scale was found to have high inter-rater reliability, since most of the raters fit the requirement of the Rasch measurement model, which meant that the raters behave like independent experts (Linacre, 2013). Rater 7 (VK) was misfit in three out of the six CAM-O modes: Advocating, Empathizing and Instructing; rater 5 (JH) was misfit in Encouraging mode (shown in Table 15).

With this large spread of rater severities, the predictions for six modes were that only from 34.7% to 58.0% of the observations would show the raters giving the same rating under the same conditions. These accorded with the wide range of rater severities. The observed percentages of exact agreements and the expected percentages of exact agreements based on Rasch measures between raters on ratings under identical conditions were almost equal, which confirmed that these 7 raters behaved like "independent experts" (Linacre, 2013). In the Advocating items, the observed percentage was 53.6%, which was close to the expected percentage of 58%. In the Collaborating items, the observed percentage was 31.0%, which was close to the expected percentage of 34.8%. In the Empathizing items, the observed percentage was 37.7%, which was close to the expected percentage of 40.8%. In the Encouraging items, the observed percentage was 37.1%, which was close to the expected percentage of 41.3%. In the Instructing items, the observed percentage was 43.8%, which was close to the expected percentage of 45.6%. In the Problem-solving items, the observed percentage was 30.8%, which was close to the expected percentage of 34.7% (Please refer to Table 14).

Table 15 shows raters initials, rater calibration (severity), measuring error, and mean-square as well as the Z values. The raters' severity spans between the most lenient to the most

severe were 1.49, 2.22, 1.86, 2.11, 1.54, and 1.19 logits in the six modes, respectively. The results also showed the level of error was small (from 0.07 to 0.30 in the six modes).

The reliability of the rater separation index was high (see Table 16): 0.94 for Advocating mode, 0.98 for Collaborating mode, 0.95 for Empathizing mode, 0.97 for Encouraging mode, 0.89 for Instructing mode, and 0.90 for Problem-solving mode. The reliability of the separation index shows the likelihood to which raters consistently differ from one another in their overall severity. Therefore, the high reliability indicates that the Rasch analysis was reliably separating raters into different levels of severity. Also, Table 16 represents that the chi-square of 106.4 ($df = 6$) was significant at $p = 0.00$ in Advocating mode, the chi-square of 160.3 ($df = 6$) was significant at $p = 0.00$ in Collaborating mode, the chi-square of 199.8 ($df = 6$) was significant at $p = 0.00$ in Empathizing mode, the chi-square of 159.8 ($df = 6$) was significant at $p = 0.00$ in Encouraging mode, the chi-square of 58.8 ($df = 6$) was significant at $p = 0.00$ in Instructing mode, and the chi-square of 39.8 ($df = 6$) was significant at $p = 0.00$ in Problem-solving mode. Therefore, the null hypothesis that all 7 raters were equally in their rating severity was rejected in all the six modes.

Table 13. Number of Clients been Assessed by each of the Research Personnel

| Initial of the raters | Number of clients assessed |
|------------------------------|-----------------------------------|
| Rater 1: CW | 59 |
| Rater 2: EL | 43 |
| Rater 3: CM | 23 |
| Rater 4: KC | 29 |
| Rater 5: JH | 14 |
| Rater 6: SC | 13 |
| Rater 7: VK | 13 |

Note.

CW, is the PhD candidate, EL, CM, KC, JH, SC and VK are the undergraduate research assistants who executed the observations for the inter-rater study.

Table 14. Inter-rater Agreement Statistics of the CAM-O

| | Obs% | Exp% |
|------------------------------------|-------------|-------------|
| CAM-O Advocating items | 53.6% | 58.0% |
| CAM-O Collaborating items | 31.0% | 34.8% |
| CAM-O Empathizing items | 37.7% | 40.8% |
| CAM-O Encouraging items | 37.1% | 41.3% |
| CAM-O Instructing items | 43.8% | 45.6% |
| CAM-O Problem-solving items | 30.8% | 34.7% |

Note.

The below definition were retrieved from the Facet software manual (Linacre, 2013).

“Obs% = Observed % of exact agreements between raters on ratings under identical conditions.

Exp% = Expected % of exact agreements between raters on ratings under identical conditions, based on Rasch measures.

If Obs % \approx Exp % then the raters may be behaving like "independent experts".

If Obs % \gg Exp % then the raters may be behaving like "rating machines" (Linacre, 2013).”

Table 15. CAM-O Rater Calibrations and Fit Statistics

| Rater | Rater Severity | Model | Infit | | Outfit | |
|----------------------------|---------------------|-------|-------|------|--------|------|
| | Measure (in logits) | S. E. | MnSq | Zstd | MnSq | Zstd |
| Advocating items | | | | | | |
| Rater 1: CW | 0.48 | 0.09 | 1.31 | 2.2 | 1.20 | 0.8 |
| Rater 2: EL | 0.74 | 0.10 | 0.69 | -2.1 | 0.53 | -1.9 |
| Rater 3: CM | 0.23 | 0.14 | 0.73 | -1.3 | 0.40 | -1.9 |
| Rater 4: KC | 0.00 | 0.12 | 0.80 | -1.1 | 0.69 | -1.0 |
| Rater 5: JH | -0.24 | 0.16 | 1.09 | 0.1 | 0.83 | -0.3 |
| Rater 6: SC | -0.46 | 0.16 | 1.09 | 0.1 | 0.85 | -0.4 |
| Rater 7: VK | -0.75 | 0.15 | 1.53 | 2.2* | 1.80 | 2.0* |
| Collaborating items | | | | | | |
| Rater 1: CW | 0.25 | 0.07 | 0.96 | -0.4 | 0.89 | -1.3 |
| Rater 2: EL | 0.41 | 0.08 | 1.04 | 0.4 | 1.02 | 0.2 |
| Rater 3: CM | -0.48 | 0.11 | 1.07 | 0.5 | 0.98 | 0.0 |
| Rater 4: KC | 0.58 | 0.10 | 1.14 | 1.2 | 1.20 | 1.6 |
| Rater 5: JH | -0.01 | 0.14 | 0.88 | -0.7 | 0.97 | -0.1 |
| Rater 6: SC | -1.64 | 0.21 | 0.66 | -1.5 | 0.61 | -1.4 |
| Rater 7: VK | 0.88 | 0.14 | 0.92 | -0.4 | 1.21 | 1.1 |
| Empathizing items | | | | | | |
| Rater 1: CW | 1.01 | 0.07 | 1.03 | 0.3 | 1.30 | 2.6 |
| Rater 2: EL | 0.46 | 0.08 | 0.80 | -1.8 | 0.77 | -1.9 |
| Rater 3: CM | -0.51 | 0.13 | 1.22 | 1.2 | 1.01 | 0.1 |
| Rater 4: KC | -0.38 | 0.13 | 0.86 | -0.8 | 1.10 | 0.5 |
| Rater 5: JH | -0.05 | 0.16 | 0.99 | 0.0 | 0.96 | 0.0 |
| Rater 6: SC | -0.85 | 0.24 | 0.53 | -1.8 | 0.67 | -0.7 |
| Rater 7: VK | 0.31 | 0.15 | 1.16 | 0.8 | 1.68 | 2.6* |
| Encouraging items | | | | | | |
| Rater 1: CW | 0.64 | 0.08 | 0.85 | -1.9 | 0.86 | -1.7 |
| Rater 2: EL | 0.79 | 0.10 | 1.01 | 0.1 | 0.97 | -0.2 |

| Rater | Rater Severity | Model | Infit | | Outfit | |
|------------------------------|----------------------------|--------------|--------------|-------------|---------------|-------------|
| | Measure (in logits) | S. E. | MnSq | Zstd | MnSq | Zstd |
| Rater 3: CM | -0.57 | 0.17 | 0.74 | -1.7 | 0.89 | -0.5 |
| Rater 4: KC | 0.91 | 0.12 | 1.16 | 1.3 | 1.14 | 1.1 |
| Rater 5: JH | -1.20 | 0.22 | 1.67 | 2.9* | 1.92 | 3.0* |
| Rater 6: SC | -1.18 | 0.30 | 0.71 | -1.1 | 0.76 | -0.7 |
| Rater 7: VK | 0.61 | 0.16 | 1.02 | 0.1 | 1.03 | 0.2 |
| Instructing items | | | | | | |
| Rater 1: CW | -0.17 | 0.09 | 0.89 | -1.2 | 0.87 | -1.2 |
| Rater 2: EL | 0.44 | 0.11 | 1.22 | 1.9 | 1.14 | 1.2 |
| Rater 3: CM | -0.52 | 0.16 | 1.17 | 1.0 | 1.46 | 1.2 |
| Rater 4: KC | 0.08 | 0.14 | 1.03 | 0.2 | 0.94 | -0.3 |
| Rater 5: JH | 0.09 | 0.17 | 1.35 | 1.8 | 1.24 | 1.2 |
| Rater 6: SC | -0.73 | 0.30 | 0.77 | -0.8 | 0.77 | -0.6 |
| Rater 7: VK | 0.81 | 0.17 | 0.49 | -3.6* | 0.52 | -3.4* |
| Problem-solving items | | | | | | |
| Rater 1: CW | 0.30 | 0.07 | 0.84 | -2.2 | 0.83 | -2.3 |
| Rater 2: EL | 0.14 | 0.08 | 1.24 | 2.4 | 1.25 | 2.4 |
| Rater 3: CM | -0.14 | 0.12 | 1.23 | 1.6 | 1.15 | 1.0 |
| Rater 4: KC | 0.22 | 0.11 | 0.85 | -1.2 | 0.83 | -1.4 |
| Rater 5: JH | -0.08 | 0.14 | 1.30 | 1.7 | 1.29 | 1.7 |
| Rater 6: SC | -0.81 | 0.20 | 0.66 | -1.8 | 0.69 | -1.4 |
| Rater 7: VK | 0.38 | 0.15 | 0.76 | -1.4 | 0.76 | -1.3 |

Note.

CW, is the PhD candidate, EL, CM, KC, JH, SC and VK are the undergraduate research assistants who executed the observations for the inter-rater study.

Model S.E. = the asymptotic standard error when the data fit the model.

Infit MnSq = the information-weighted mean-square fit statistics, with expectation 1, and range 0 to infinity.

Zstd = the MnSq statistic standardized toward a unit-normal distribution, so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score.

* indicates misfits item (highlighted items misfit the Rasch model as indicated by $MnSq > 1.4$ or < 0.6 associated with a $Zstd > 2$ or $Zstd < -2$).

Table 16. Reliability of Separation Index and Chi-Square Analysis

| Mode | Reliability of rater separation index | fixed (all same) chi- square | df | significance |
|------------------------|--|---|-----------|---------------------|
| Advocating | 0.94 | 106.4 | 6 | 0.00* |
| Collaborating | 0.98 | 160.3 | 6 | 0.00* |
| Empathizing | 0.95 | 199.8 | 6 | 0.00* |
| Encouraging | 0.97 | 159.8 | 6 | 0.00* |
| Instructing | 0.89 | 58.8 | 6 | 0.00* |
| Problem-solving | 0.90 | 39.8 | 6 | 0.00* |

Note. * $p < 0.05$

II.5. Clinical Assessment of Modes, Therapist Outcomes version (CAM-T)

(1). CAM-T rating scale analysis

Among the 30 CAM-T items, fourteen items (2, 3, 5, 7, 8, 9, 11, 13, 15, 18, 19, 25, 29 and 30) had data fewer than 10 clients per rating category (Table 17). The least used categories were “Never” and “Rarely”. The outfit mean-square was less than 2.0. Five items were found to have disordered step measures, especially in category 2 (Rarely). Average measures across rating categories for each item can be found in Table 17.

The ordering of thresholds of the six modes in CAM-T were graphically demonstrated in the rating category probability curves shown in Figure 32 to Figure 37. Two of six modes showed disordered thresholds. In Figure 35- the Encouraging mode, the transition between rating categories 2 and 3 was lower on the trait (less communication mode use) than between categories 1 and 2; in Figure 36- the Instructing mode, the transition between rating categories 2 and 3 was lower on the trait than between categories 1 and 2, which was not how the variable was intended to work. In Figure 32, Figure 33, Figure 34, and Figure 37 showed the item thresholds were

ordered properly, where each rating category (1, 2, 3, 4 and 5) systematically has a point along the self-identify mode use continuum where it was the most likely response, as indicated by a peak in the curve. Moreover, the step calibrations for Encouraging and Instructing mode (shown in Table 21) from category 2 to category 3, were less than those from category 1 to category 2. Therefore, it confirmed the step calibration was disordered.

(2). *CAM-T test mode unidimensionality*

All the 30 items of the CAM-T fitted to the Rasch model with acceptable values of MnSq and Zstd (Table 17).

(3). *CAM-T test targeting*

The least identified items in each domain were item 9 (Advocating- We talked about legal rights for people with disabilities), item 6 (Collaborating- I allowed this client to choose what would happen next), item 20 (Empathizing- I revealed something about my personal experience so that this client did not feel alone), item 16 (Being particularly positive showed that I believed the client was ready to try something he/she was not confident of doing), item 27 (Instructing- I taught this client something), and item 12 (Problem-solving- I explained different choices to this client when guiding him/her make a decision). The most identified items in each domain were item 18 (Advocating- I said things that enabled this client to feel normal and like other people), item 19 (Collaborating- I said things that made this client feel that we were working together as a team), item 2 (Empathizing- I listened to this client with true interest), item 5 (Encouraging- I pointed out what this client was good at doing), item 3 (Instructing- I explained what was happening or told this client what would happen next), and item 17 (Problem-solving- I helped this client think about a problem in a clear-headed, non-emotional way). The measure logits ranged from 3.96 to -5.09 (Table 17).

The difference (1.13 logits) of mean logit calibration of item and person exceeded the acceptable criterion of 0.5 logits. No Ceiling effects (0~8.0%) and floor effects were found (0~0.9%).

(4) Item and person separation

The item separation reliabilities were found to be 0.99, 0.98, 0.99, 0.79, 0.95, and 0.99 (Table 10) for each mode, respectively, which indicated that the CAM-T items in each mode showed acceptable internal consistency as well as defined the construct of therapist's self-perceived different therapeutic communication mode. The person separation reliability was fair; it was considered as the reliability of the person ordering. Overall, the therapeutic communications in different modes were reliably estimated by the Rasch analysis. Additionally, the enrolled clients can be differentiated into at least 2 to 23 strata (Table 10).

Table 17. Fit Statistics and Category Average Measures of the CAM-T

| Mode | Item | Infit MnSq ¹ | Infit Zstd ² | Outfit MnSq ³ | Outfit Zstd ⁴ | Calibration ⁵ | SE ⁶ | Category Average Measure ^{7,8} | | | | |
|---------------|------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-----------------|---|--------|--------|-------|--------|
| | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| Advocating | 9 | 1.04 | 0.2 | 0.75 | -0.1 | 2.28 | 0.20 | -2.91 | -0.38 | -0.50* | -0.06 | - |
| | 28 | 1.26 | 1.4 | 0.79 | -0.3 | 1.40 | 0.16 | -3.27 | -0.59 | -0.45 | -0.23 | -1.03* |
| | 1 | 0.81 | -1.2 | 0.55 | -1.5 | 0.76 | 0.15 | -3.52 | -1.34 | -0.80 | 0.53 | -0.06 |
| | 24 | 0.76 | -1.6 | 0.66 | -1.1 | 0.65 | 0.15 | -3.66 | -1.42 | -0.64 | -0.10 | 1.55 |
| | 18 | 0.97 | -0.1 | 1.12 | 0.7 | -5.09 | 0.19 | -8.59 | - | -4.45 | -2.59 | -1.11 |
| Collaborating | 6 | 1.12 | 0.8 | 1.17 | 1.1 | 1.14 | 0.15 | -1.59 | 0.12 | 1.08 | 2.47 | 4.90 |
| | 26 | 0.69 | -2.3 | 0.74 | -1.9 | 1.04 | 0.16 | -1.95 | -0.62 | 0.83 | 2.87 | 5.04 |
| | 14 | 1.15 | 0.9 | 1.17 | 1.0 | -0.06 | 0.14 | -1.05 | -0.15 | 0.00 | 2.12 | 4.32 |
| | 10 | 0.98 | 0.0 | 1.00 | 0.0 | -0.75 | 0.18 | -3.27 | -2.05 | 0.47 | 1.57 | 4.12 |
| | 19 | 0.89 | -0.7 | 0.83 | -1.0 | -1.37 | 0.19 | - | -2.66 | -0.23 | 1.32 | 3.74 |
| Empathizing | 20 | 1.35 | 2.3 | 1.35 | 2.2 | 3.96 | 0.14 | 1.99 | 2.47 | 3.47 | 4.70 | 7.29 |
| | 7 | 0.77 | -1.6 | 0.72 | -1.7 | -0.17 | 0.21 | - | - | 1.91 | 2.83 | 5.49 |
| | 29 | 0.78 | -1.6 | 0.73 | -1.6 | -0.42 | 0.21 | - | - | 2.66 | 2.77 | 5.31 |
| | 13 | 0.93 | -0.5 | 0.83 | -0.6 | -1.37 | 0.22 | - | - | 1.44 | 2.52 | 4.71 |
| | 2 | 0.94 | -0.4 | 0.80 | -0.5 | -1.99 | 0.24 | - | - | - | 2.46 | 4.45 |
| Encouraging | 16 | 0.90 | -0.5 | 0.84 | -0.9 | 0.72 | 0.19 | -1.83 | -0.74 | 0.68 | 3.26 | 6.09 |
| | 21 | 0.89 | -0.6 | 0.86 | -0.8 | 0.14 | 0.20 | -0.64 | -2.15* | 0.02 | 2.95 | 5.99 |
| | 25 | 1.14 | 0.9 | 1.13 | 0.8 | -0.16 | 0.21 | - | - | 0.66 | 2.68 | 5.70 |
| | 11 | 0.80 | -1.3 | 0.82 | -1.1 | -0.33 | 0.21 | - | - | -0.35 | 2.81 | 5.61 |
| | 5 | 1.14 | 0.9 | 1.19 | 1.1 | -0.37 | 0.21 | - | -0.35 | 0.31 | 2.54 | 5.56 |
| Instructing | 27 | 0.85 | -0.7 | 0.84 | -0.8 | 1.13 | 0.16 | -0.51 | 0.68 | 0.88 | 2.55 | 4.78 |
| | 8 | 0.82 | -0.9 | 0.90 | -0.5 | 0.35 | 0.19 | - | -0.31 | 1.08 | 2.14 | 4.65 |
| | 22 | 1.26 | 1.3 | 1.21 | 2.0 | 0.21 | 0.19 | -1.17 | -1.40* | 1.57 | 2.28 | 3.90 |
| | 15 | 0.79 | -1.2 | 0.76 | -1.4 | -0.35 | 0.20 | - | - | 0.51 | 1.95 | 4.25 |
| | 3 | 0.99 | 0.0 | 0.88 | -0.6 | -1.34 | 0.22 | - | - | 0.55 | 1.62 | 3.66 |
| Problem- | 12 | 1.04 | 0.2 | 0.75 | -0.1 | 2.28 | 0.20 | -2.81 | -1.30 | 0.28 | 2.74 | 5.57 |

| | | | | | | | | | | | | |
|----------------|----|------|------|------|------|-------|------|-------|--------|------|------|------|
| solving | 30 | 1.26 | 1.4 | 0.79 | -0.3 | 1.40 | 0.16 | -1.52 | -1.78* | 0.72 | 2.67 | 5.48 |
| | 4 | 0.81 | -1.2 | 0.55 | -1.5 | 0.76 | 0.15 | - | -1.92 | 0.03 | 2.33 | 5.17 |
| | 23 | 0.76 | -1.6 | 0.66 | -1.1 | 0.65 | 0.15 | -2.35 | -1.35 | 0.21 | 2.21 | 4.98 |
| | 17 | 0.97 | -0.1 | 1.12 | 0.7 | -5.09 | 0.19 | -3.43 | -1.16 | 0.25 | 2.07 | 5.31 |

Note.

The below definition 1 to 4 were retrieved from the Facet software manual (Linacre, 2013).

¹ Infit MnSq = The information-weighted mean-square fit statistics, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean square is a chi-squared fit statistic divided by its degrees of freedom.

² Infit Zstd = The Infit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score.

³ Outfit MnSq = The unweighted, outlier-sensitive, mean-square fit statistic, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean-square is a chi-squared fit statistic divided by its degrees of freedom.

⁴ Outfit Zstd = The Outfit MnSq statistic standardized toward a unit-normal distribution so effectively a t-statistic with infinite degrees of freedom, i.e., a z-score (Linacre, 2013)."

⁵ Rasch measure of item difficulty. Item with higher calibrations are more difficult for client-therapist communication. Items with lower calibrations are easier for client-therapist communication.

⁶ Model S.E. = the asymptotic standard error when the data fit the model.

⁷ The average measure is expected to increase with category value.

⁸ Category 1 represents "Never", category 2 represents "Rarely", category 3 represents "Occasionally", category 4 represents "Frequently" and category 5 represents "Very Frequently".

* indicates the average ability does not ascend with category score. - indicates its rating category has less than 10 clients.

Figure 31. Map of Person and the CAM-T Items

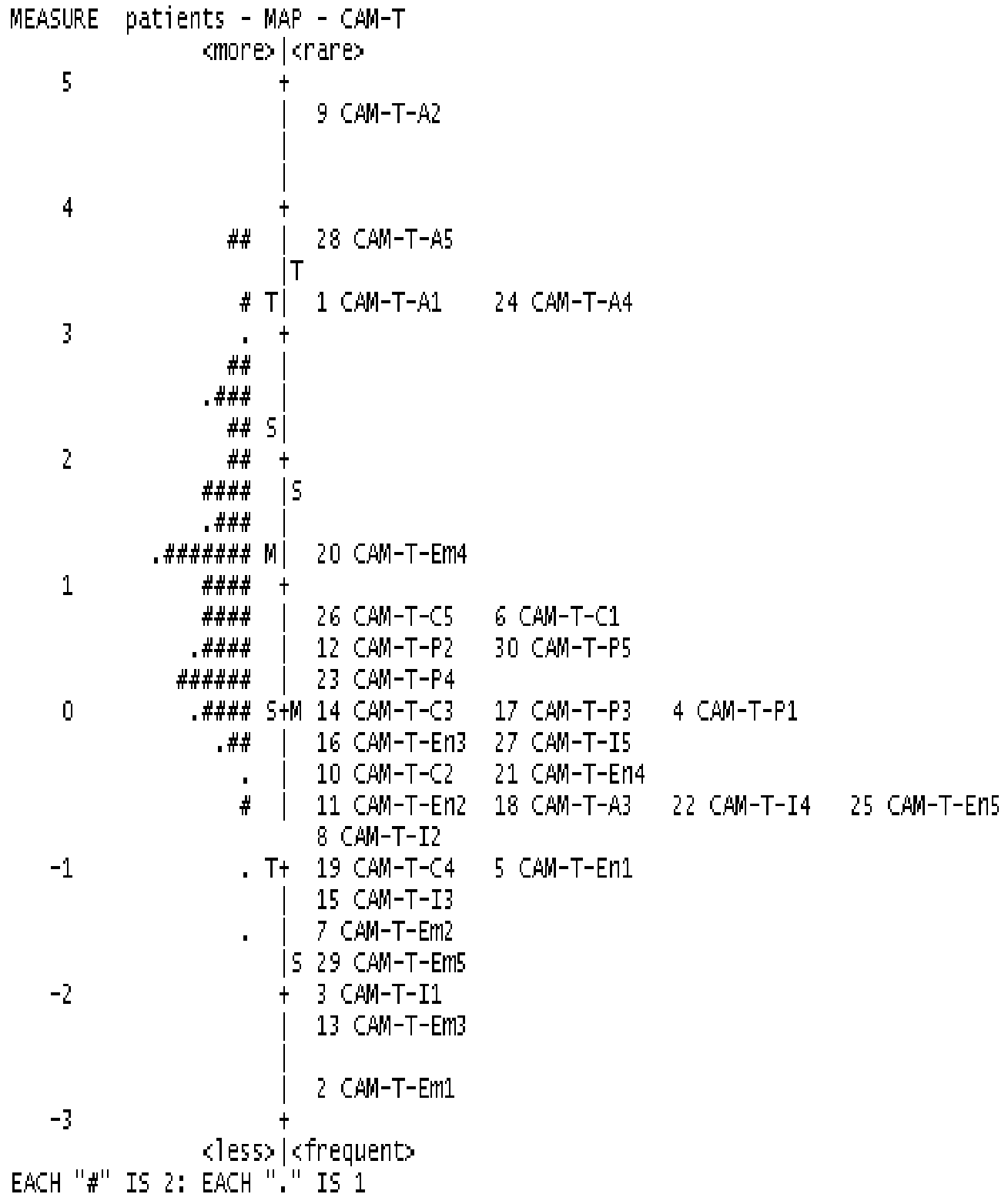


Figure 32. Probability Curves of the CAM-T-Advocating Mode

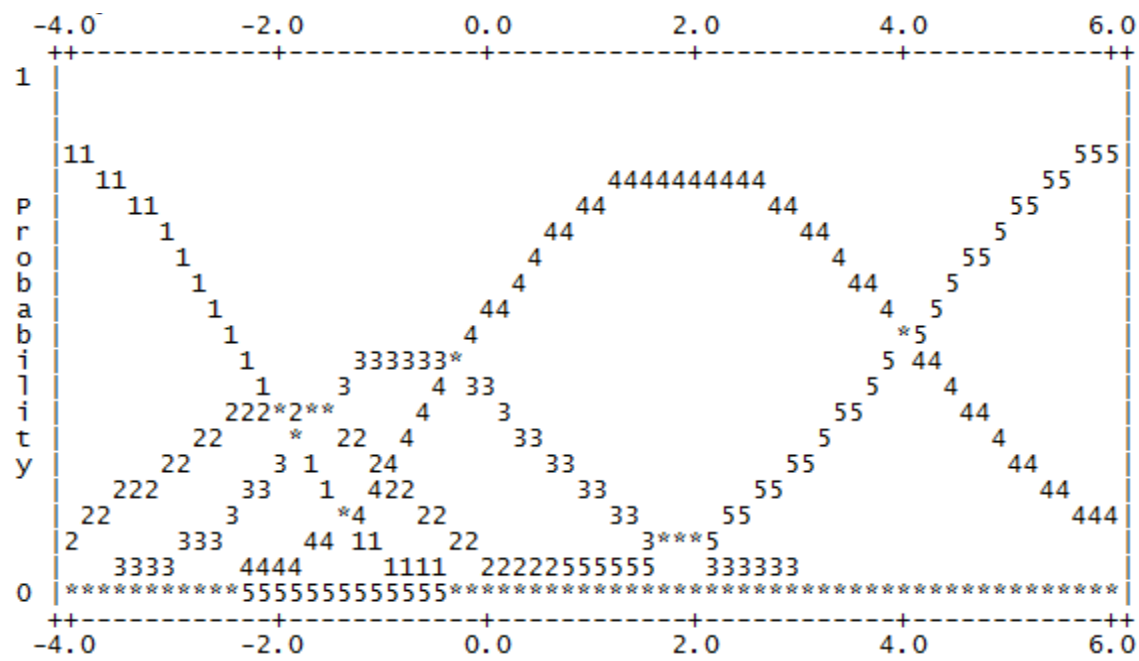


Figure 33. Probability Curves of the CAM-T-Collaborating Mode

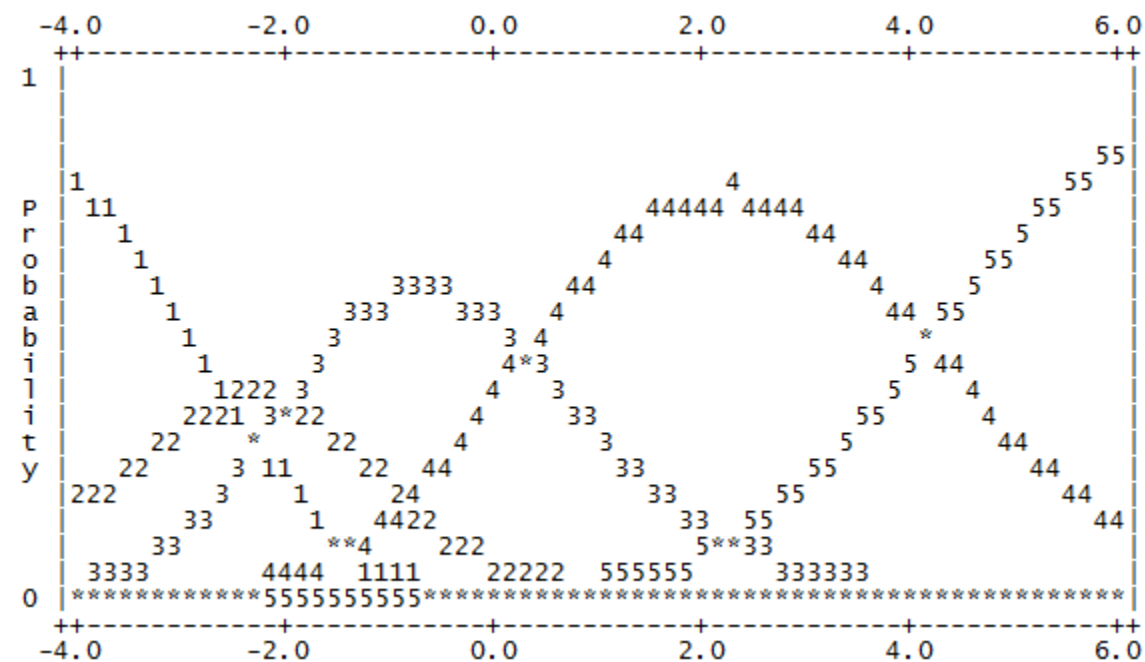


Figure 34. Probability Curves of the CAM-T-Empathizing Mode

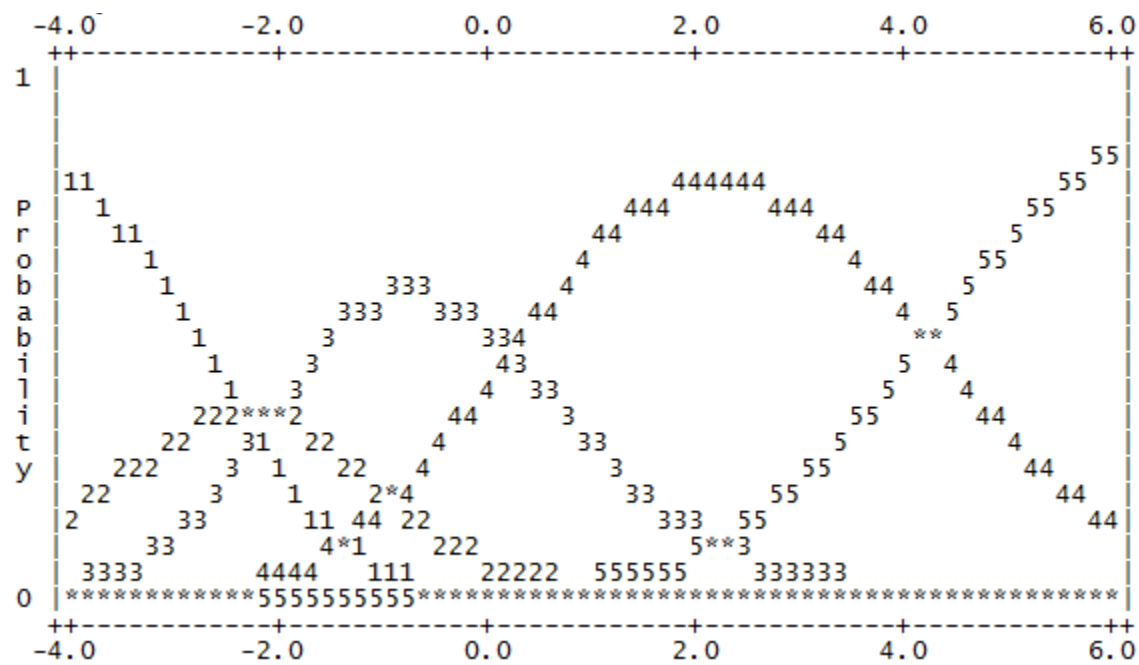


Figure 35. Probability Curves of the CAM-T-Encouraging Mode

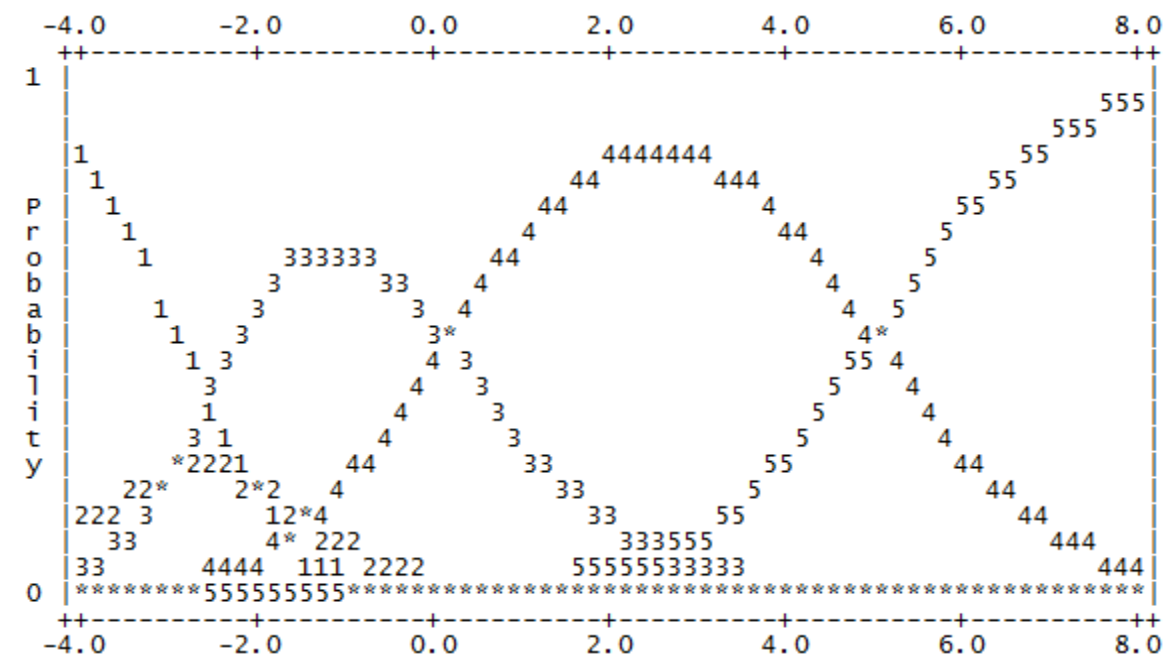


Figure 36. Probability Curves of the CAM-T-Instructing Mode

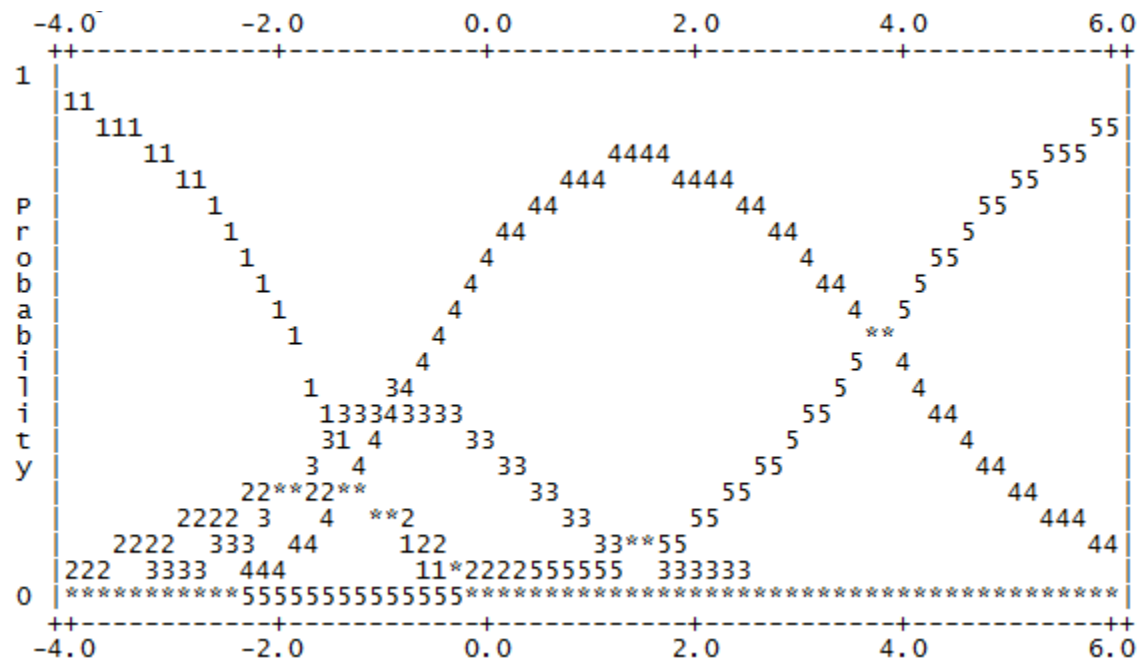
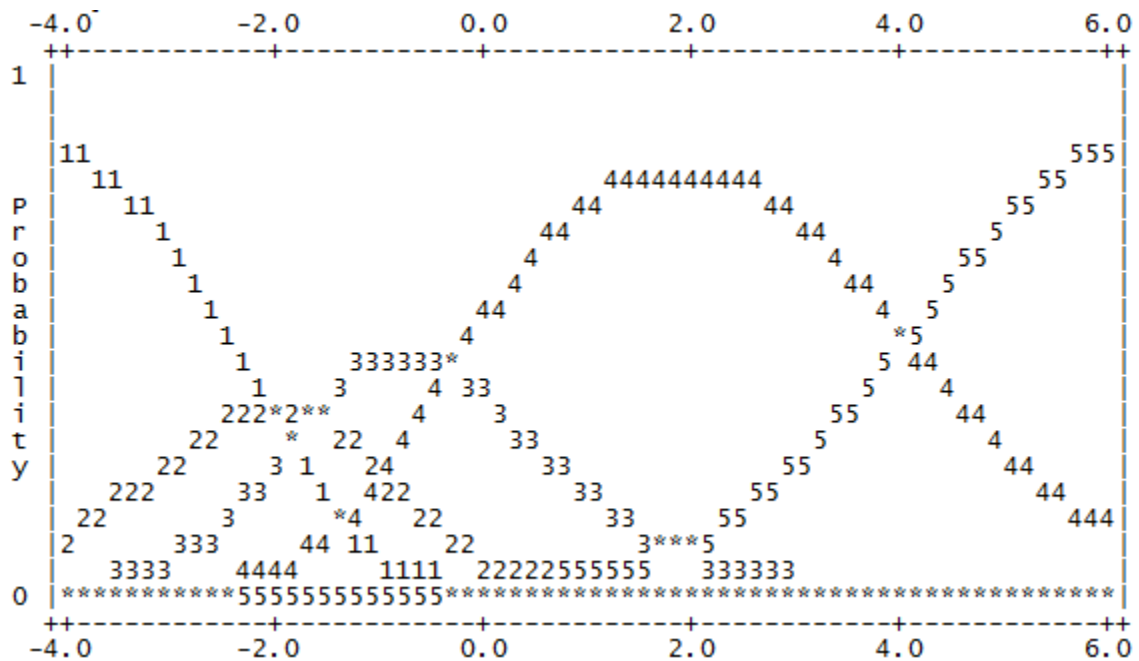


Figure 37. Probability Curves of the CAM-T-Problem-solving Mode



II.6. Comparison of Item Hierarchy from Different Points of View


Table 18 is the comparison of the ratings from clients, therapists and observers' perspectives. The maps (Figure 10 for CAM-C1, Figure 17 for CAM-C2, Figure 24 for CAM-O, and Figure 31 for CAM-T) that generated by Rasch analysis can also provide us a visual inspection of the appropriateness of item targeting as well as the item hierarchy. It is notable that the least experienced/ identified/ observed five items are “talked about legal rights for people with disabilities”, “helped to contact people who had a similar experience or disability”, “made the client aware of people and resources in the community that were not a part of the hospital or clinic”, “helped the client get access to resources or people in the community in which he/she live”, and “shared something about his/her personal experience so that I did not feel alone.” Four out of these five items are from the Advocating mode.


Regarding the most experienced/ identified/ observed items, two items were the same from three different perspectives, which are “listened to this client with true interest”, and “explained what was happening or told this client what would happen next”. These two items may be viewed as the foundation of building therapeutic relationships. Other most experienced/ identified/ observed items were somewhat different from these three perspectives. Clients expected therapists to perform more Instructing mode, such as items 8 ” I want my therapist to tell me how to improve my performance or behavior”, item 15 ” I want my therapist to provide me with clear directions”, and item 3 “I want my therapist to explain what is happening or tell me what will happen next”; interestingly, what they perceived most were the Instructing mode as well, such as item 3 “My therapist explained what was happening or told me what would happen next”, item 15 “My therapist provided me with clear directions”, and item 8 “My therapist told me how to improve my performance or behavior”. However, what were identified from

therapists that they perform the most were mostly from the Empathizing mode, such as item 2 “I listened to this client with true interest”, item 13 “I tried to understand this client’s thoughts and feelings, no matter what they were”, item 29 “I made a special effort to listen and ask as many questions as necessary to understand this client’s needs”, and item 7 “I asked questions that made this client feel comfortable talking”. The raters’ mode use observation was relatively random and it did not stick on a specific mode.

Table 19 and Table 20 are the multiple comparisons of CAM-C2, CAM-O and CAM-T to show the differences regarding communication mode perception from three perspectives. Interestingly, clients and therapists’ ratings for the Empathizing mode perception are consistent; however, perception for other modes between clients and therapists show significant differences: Advocating mode ($p = 0.000$), Collaborating mode ($p = 0.000$), Encouraging mode ($p = 0.000$), Instructing mode ($p = 0.000$), and Problem-solving mode ($p = 0.000$). On the other hand, therapists and trained observers are more alike in their perception of the positive mode experiences.

Table 18. Item Hierarchy in Different Aspects of the CAM Questionnaires

| CAM Frequency | CAM-C1 | CAM-C2 | CAM-T | CAM-O |
|---|--|--|---|---|
| Least expected/ experienced/ identified/ observed  | I want my therapist to help me contact people who have a similar experience or disability. (28) | We talked about legal rights for people with disabilities. (9) | We talked about legal rights for people with disabilities. (9) | The therapist and client talked about legal rights for people with disabilities. (9) |
| | I want my therapist to help me get access to resources or people in the community in which I live. (1) | My therapist helped me contact people who had a similar experience or disability. (28) | I helped this client contact people who had a similar experience or disability. (28) | The therapist helped the client contact people who had a similar experience or disability. (28) |
| | I want my therapist to share something about his/her personal experience so that I do not feel alone. (20) | My therapist made me aware of people and resources in the community that were not a part of the hospital or clinic. (24) | I helped this client to get access to resources or people in the community in which he/she lives. (1) | The therapist made the client aware of people and resources in the community that were not a part of the hospital or clinic. (24) |
| | I want my therapist to tell me about people and resources in the community that are not a part of the hospital or clinic. (24) | My therapist helped me get access to resources or people in the community in which I live. (1) | I made this client aware of people and resources in the community that were not a part of the traditional medical care system. (24) | The therapist helped the client get access to resources or people in the community in which he/she lives. (1) |

| | | | | |
|---|--|--|--|--|
|  Most expected/ experienced/ identified/ observed | I want my therapist to allow me to choose what will happen next. (6) | My therapist shared something about his/her personal experience so that I did not feel alone. (20) | I revealed something about my personal experience so that this client did not feel alone. (20) | The therapist shared something about his/her personal experience so that the client did not feel alone. (20) |
| | (middle items, 25, 9, 4, 23, 13, 17, 18, 5, 7, 14, 21, 22, 30, 26, 29, 12, 16, 19, 11, and 27 are skipped) | (middle items, 6, 23, 25, 26, 30, 12, 13, 14, 17, 18, 22, 5, 27, 4, 10, 16, 29, 21, 11, and 7 are skipped) | (middle items, 6, 26, 12, 30, 23, 14, 17, 4, 16, 27, 10, 21, 11, 18, 22, 25, 8, 19, 5, and 15 are skipped) | (middle items, 6, 12, 26, 30, 4, 18, 17, 19, 25, 27, 14, 16, 21, 23, 29, 5, 8, 11, 13, and 22 are skipped) |
| | I want my therapist to tell me how to improve my performance or behavior. (8) | My therapist told me how to improve my performance or behavior. (8) | I asked questions that made this client feel comfortable talking. (7) | The therapist explained what was happening or told the client what would happen next. (3) |
| | I want my therapist to make sure that I work on what matters most to me. (10) | My therapist said things that made me feel that we were working together as a team. (19) | I made a special effort to listen and ask as many questions as necessary to understand this client's needs. (29) | The therapist asked questions that made the client feel comfortable talking. (7) |
| | I want my therapist to listen to me with true interest. (2) | My therapist provided me with clear directions. (15) | I explained what was happening or told this client what would happen next. (3) | The therapist made sure that the client worked on what mattered most to him/her. (10) |
| | I want my therapist to provide me with clear directions. (15) | My therapist explained what was happening or told me what would happen next. (3) | I tried to understand this client's thoughts and feelings, no matter what they were. (13) | The therapist listened to the client with true interest. (2) |

| | | | | |
|--|--|---|---|---|
| | I want my therapist to explain what is happening or tell me what will happen next. (3) | My therapist listened to me with true interest. (2) | I listened to this client with true interest. (2) | The therapist provided the client with clear directions. (15) |
|--|--|---|---|---|

Table 19. Descriptive Statistics and Multiple Comparisons of CAM Questionnaire from Different Perspectives (N=110)

| | | Mean | Std. Deviation | One-way ANOVA | Sum of Squares | df | Mean Square | F | Sig. |
|------------------------|---|-------|----------------|---------------|----------------|-----|-------------|------|---------------|
| Advocating | C | 13.18 | 4.972 | B/ Groups | 856.9 | 2 | 428.5 | 30.5 | 0.000* |
| | T | 10.37 | 2.895 | W/ Groups | 4599.7 | 327 | 14.1 | | |
| | O | 9.38 | 3.016 | Total | 5456.6 | 329 | | | |
| Collaborating | C | 21.37 | 2.933 | B/ Groups | 376.8 | 2 | 188.4 | 19.7 | 0.000* |
| | T | 18.95 | 3.082 | W/ Groups | 3122.1 | 327 | 9.5 | | |
| | O | 19.31 | 3.246 | Total | 3499.0 | 329 | | | |
| Empathizing | C | 21.70 | 2.888 | B/ Groups | 107.9 | 2 | 54.0 | 7.0 | 0.001* |
| | T | 21.19 | 2.002 | W/ Groups | 2533.1 | 327 | 7.7 | | |
| | O | 20.32 | 3.300 | Total | 2641.1 | 329 | | | |
| Encouraging | C | 22.13 | 2.230 | B/ Groups | 158.2 | 2 | 79.1 | 11.1 | 0.000* |
| | T | 20.46 | 2.705 | W/ Groups | 2327.4 | 327 | 7.1 | | |
| | O | 21.01 | 3.010 | Total | 2485.6 | 329 | | | |
| Instructing | C | 22.70 | 2.444 | B/ Groups | 165.5 | 2 | 82.8 | 13.9 | 0.000* |
| | T | 20.97 | 2.169 | W/ Groups | 1944.6 | 327 | 5.9 | | |
| | O | 21.70 | 2.676 | Total | 2110.1 | 329 | | | |
| Problem-solving | C | 21.07 | 3.482 | B/ Groups | 402.8 | 2 | 201.4 | 16.7 | 0.000* |
| | T | 18.47 | 3.706 | W/ Groups | 3943.8 | 327 | 12.1 | | |
| | O | 19.12 | 3.213 | Total | 4346.6 | 329 | | | |

Note.

C = Client (CAM-C2); T = Therapist (CAM-T); O = Observer (CAM-O);

B/ group = Between Groups; W/ Group = Within Groups

* $p < 0.05$.

Table 20. Post Hoc Tests for Different Perspectives (Tukey HSD) (N=110)

| Dependent Variable | (I) Perspectives | (J) Perspectives | Mean | | Sig. |
|------------------------|------------------|------------------|------------------|------------|--------|
| | | | Difference (I-J) | Std. Error | |
| Advocating | Client | Therapist | 2.809 | 0.506 | 0.000* |
| | | Observer | 3.806 | 0.506 | 0.000* |
| | Therapist | Observer | .997 | 0.506 | 0.121 |
| Collaborating | Client | Therapist | 2.427 | 0.417 | 0.000* |
| | | Observer | 2.062 | 0.417 | 0.000* |
| | Therapist | Observer | -.365 | 0.417 | 0.656 |
| Empathizing | Client | Therapist | .509 | 0.375 | 0.365 |
| | | Observer | 1.385 | 0.375 | 0.001* |
| | Therapist | Observer | .876 | 0.375 | 0.053 |
| Encouraging | Client | Therapist | 1.664 | 0.360 | 0.000* |
| | | Observer | 1.117 | 0.360 | 0.006* |
| | Therapist | Observer | -.547 | 0.360 | 0.283 |
| Instructing | Client | Therapist | 1.727 | 0.329 | 0.000* |
| | | Observer | 1.005 | 0.329 | 0.007* |
| | Therapist | Observer | -.723 | 0.329 | 0.073 |
| Problem-solving | Client | Therapist | 2.600 | 0.468 | 0.000* |
| | | Observer | 1.950 | 0.468 | 0.000* |
| | Therapist | Observer | -.650 | 0.468 | 0.348 |

Note.

* $p < 0.05$

Table 21. CAM Rating Categories Counts and Step Calibration Statistics

| Modes Assessment & Rating Categories | | A | Step calibration | C | Step calibration | Em | Step calibration | En | Step calibration | I | Step calibration | P | Step calibration |
|--|---|----|---------------------|----|---------------------|----|---------------------|----|---------------------|----|---------------------|----|---------------------|
| | | | | | | | | | | | | | |
| CAM-C1 | 1 | 15 | None | 2 | None | 5 | None | 3 | None | 2 | None | 3 | None |
| | 2 | 9 | -0.11 | 6 | -1.58 | 6 | -0.90 | 4 | -0.76 | 3 | -1.02 | 5 | -0.73 |
| | 3 | 20 | -0.96* | 20 | -0.94 | 21 | -1.26* | 15 | -1.08* | 14 | -1.23* | 26 | -1.56* |
| | 4 | 30 | -0.08 | 34 | 0.64 | 36 | 0.24 | 42 | -0.23 | 41 | 0.09 | 37 | 0.42 |
| | 5 | 25 | 1.15 | 38 | 1.88 | 33 | 1.91 | 36 | 2.07 | 40 | 2.16 | 28 | 1.88 |
| CAM-C2 | 1 | 39 | None | 4 | None | 6 | None | 2 | None | 2 | None | 5 | None |
| | 2 | 9 | 0.19 | 4 | -0.04 | 3 | 0.11 | 2 | -0.16 | 2 | 0.17 | 1 | 1.33 |
| | 3 | 14 | -0.94* | 13 | -1.07* | 12 | -1.33* | 5 | -0.87* | 9 | -1.25* | 18 | -2.71* |
| | 4 | 19 | -0.25 | 36 | -0.24 | 33 | -0.19 | 45 | -1.12 | 36 | -0.42 | 45 | -0.29 |
| | 5 | 20 | 0.99 | 44 | 1.35 | 46 | 1.41 | 47 | 2.15 | 51 | 1.51 | 30 | 1.68 |
| CAM-O | 1 | 65 | None | 2 | None | 8 | None | 0 | None | 0 | None | 1 | None |
| | 2 | 9 | 0.16 | 12 | -1.75 | 7 | -0.63 | 4 | -2.52 | 3 | -2.05 | 10 | -1.95 |
| | 3 | 9 | -1.04* | 18 | -0.01 | 11 | -0.42 | 18 | -0.62 | 13 | -0.69 | 23 | -0.32 |
| | 4 | 9 | 0.01 | 33 | 0.33 | 27 | -0.05 | 38 | 0.83 | 36 | 0.55 | 37 | 0.47 |
| | 5 | 8 | 0.87 | 35 | 1.43 | 47 | 1.10 | 40 | 2.30 | 48 | 2.19 | 29 | 1.79 |
| CAM-T | 1 | 53 | None | 2 | None | 2 | None | 1 | None | 1 | None | 53 | None |
| | 2 | 14 | -2.06 | 5 | -2.48 | 3 | -2.38 | 1 | -2.12 | 1 | -1.06 | 14 | -2.06 |
| | 3 | 12 | -1.67 | 23 | -2.01 | 10 | -2.06 | 16 | -3.04* | 8 | -1.87* | 12 | -1.67 |

| | | | | | | | | | | | | | |
|--|---|----|-------|----|------|----|------|----|------|----|-------|----|-------|
| | 4 | 16 | -0.34 | 52 | 0.30 | 42 | 0.21 | 60 | 0.14 | 61 | -0.84 | 16 | -0.34 |
| | 5 | 6 | 4.06 | 18 | 4.19 | 42 | 4.23 | 22 | 5.02 | 30 | 3.77 | 6 | 4.06 |

Note.

A = Advocating, C = Collaborating, Em = Empathizing, En = Encouraging, I = Instructing, P = Problem-solving.

CAM-C1: Category 1 represents “Not at all important”, category 2 represents “Slightly important”, category 3 represents “Moderately important”, category 4 represents “Very important” and category 5 represents “Extremely important”.

CAM-C2, CAM-O and CA-T: Category 1 represents “Never”, category 2 represents “Rarely”, category 3 represents “Occasionally”, category 4 represents “Frequently” and category 5 represents “Very Frequently”.

* Reversed step calibration.

CHAPTER 9

DISCUSSION: STUDY II

The purposes of this study were to evaluate the psychometric properties of the new developed CAM assessments as well as to show the descriptive characteristics of clients by using these questionnaires. It is vital for assessments to have the foundation of a theoretical framework to strengthen their application. As Law and Baum (2001) pointed out the importance of the framework of assessments developing in the occupational therapy field, “Conceptual foundations are crucial to the development of the identity and competence of a field. Hence, discipline-specific assessment tools should be developed from discipline-specific theoretical frameworks.” The primary strength of this research is that it applies the modern test theory to assess the measurement qualities of the CAM. Through the Rasch model, ordinal data are converted to hierarchically linear measures, which are useful to yield indices of item difficulty. The item difficulty and hierarchy enable researchers and clinicians to understand the distributions of the item, person, and rater responses on the linear continuum. Additionally, Rasch analysis has become more popular in health related areas in recent years (Franchignoni, Giordano, Marcantonio, Coccetta, & Ferriero, 2012). It resolves the problem of missing data (Shin, 2009) because they do not bias the measure estimates in Rasch analysis (Linacre, 2011).

Findings in the current study suggests that CAM-C1, CAM-C2, CAM-O and CAM-T are reliable and valid assessments. Specific findings and revision suggestions are described as followed.

II.1. Reliability

II.1.1. Internal Consistency

The results show that the CAM can be viewed as six modes regarding therapeutic communication styles, which are the Advocating, Collaborating, Empathizing, Encouraging, Instructing, and Problem-solving modes. For these six modes, the results showed that most of them have excellent internal consistency (0.70~0.99) in the four CAM questionnaires. The internal consistency is a measure of the reliability of different items that intended to measure the same characteristic; therefore, the collected sample is large enough to precisely locate the items on the latent variable, i.e., therapeutic communication modes (Linacre, 2011). In addition, the data supports that items in each mode of the CAM questionnaires assesses the same characteristic.

II.1.2. Inter-rater Reliability

It is notable that most of the raters fit the Rasch measure model, with only rater 7 (VK) misfits in items on the Advocating, Empathizing and Instructing modes; rater 5 (JH) misfits in items on the Encouraging mode.

The Infit MnSq values less than 0.6 with the Zstd greater than ± 2 represent that the rater had muted ratings, which resulted in a halo effect. The *halo effect* appears when a rater fails to discriminate the differences between conceptually distinct and independent aspects of clients, and use overall impression for rating; that is, items may not be rated independently of each other (Thorndike, 1920). Close scrutiny of the actual pattern of rating of the rater 7 (VK), whose ratings cluster mostly in categories 4 and 5 (78.5%), confirmed the halo effect. According to

Engelhard (1994), the halo effect appears when “analytic scoring on multiple domains is requested, and the rater actually uses holistic scoring.” The infit MnSq statistics showed that the particular rater (VK) was rating holistically, which in turn led to overly consistent response patterns.

The term *central tendency* is used to describe situations that “ratings are clustered around the midpoint of the scale, reflecting that the raters’ reluctance to use either of the extreme ends of the rating categories; instead, the raters overuses the middle categories (Engelhard, 1994)”. This is particularly problematic when assessing a polycotomous rating scale, such as the CAM-O. The central tendency can be detected by examining the Outfit MnSq statistics; if the Outfit MnSq is greater than 1.5 and the Outfit Zstd is greater than 1, then the central tendency effect is confirmed (Barrett, 2005). In our study, rater 7 (VK) showed the central tendency in Advocating and Empathizing mode; rater 5 (JH) showed the central tendency in Encouraging mode. The central tendency effect is common in less well-qualified raters and often due to lack of experiences, so that they tend to score the middle point for a “saver” evaluation (Barrett, 2005). The misfit of these two raters make sense although they both had gone through the training processes with the main researcher. However, rater 5 (JH) and rater 7 (JH) rated the least clients and only joined in this project for about 3 months.

Rater error can be minimized through training. Researchers can also use strict study control procedures to detect rater errors. However, it has been observed that marked differences in rater may still exist even after specific rater training (Barrett, 2001). For the accuracy of the assessment, if rater error is still found, the raters need to be given additional training until they can met the standard (i.e., fit in the Rasch model), or the clients should be rated by another rater.

II.2. Validity

II.2.1. Rating Scale Analysis

For the pre-test, the results showed that clients rarely endorsed the rating category 1 (*Not important at all*) in 9 items in CAM-C1. It was clear that clients viewed all these 30 items in CAM-C1 were important to their rehabilitation, so that their expectation was higher than the level 1 category (*Not important at all*). The results were consistent with the targeting evaluation as items in Instructing and Problem-solving mode showed a tendency of ceiling effect with 26.8% and 18.3% of clients who reached maximum scores. The above results indicated that the CAM-C1 items could be better targeted to the clients' expectation; that is, the clients had more therapeutic communication expectation than the difficulty provided by items, especially in the Instructing and Problem-solving mode. However, there were no floor effects so all items were perceived as therapeutic and desirable by the clients.

For the post-test, clients rarely endorsed category 1 (*Never*) and category 2 (*rarely*) in 8 items in CAM-C2; therapists rarely endorsed category 1 (*Never*) and category 2 (*rarely*) in 13 items in CAM-T, and trained observers rarely endorsed category 1 (*Never*) in 9 items in CAM-O. These results indicated that, clients, therapists and observers had all perceived/self-perceived/observed the communication interactions between therapists and clients exceeded the category 1 (*Never*) and category 2 (*rarely*), so they used these two categories less, instead, they tended to give higher scores. These results were consistent with the examination of test targeting that a ceiling effect was identified in CAM-C2 as well as in CAM-O.

We found the rating category disordering by diagnosing the assessments' average measures. The probability curves of the CAM-C1, CAM-C2, CAM-O and CAM-T showed the average value expected in each rating category; it also indicated the category "zone". The results

of the probability curves confirmed that the rating scales were not administrated logically in most CAM-C1 and CAM-C2. When the items fitted to the Rasch model, we usually expect that across the whole range of the latent trait being measured, each rating category would systematically take turns showing the highest probability of endorsement (Pallant & Tennant, 2007). According to Pallant and Tennant's (2007) research study, the most common source of item misfit to the Rasch model is that the clients and therapists use the rating categories in an inconsistent manner. Considering the 5-point Likert rating scale of the CAM questionnaire, each point is substantively defined to represent a higher level of communication expectation/perception. The ordinal numbering of the CAM accords with this. That is, clients who perceived lower therapeutic communication were rated lower than clients with higher therapeutic communication. However, when there is disordered category, it means that a higher category number could correspond to a lower level of communication expectation/perception. Therefore, the disordered category occurs when the assigned ordinal rating of categories does not accord with their practical meaning (Pallant, Misajon, Bennett, & Manderson, 2006). According to Pallant et al. (2006), disordered categories happen when clients and therapists "have difficulty consistently discriminating between response options". That is, the respondents cannot use the rating options in a consistent manner. It may be due to there were too many response options in the questionnaire, or when the labelling of rating categories is potentially confusing or can be interpreted in a variety of ways by each individual (i.e. occasionally, frequently, etc). Thus, the 5-point rating scale of the CAM is suggested to be modified in the future study, especially for the CAM-C1 and CAM-C2. The future study has been suggested to collapse rating categories where disordered thresholds occur. In addition, clients lacked the psychological sophistication to differentiate positive therapeutic

communication mode experiences. Therefore, a future study can consider developing a measure that includes both therapeutic and non-therapeutic responses.

Another issue we found from these CAM questionnaires was that, there were reversed step calibrations (can also be called as disordered thresholds) between the rating categories. According to Linacre (2011), the step calibration/threshold are directly related to each rating category's probability of being perceived/performed/observed. Therefore, when there were disordered step calibrations, it indicated that certain rating categories were less likely to be perceived/performed/observed. Linacre (1999) pointed out, "Empirically, disorder step calibrations may indicate that the category definition is too narrow, or that too many category options have been presented to respondents" Therefore, future revision of the CAM questionnaire can consider to combine the narrow rating categories with the adjacent categories.

II.2.2. Item and Person Separation

The CAM item separation was used to verify the item hierarchy; therefore, the high item separation (>3) in each mode implied that the client, therapist and observer sample are large enough to confirm the construct validity in most of the CAM questionnaires (Linacre, 2011). Furthermore, Rasch analysis aids in the estimation of CAM item parameters as a good measurement has items ranging from easy to difficult (hierarchies) that span the range of difficulty within the underlying latent trait, that is, therapeutic communication modes. This hierarchy is useful as an aid to understand clients' expectation and experience as well as a tool to inform therapists' self-awareness during the client-therapist interaction.

II.2.3. Test Mode Unidimensionality

According to the results, most of the items worked well together to constitute a unidimensional construct of communication styles (modes) in CAM-C1, CAM-C2, CAM-O and CAM-T. Two items in CAM-C1 are misfit, which includes CAM-C1-8 (I want my therapist to tell me how to improve my performance or behavior) in Instructing mode and CAM-C1-18 (I want my therapist to say things that help me to feel normal and like other people) in Advocating mode. These results may need further study to verify if the two items should be revised or deleted from the CAM questionnaire.

II.3. The Different Perspectives: Is the Client-centered Therapy Always the Best?

The item difficulty of this study was interesting as we did find different perspectives from different points of view. These results identify a perceptual gap among clients, therapists and observers in regards to therapists' communication mode. This gap can be identified because of inconsistency of the responses among these three perspectives to the similar questions. Clients that were newly been referred to rehabilitation wanted therapists to educate and coach them on what matters most to them, provide clear directions, and show them how to improve their performance instead of having them choose what would happen next or contact someone else with the same disability.

Most of previous studies investigated clients experience in therapy has been based on therapists' or researchers' experiences rather than from clients' point of view. However, in recent years, subjective perception from clients has been considered as important in lots of psychotherapy research (Gordon, 2000). This may have resulted from the challenge that some researchers have offered to the psychotherapy field in an effort to move away from a

traditionally objective outcome approach toward a more “discovery-oriented” process approach (Mahrer, 1988).

Over the last decade, a number of authors in the field of occupational therapy have made claims that just getting the objective facts does not give us the full story (Hammel, Magasi, Heinemann, Whiteneck, Bogner, & Rodriguez, 2008; Haggstrom & Lund, 2008). During the last four decades, the clinicians and researchers in Canada articulated a correspondence between the theoretical framework of occupational performance and the core value of client-centeredness. The development of a client-centered approach answers the call of a recent health care issue - Clients want to have more control in therapy process. In addition, how health is defined has been changed. According to the World Health Organization, health is viewed as a “resource for living”. The implications of these changes have led to highlighting on client’s rights and public participation in health issues (Law, Baptiste, & Mills, 1995). The initial version of the Guidelines of the Client-Centered Practice of Occupational Therapy emphasized ideas about the worth of the individuals and holistic view (Canadian Association of Occupational Therapists, 1991). Researcher explained that when the expectations of clients and therapists are different, problems and conflicts arise (Lloyd & Mass, 1992). The client-centered approach is a philosophy of practice built on concepts that reflect changes in the attitudes and beliefs of clients and occupational therapists. Hence, occupational therapists can build a partnership with clients, and empowers clients to engage in functional performance and fulfill their occupational roles in a variety of environments. Throughout the process, therapists listen to and respect clients’ values and have clients actively participate in negotiating goals. While clients play the main role of assessment, intervention and evaluation, therapists adapt the interventions to meet clients’ needs and enables them to make decisions and fully participation in occupations (Sumsion, 2000).

The ultimate functions of client-centered approaches in the Canadian model are to increase feelings of self-efficacy and to enable clients to perform daily tasks independently. However, what about those clients who may need therapists to be more empathic and supportive following the trauma of an injury or impairment, or those who may need therapists to have more authority and direction in helping them set up goals and rehabilitation plans? The client-centered approach was criticized because based on its assumption, optimal therapeutic outcomes occur only when clients and therapists work in partnership throughout the therapy process. As a result, it focuses on the resolution of client-defined occupational performance issues. However, sometimes that is not what clients want.

The results of the current study provide an interesting example. Clients wanted therapists to educate and coach them directly and provide them with professional suggestions so that they have clear understanding of direction when working on their rehabilitation goals. This clients' expectation is consistent with the results that the Instructing and Problem-solving mode showed the ceiling effect: clients want therapists to act the Instructing and Problem-solving modes when providing services. Thorne and Robinson (1989) pointed out that chronic illness clients will evolve in three stages while interact with health care providers: naïve trust, disenchantment, and guarded alliance. That is, when clients were just referred to rehabilitation and had a relative acute medical condition, they had a tendency to trust therapists' professional and would expect therapists to guide them through goal setting and treatment planning. Once there were unmet expectation or unsolved problems in therapy, clients then may move on to the disenchantment stage. Last, clients and therapist would emerge into guarded alliance while they have longer time work together for their rehabilitation. In the current study, all the inpatients just started to receive rehabilitation services, and the outpatients only had about three treatment sessions, so that all the

enrolled patients were relatively new to the rehabilitation; therefore, it makes sense that they are in the stage of naïve trust and expect therapists can guide them through the process. These results are consistent with the previous study that was conducted by Nelson and Payton (1997). They interviewed 15 patients who were receiving occupational therapy for at least 2 weeks, and they found that because of the acuteness of patients' conditions, those patients were still in the stage of naïve trust with their therapists. In another study, Maitra and Erway (2006) interviewed 30 patients and 11 occupational therapists for their perceptions regarding involvement in the process of client-centered practice. The researchers found that the perceptual gap existed between therapists and clients, and concluded that because their patient's population was mainly from long-term-care facilities, nursing homes, and outpatient hospital; therefore, the clients may have the characteristics of the disenchantment or guarded alliance stages.

Another interesting finding is that, observers (trained raters) and therapists were more alike in their ratings on five out of the six modes in CAM. Except for the Empathizing mode, the clients and the therapists were incongruent with each other. When thinking about the patient-therapist relationship, a great amount of research focused on empathy. The research on correlation between empathy and outcome are still inconsistent. Some researchers (Barrett-Lennard, 1981; Gurman, 1977) found that therapist's self-identified empathy neither predicted outcome nor correlated with client-perceived or observer-perceived empathy. Other researchers found that therapists self-identified empathy did predict outcome, but at a lower level than clients or observers' perception (Bohart, Elliott, Greenberg, & Watson, 2002).

The traditional observers' scales (Carkhuff & Berenson, 1967) asked the observer to rate if the therapists respond to clients' concern in an empathizing way; some previous studies also discussed the observable empathy (Elliott, Bohart, Watson, & Greenberg, 2011). However, these

assessments are criticized as they do not really understand what the clients' expectation are, but only look for specific kind of responses from therapists, that is, empathic reflection. Based on the IRM, the empathy and therapeutic relationship should be defined by the clients. Therefore, the previous assessment was not appropriate for measuring empathy as they do not understand clients' perspectives.

II.4. Limitations

This study had several limitations. First, clients' participation in this study was voluntary. Therefore, there is a chance that clients who were willing to participate were those who had more positive expectations for therapists or clients had worked with therapists and had positive experiences in the past. Therefore, the findings may not be generalized to the population due to the nature of the sampling limitation. In addition, those items that were not well-targeted to the sample indicate that further analysis should be conducted on clients with a wider range of expectation and experiences. Second, although all the raters went through the training process of administrating the CAM-O questionnaire and learning IRM, additional training and monitoring of rater severity using a fidelity measure may be needed to ensure the quality of data.

Caution in interpreting these results is warranted. Even though all the clients signed informed consent and were assured confidentiality of their responses, they may have been worried about their relationship with therapists as well as their future care. Additionally, the client may have been concerned therapists' loss of a job if they provide negative response. Therefore, they may tend to give higher scores than exact experience they perceived. Generalization of the results should be conducted cautiously.

II.5. Conclusion

This study presents evidence to support the psychometric properties of a series of CAM questionnaires by using a heterogeneous clinical sample with a variety of rehabilitation needs. The results suggest that items in each mode form unidimensional constructs. In addition, the CAM had satisfactory internal consistency and inter-rater reliability. Clients in the current study lacked the psychological sophistication to differentiate positive mode experiences. Therefore, future study has been suggested to collapse rating categories where disordered thresholds occur. In addition, future study can consider to develop a measurement that includes both therapeutic and non-therapeutic responses.

Clients and therapists differed in their perceptions on therapeutic communication modes. The CAM is a theoretically based assessment and it provides therapists an excellent chance to look at how the therapeutic communication and relationships can enhance their unique contribution in rehabilitation.

Appendix A. IRB Approval Notice for MOHO Study

UNIVERSITY OF ILLINOIS AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Exemption Granted

March 29, 2011

Renee Taylor, MA., Ph.D.
Occupational Therapy
1919 W. Taylor Street
Room #348, M/C 811
Chicago, IL 60612
Phone: (312) 996-3412 / Fax: (312) 413-0256

RE: Research Protocol # 2011-0219
"Study to Examine Occupational Changes in Patients in Low and Medium Secure Settings in England"

Dear Dr. Taylor:

Please note that this exemption determination does not include approval for Sun Wook Lee to conduct the research as her Investigator Training Period expired on December 9, 2010. After she has completed Investigator Continuing Education, please submit an Amendment adding her as key research personnel for this research study.
Link: http://tiger.uic.edu/depts/ovcr/research/protocolreview/irb/education/2-2-2/ce_requirements.shtml

Please note that the UIC reviewers have determined that a Data Use Agreement is not required for this exempt research involving de-identified existing data. If a non-UIC site requires the Data Use Agreement, please submit it as an Amendment.

Your Claim of Exemption was reviewed on March 27, 2011 and it was determined that your research protocol meets the criteria for exemption as defined in the U. S. Department of Health and Human Services Regulations for the Protection of Human Subjects [(45 CFR 46.101(b)). You may now begin your research.

Please note the following regarding your research:

| | |
|-----------------------------------|---|
| Exemption Period: | March 27, 2011 – March 26, 2014 |
| Sponsor(s): | None |
| Lead Performance Site: | UIC |
| Other Performance Site(s): | South West London and St. Georges Mental Health NHS Trust |
| Subject Population: | Existing de-identified medical records originally collected from patients between June 1, 2008 and March 10, 2011 |
| Number of Subjects: | 1000 |

Phone: 312-996-1711

<http://www.uic.edu/depts/ovcr/oprs/>

Fax: 312-413-2929

The specific exemption category under 45 CFR 46.101(b) is:

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Current UIC Investigator Training Periods:

- 1) Sun Wook Lee: Expired December 9, 2010 (see text box, Page 1)
- 2) Chia-Wei Fan: August 31, 2009 – August 31, 2011
- 3) Renee Taylor: November 7, 2010 – November 7, 2012

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

1. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.
2. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary. at a minimum these documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.
3. Final Research Report When you have completed work on your research protocol, you should submit a final research report to the Office for Protection of Research Subjects (OPRS).

Please be sure to:

→ Use your research protocol number (listed above) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact me at (312) 355-2908 or the OPRS office at (312) 996-1711. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Charles W. Hoehne, B.S., C.I.P.
Assistant Director, IRB # 2
Office for the Protection of Research Subjects

cc: Yolanda Suarez-Balcazar, Occupational Therapy, M/C 811

Appendix B. IRB Approval Notice for IRM Study

UNIVERSITY OF ILLINOIS AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice Initial Review (Response To Modifications)

July 24, 2012

Renee Taylor, MA., Ph.D.
Occupational Therapy
1919 W Taylor Street
Room #348, M/C 811
Chicago, IL 60612
Phone: (312) 413-7469 / Fax: (312) 413-0256

RE: Protocol # 2012-0463

“Exploratory-Outcomes Studies of Clinical Mode Use, the Therapeutic Alliance, Client Satisfaction, and Participation in Therapy”

Dear Dr. Taylor:

Your Initial Review (Response To Modifications) was reviewed and approved by the Expedited review process on July 24, 2012. You may now begin your research

Please note the following information about your approved research protocol:

Protocol Approval Period: July 24, 2012 - July 23, 2013

Approved Subject Enrollment #: 200

Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.

Performance Sites: UIC

Sponsor: None

Research Protocol(s):

- a) Exploratory-Outcomes Studies of Clinical Mode Use, the Therapeutic Alliance, Client Satisfaction, and Participation; Version 2.0, 06/11/2012

Recruitment Material(s):

- a) Therapeutic Communication Script (UIMC); Version 2, 07/18/2012

Informed Consent(s):

- a) Health Professional; Version 1.0, 05/08/2012
- b) Client; Version 3.0, 07/18/2012
- c) Waiver of Informed Consent 45 CFR 46.116(d) for recruitment purposes only from medical records.
- d) Waiver of Signed Consent Document 45 CFR 46.117.

HIPAA Authorization(s):

- a) Authorization; Version 1.0, 05/08/2012
- b) Waiver of Authorization for Recruitment Purposes Only from medical records.

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

- (5) Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis),.
- (6) Collection of data from voice, video, digital, or image recordings made for research purposes.,
- (7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

| Receipt Date | Submission Type | Review Process | Review Date | Review Action |
|--------------|---------------------------|----------------|-------------|------------------------|
| 05/23/2012 | Initial Review | Expedited | 05/24/2012 | Modifications Required |
| 06/27/2012 | Response To Modifications | Expedited | 07/07/2012 | Modifications Required |
| 07/18/2012 | Response To Modifications | Expedited | 07/24/2012 | Approved |

Please remember to:

→ Use your **research protocol number** (2012-0463) on any documents or correspondence with the IRB concerning your research protocol.

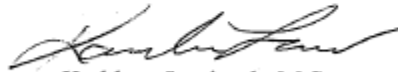
→ Review and comply with all requirements on the enclosure,
"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 413-1835. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,



Kathleen Lovisceck, M.S.
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

Enclosure(s):

1. **UIC Investigator Responsibilities, Protection of Human Research Subjects**
2. **Informed Consent Document(s):**
 - a) Health Professional; Version 1.0, 05/08/2012
 - b) Client; Version 3.0, 07/18/2012
3. **HIPAA Authorization(s):**
 - a) Authorization; Version 1.0, 05/08/2012
 - b) Waiver of Authorization for Recruitment Purposes Only from medical records.
4. **Recruiting Material(s):**
 - a) Therapeutic Communication Script (UIMC); Version 2, 07/18/2012

cc: Yolanda Suarez-Balcazar, Occupational Therapy, M/C 811
Privacy Office, Health Information Management Department, M/C 772

Appendix C. MOHOST

Model of Human Occupation Screening Tool (MOHOST) Rating Form (UK English)

| | |
|--|--|
| Client: _____ Age: _____ Date of birth: ____/____/____ Gender: Male <input type="checkbox"/> Female <input type="checkbox"/> Identification code: _____ Ethnicity: White <input type="checkbox"/> Black <input type="checkbox"/> Asian <input type="checkbox"/> Other: _____ Health condition: _____ | Assessor: _____ Designation: _____ Signature: _____ Date of first contact: ____/____/____ Date of assessment: ____/____/____ Treatment settings: _____ _____ |
|--|--|

| | | |
|---------------------|------------------|--|
| Rating Scale | F A I R | Facilitates occupational participation Allows occupational participation Inhibits occupational participation Restricts occupational participation |
|---------------------|------------------|--|

Analysis of Strengths & Limitations

Summary of Ratings

| Motivation for Occupation | | | | Pattern of Occupation | | | | Communication & Interaction Skills | | | | Process Skills | | | | Motor skills | | | | Environment: | | | |
|---------------------------|------------------------|----------|---------|-----------------------|--------------|-------|----------------|------------------------------------|--------------|------------------|---------------|----------------|--------|--------------|-----------------|--------------------|---------------|-------------------|--------|----------------|--------------------|---------------|----------------------|
| Appraisal of Ability | Expectation of Success | Interest | Choices | Routine | Adaptability | Roles | Responsibility | Non-verbal Skills | Conversation | Vocal Expression | Relationships | Knowledge | Timing | Organisation | Problem-solving | Posture & Mobility | Co-ordination | Strength & Effort | Energy | Physical Space | Physical Resources | Social Groups | Occupational Demands |
| F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |

| MOTIVATION FOR OCCUPATION | | |
|---|------------------|---|
| Appraisal of Ability Understanding of current strengths & limitations Accurate belief in skill, accurate view of competence Awareness of capacity | F A I R | Accurately assesses own capacity, recognises strengths, aware of limitations Reasonable tendency to over/under estimate own abilities, recognises some limitations Difficulty understanding strengths and limitations without support Does not reflect on skills, fails to realistically estimate own abilities <i>Comments:</i> |
| Expectation of Success Optimism & hope Self-efficacy, sense of control & self-identity | F A I R | Anticipates success and seeks challenges, optimistic about overcoming obstacles Has some hope for success, adequate self-belief but has some doubts, may need encouraging Requires support to sustain optimism about overcoming obstacles, poor self-efficacy Pessimistic, feels hopeless, gives up in the face of obstacles, lacks sense of control <i>Comments:</i> |
| Interest Expressed enjoyment Satisfaction Curiosity Participation | F A I R | Keen, curious, lively, tries new occupations, expresses pleasure, perseveres, appears content Has adequate interests that guide choices, has some opportunities to pursue interests Difficulty identifying interests, short-lived, ambivalent about choice of occupations Easily bored, unable to identify interests, apathetic, lacks curiosity even with support <i>Comments:</i> |
| Choices Appropriate commitment Readiness for change Sense of value and meaning Preferences and goals | F A I R | Clear preferences & sense of what is important, motivated to work towards occupational goals Mostly able to make choices, may need encouragement to set and work towards goals Difficulties identifying what is important or setting and working towards goals, inconsistent Cannot set goals, impulsive, chaotic, goals are unattainable or based on anti-social values <i>Comments:</i> |

| PATTERN OF OCCUPATION | | |
|---|------------------|---|
| Routine Balance Organisation of habits Structure Productivity | F A I R | Able to arrange a balanced, organised and productive routine of daily activities Generally able to maintain or follow an organised and productive daily schedule Difficulty organising balanced, productive routines of daily activities without support Chaotic or empty routine, unable to support responsibilities and goals, erratic routine <i>Comments:</i> |
| Adaptability Anticipation of change Habitual response to change Tolerance of change | F A I R | Anticipates change, alters actions or routine to meet demand, (flexible/accommodating) Generally able to modify behaviour, may need time to adjust, hesitant Difficulty adapting to change, reluctant, passive or habitually overreacts to change Rigid, unable to adapt routines or tolerate change <i>Comments:</i> |
| Roles Role identity Role variety Belonging Involvement | F A I R | Identifies with a variety of roles, has a sense of identity/belonging that comes from roles Generally identifies with one or more roles and has some sense of belonging from these roles Limited identification of roles, role overload or conflict, poor sense of belonging Does not identify with any role, negligible role demands, no sense of belonging <i>Comments:</i> |
| Responsibility Role competence Meeting expectations Fulfilling obligations Delivering responsibilities | F A I R | Reliably completes activities and meets the expectations related to role obligations Copes with most responsibilities, meets most expectations, able to fulfil most role obligations Difficulty being able to fulfil expectations and meet role obligations without support Limited ability to meet demands of activities or obligations, unable to complete role activities <i>Comments:</i> |

| COMMUNICATION AND INTERACTION SKILLS | | |
|--|--|---|
| Non-verbal skills Eye contact Gestures Orientation Proximity | F A I R | Appropriate (possibly spontaneous) body language given culture and circumstances Generally able to display or control appropriate body language Difficulty controlling/displaying appropriate body language (delayed/limited/disinhibited) Unable to display appropriate body language (absent/incongruent/unsafe/aggressive) <i>Comments:</i> |
| Conversation Disclosing Initiating & sustaining Speech content Language | F A I R | Appropriately initiates, discloses and sustains conversation (clear/direct/open) Generally able to use language or signing to effectively exchange information Difficulty initiating, disclosing or sustaining conversation (hesitant/abrupt/limited/irrelevant) Uncommunicative, disjointed, bizarre or inappropriate disclosure of information <i>Comments:</i> |
| Vocal expression Intonation Articulation Volume Pace | F A I R | Assertive, articulate, uses appropriate tone, volume and pace Vocal expression is generally appropriate in tone, volume and pace Difficulty with expressing self (mumbling/pressured speech/monotone) Unable to express self (unclear/too quiet or loud/too fast or too passive) <i>Comments:</i> |
| Relationships Co-operation Collaboration Rapport Respect | F A I R | Sociable, supportive, aware of others, sustains engagement, friendly, relates well to others Generally able to relate to others and mostly demonstrates awareness of others' needs Difficulty with co-operation or makes few positive relationships Unable to co-operate with others or make positive relationships <i>Comments:</i> |

| PROCESS SKILLS | | |
|--|--|--|
| Knowledge Seeking & retaining information Knowing what to do in an activity Knowing how to use objects | F A I R | Seeks and retains relevant information, know how to use tools appropriately Generally able to seek and retain information and know how to use tools Difficulty knowing how to use tools, difficulty in asking for or retaining information Unable to use knowledge/tools, does not retain information, asks repeatedly for same info <i>Comments:</i> |
| Timing Initiation Completion Sequencing Concentration | F A I R | Sustains concentration, starts, sequences and completes occupation at appropriate times Generally able to concentrate, start, sequence and complete occupations Fluctuating concentration or distractible, difficulty initiating, sequencing & completing Unable to concentrate, unable to initiate, sequence or complete occupations <i>Comments:</i> |
| Organisation Arranging space and objects Neatness Preparation Gathering objects | F A I R | Efficiently searches for, gathers & restores tools/objects needed in occupation (neat) Generally able to search, gather and restore needed tools/objects Difficulty searching for, gathering and restoring tools/objects, appears disorganised/untidy Unable to search for, gather and restore tools and objects (chaotic, messy) <i>Comments:</i> |
| Problem-solving Judgement Adaptation Decision-making Responsiveness | F A I R | Shows good judgement, anticipates difficulties and generates workable solutions (rational) Generally able to make decisions based on difficulties that arise Difficulty anticipating and adapting to difficulties that arise, seeks reassurance Unable to anticipate and adapt to difficulties that arise and makes inappropriate decisions <i>Comments:</i> |

| MOTOR SKILLS | | |
|--|------------------|--|
| Posture & Mobility Stability Walking Alignment Reaching Positioning Bending Balance Transfers | F A I R | Stable, upright, independent, flexible, good range of movement (possibly agile) Generally able to maintain posture and mobility in occupation, independently or with aids Unsteady at times despite any aids, slow or manages with difficulty Extremely unstable, unable to reach and bend or unable to walk <i>Comments:</i> |
| Co-ordination Manipulation Ease of movement Fluidity Fine motor skills | F A I R | Co-ordinates body parts with each other, uses smooth fluid movements (possibly dextrous) Some awkwardness or stiffness causing minor interruptions to occupations Difficulty co-ordinating movements (clumsy/tremulous/awkward/stiff) Unable to co-ordinate, manipulate and use fluid movements <i>Comments:</i> |
| Strength & Effort Grip Lifting Handling Transporting Moving Calibrating | F A I R | Grasps, moves & transports objects securely with adequate force/speed (possibly strong) Strength and effort are generally sufficient for most tasks Has difficulty with grasping, moving, transporting objects with adequate force and speed Unable to grasp, move, transport objects with appropriate force and speed (weak/frail) <i>Comments:</i> |
| Energy Endurance Pace Attention Stamina | F A I R | Maintains appropriate energy levels, able to maintain tempo throughout occupation Energy may be slightly low or high at times, able to pace self for most tasks Difficulty maintaining energy (tires easily/evidence of fatigue/distractible/restless) Unable to maintain energy, lacks focus, lethargic, inactive or highly overactive <i>Comments:</i> |

| ENVIRONMENT | Environment in which skills have been assessed: _____ | |
|---|---|---|
| Physical space Self-care, productivity and leisure facilities Privacy & accessibility Stimulation & comfort | F A I R | Space affords a range of opportunities, supports & stimulates valued occupations Space is mostly adequate, allows daily occupations to be pursued Affords a limited range of opportunities and curtails performance of valued occupations Space restricts opportunities and prevents performance of valued occupations <i>Comments:</i> |
| Physical resources Finance Equipment & tools Possessions & transport Safety & independence | F A I R | Enable occupational goals to be achieved with ease, equipment and tools are appropriate Generally allow occupational goals to be achieved, may present some obstacles Impede ability to achieve occupational goals safely, equipment and tools are inadequate Have major impact on ability to achieve occupational goals, lack of tools lead to high risks <i>Comments:</i> |
| Social groups Family dynamics Friends & social support Work climate Expectations & involvement | F A I R | Social groups offer practical support, values and attitudes support optimal functioning Generally able to offer support but may be some under or over involvement Offer reduced support, or detracts from participation, some groups support but not others Do not support participation due to lack of interest or inappropriate involvement <i>Comments:</i> |
| Occupational demands Activity demands (self-care, productivity and leisure) Cultural conventions Construction of activities | F A I R | Demands of activities match well with abilities, interests, energy and time available Generally consistent with abilities, interest, energy or time available, may present challenges Some clear inconsistencies with abilities and interest, or energy and time available Mostly inconsistent with abilities, construction of activity is under or over-demanding <i>Comments:</i> |

Appendix D. Historical, Clinical, Risk-Management – 20 (HCR-20)

| <i>Presence and Relevance of Major Risk Factors</i> | |
|---|--|
| Historical Factors | Coding |
| H1 Previous Violence | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H2 Young age at first violent incident | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H3 Relationship instability | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H4 Employment problems | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H5 Substance abuse problems | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H6 Major mental illness | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H7 Psychopathy | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H8 Early maladjustment | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H9 Personality disorder | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| H10 Prior supervision failure | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |

| Clinical Factors | Coding |
|--|--|
| C1 Lack of insight | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| C2 Negative attitudes | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| C3 Active symptoms of major mental illness | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |

| | |
|------------------------------|--|
| C4 Impulsivity | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| C5 Unresponsive to treatment | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |

| Risk Management Factors Context in which rating is made (In/Out) | Coding |
|---|--|
| R1 Plans lack feasibility | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| R2 Exposure to destabilisers | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| R3 Lack of personal support | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| R4 Noncompliance with remediation attempts | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |
| R5 Stress | Presence <input type="checkbox"/> Y <input type="checkbox"/> ? <input type="checkbox"/> N |

Appendix E. Health of the Nation Outcome Scale (HONOS)

Rate each item as follows:

- 0 = no problem
- 1 = minor problem requiring no action
- 2 = mild problem but definitely present
- 3 = moderately severe problem
- 4 = severe to very severe problem
- 9 = Not Known

1. Overactive, aggressive, disruptive or agitated behaviour (current)
2. Non-accidental self-injury (current)
3. Problem-drinking or drug-taking (current)
4. Cognitive problems (current)
5. Physical illness or disability problems (current)
6. Problems associated with hallucinations and delusions (current)
7. Problems with depressed mood (current)
8. Other mental and behavioural problems (current)
9. Problems with relationships (current)
10. Problems with activities of daily living (current)
11. Problems with living conditions (current)
12. Problems with occupation and activities (current)

The 7 security rating scales are:

A = risk of harm to adults or children

- B = risk of self-harm (deliberate or accidental)
- C = need of building security to prevent physical escape
- D = need for a safely staffed living environment
- E = need for escort on leave (beyond the secure perimeter)
- F = risk to individual from others
- G = need for risk management procedures.

Appendix F. Clinical Assessment of Modes, Client Preferences version (CAM-C1)

Client Confidential ID# _____
Therapist Confidential ID# _____
RA: _____ Date: _____

Communicating with your Therapist in Rehabilitation (CAM-C1)

The purpose of our research study is to better understand the different ways that therapists communicate with their clients in therapy. In answering the questions, the researchers want you to think only about the occupational therapist who gave you this survey. We do not want you to think about any other therapists or providers. We will be summarizing your answers for research purposes only.

All of your answers will be kept strictly confidential. PLEASE DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE. Your occupational therapist will NOT EVER see your answers. Your therapist's boss or supervisor will NOT see your answers. Your answers will NOT affect your care here. Please answer as truthfully as you can.

Section I: About You

- 1) Your age: _____
- 2) Your sex:
 - i. Male _____
 - ii. Female _____
- 3) Your occupational roles: (please check all that apply)
 - i. Employed full time _____
 - ii. Employed part time _____
 - iii. Receiving Disability Pension _____
 - iv. Retired _____
 - v. Student _____
 - vi. Other _____ (please describe: _____)
- 4) Your marital status:
 - vii. Single, Never Married _____
 - viii. Married _____
 - ix. Separated _____
 - x. Divorced _____
 - xi. Widowed _____
- 5) Your living situation: (please check all that apply)
 - xii. Living alone _____
 - xiii. Living with partner or spouse _____
 - xiv. Living with other family member _____
 - xv. Other (please describe: _____)
- 6) Highest educational degree earned:
 - xvi. Less than high school _____
 - xvii. High School Diploma or Equivalent _____
 - xviii. Associate's or Technical Degree _____
 - xix. Bachelor's Degree _____
 - xx. Post-Graduate Degree (Doctorate, Law, Etc.) _____
- 7) Reason you are receiving therapy here (your diagnosis): _____
- 8) How long have you been working with (name of therapist _____):
 - xxi. Haven't met with the therapist yet _____
 - xxii. Less than five sessions _____
 - xxiii. 5 – 10 sessions _____
 - xxiv. Over 10 sessions _____

Section II. Your Therapist's Ability to Communicate

Circling a number, please rate the extent to which the following statements are important to you. For example: "I want to read a mystery novel"

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

1) I want my therapist to help me get access to resources or people in the community in which I live.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

2) I want my therapist to listen to me with true interest.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

3) I want my therapist to explain what is happening or tell me what will happen next.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

4) I want my therapist to help me to think about a problem or activity in a different way.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

5) I want my therapist to point out what I am good at doing.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

6) I want my therapist to allow me to choose what will happen next.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

7) I want my therapist to ask questions that make me feel comfortable talking.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

8) I want my therapist to tell me how to improve my performance or behavior.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

9) I want my therapist to talk with me about legal rights for people with disabilities.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

10) I want my therapist to make sure that I work on what matters most to me.

| 1 | 2 | 3 | 4 | 5 |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

11) I want my therapist to make me feel confident about what I am doing.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

12) I want my therapist to explain different choices to me when guiding me to make a decision.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

13) I want my therapist to try to understand my thoughts and feelings, no matter what they are.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

14) I want my therapist to improve or change something when I point out that it is not helpful.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

15) I want my therapist to provide me with clear directions.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

16) I want my therapist to be positive when he/she believes I am ready to try something I think I can't do.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

17) I want my therapist to help me think about a problem in a clear-headed, non-emotional way.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

18) I want my therapist to say things that help me to feel normal and like other people.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

19) I want my therapist to say things that make me feel that we are working together as a team.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

20) I want my therapist to share something about his/her personal experience so that I do not feel alone.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

21) I want my therapist to say things that make me feel hopeful.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

22) I want my therapist to show a sense of conviction when making a recommendation.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

23) I want my therapist to give me control over what I accomplish.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

24) I want my therapist to tell me about people and resources in the community that are not a part of the hospital or clinic.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

25) I want my therapist to give me a compliment or other kind of reward for something I did.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

26) I want my therapist to help me consider many different ways of doing things.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

27) I want my therapist to teach me something.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

28) I want my therapist to help me contact people who have a similar experience or disability.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

29) I want my therapist to try hard to understand my needs by listening and asking as many questions as necessary.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

30) I want my therapist to help me look at a problem by breaking it down into smaller parts.

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all important | Slightly important | Moderately important | Very important | Extremely important |

Section III.

Thank you for responding to these questions. Is there anything else was left out that you feel is important for me to know or something you would like to share?

Thank you again for participating.

Appendix G. Clinical Assessment of Modes, Client Outcomes version (CAM-C2)

Client Confidential ID# _____
Therapist Confidential ID# _____
Date: _____

Communicating with your Therapist (CAM-C2)

The purpose of our research study is to better understand the different ways that therapists communicate with their clients in therapy. In answering the questions, the researchers want you to think only about the occupational therapist who gave you this survey. We do not want you to think about any other therapists or providers. We will be summarizing your answers for research purposes only.

All of your answers will be kept strictly confidential. PLEASE DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE. Your occupational therapist will NOT EVER see your answers. Your therapist's boss or supervisor will NOT see your answers. Your answers will NOT affect your care here. Please answer as truthfully as you can.

Section I. Your Therapist's Ability to Communicate

By circling a number, please rate the extent to which your therapist has done the following thus far.

For example: "My therapist arrived on time."

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

1) My therapist helped me get access to resources or people in the community in which I live.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

2) My therapist listened to me with true interest.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

3) My therapist explained what was happening or told me what would happen next.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

4) My therapist helped me to think about a problem or activity in a different way.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

5) My therapist pointed out what I was good at doing.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

6) My therapist allowed me to choose what would happen next.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

7) My therapist asked questions that made me feel comfortable talking.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

8) My therapist told me how to improve my performance or behavior.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

9) We talked about legal rights for people with disabilities.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

10) My therapist made sure that I worked on what mattered most to me.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

11) My therapist made me feel confident about what I was doing.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

12) My therapist explained different choices when guiding me to make a decision.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

13) My therapist tried to understand my thoughts and feelings, no matter what they were.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

14) My therapist improved or changed something when I pointed out that it was not helpful.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

15) My therapist provided me with clear directions.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

16) My therapist's positive attitude showed me that he or she believed I was ready to do something I thought I could not do.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

17) My therapist helped me think about a problem in a clear-headed, non-emotional way.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

18) My therapist said things that helped me to feel normal and like other people.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

19) My therapist said things that made me feel that we were working together as a team.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

20) My therapist shared something about his/her personal experience so that I did not feel alone.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

21) My therapist said things that made me feel hopeful.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

22) My therapist showed a sense of conviction when making a recommendation.

1 2 3 4 5
 Never Rarely Occasionally Frequently Very Frequently

23) My therapist gave me control over what I accomplished.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

24) My therapist made me aware of people and resources in the community that were not a part of the hospital or clinic.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

25) My therapist gave me a compliment or other kind of reward for something I did.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

26) My therapist helped me consider many different ways of doing things.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

27) My therapist taught me something.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

28) My therapist helped me contact people who had a similar experience or disability.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

29) My therapist tried hard to understand my needs by listening and asking as many questions as necessary.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

30) My therapist helped me look at a problem by breaking it down into smaller parts.

1 2 3 4 5
Never Rarely Occasionally Frequently Very Frequently

Section II. Satisfaction

31) Overall, how satisfied are you with the occupational therapy services you received from your therapist?

1 2 3 4 5
Not at all satisfied Slightly satisfied Somewhat satisfied Very satisfied Extremely satisfied

32) If there was ONE thing you wished your therapist would have done differently, what would it have been? (Please choose only your top priority)

- ☐ been more directive or firm
- ☐ given me more control
- ☐ introduced me to other people with disabilities like mine and/or connected me with resources in my community
- ☐ asked more questions and listened more to try to understand what I needed
- ☐ been more positive or reinforcing, instilled hope more
- ☐ outlined options, analyzed potential consequences of choices, and asked logical questions
- ☐ none of the above, I am satisfied with what my therapist did

Section III: About You

33) Your age: _____

34) Your sex:

- i. Male _____
- ii. Female _____

35) Your occupational roles: (please check all that apply)

- i. Employed full time _____
- ii. Employed part time _____
- iii. Receiving Disability Pension _____
- iv. Retired _____
- v. Student _____
- vi. Other _____ (please describe: _____)

36) Your marital status:

- vii. Single, Never Married _____
- viii. Married _____
- ix. Separated _____
- x. Divorced _____
- xi. Widowed _____

37) Your living situation: (please check all that apply)

- xii. Living alone _____
- xiii. Living with partner or spouse _____
- xiv. Living with other family member _____
- xv. Other (please describe: _____)

38) Highest educational degree earned:

- xvi. Less than high school _____
- xvii. High School Diploma or Equivalent _____
- xviii. Associate's or Technical Degree _____
- xix. Bachelor's Degree _____
- xx. Post-Graduate Degree (Doctorate, Law, Etc.) _____

39) Reason you are receiving therapy here (your diagnosis): _____

40) How long have you been working with (name of therapist _____):

- xxi. This is the first time I have met the therapist _____
- xxii. Less than five sessions _____
- xxiii. 5 – 10 sessions _____
- xxiv. More than 10 sessions _____
- xxv. More than 20 sessions _____

Thank you for responding to these questions. Is there anything else I have left out that you feel is important for me to know or something you would like to share?

Appendix H. Clinical Assessment of Modes, Observational version (CAM-O)

Client Confidential ID# _____
Matched to Therapist Confidential ID# _____
RA Name: _____ Date: _____

Communicating with your Therapist-Observational version

The purpose of our research study is to better understand the different ways that therapists communicate with their clients in therapy. The researchers want you to observe the treatment session, and based on your observation, answering the below questions. We will be summarizing your answers for research purposes only.

Section I. The Therapist's Ability to Communicate

By circling a number, please rate the extent to which this therapist has done the following during this treatment session. For example:

"The therapist arrived on time."

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

1) The therapist helped the client get access to resources or people in the community in which he/she lives.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

2) The therapist listened to the client with true interest.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

3) The therapist explained what was happening or told the client what would happen next.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

4) The therapist helped the client to think about a problem or activity in a different way.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

5) The therapist pointed out what the client was good at doing.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

6) The therapist allowed the client to choose what would happen next.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

Client Confidential ID# _____
Matched to Therapist Confidential ID# _____
RA Name: _____ Date: _____

7) The therapist asked questions that made the client feel comfortable talking.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

8) The therapist told the client how to improve his/her performance or behavior.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

9) The therapist and client talked about legal rights for people with disabilities.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

10) The therapist made sure that the client worked on what mattered most to him/her.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

11) The therapist made the client feel confident about what he/she was doing.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

12) The therapist explained different choices when guiding the client to make a decision.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

13) The therapist tried to understand the client's thoughts and feelings, no matter what they were.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

14) The therapist improved or changed something when the client pointed out that it was not helpful.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

15) The therapist provided the client with clear directions.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

16) The therapist's positive attitude showed the client that he/she believed the client was ready to do something the client thought he/she could not do.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

17) The therapist helped the client think about a problem in a clear-headed, non-emotional way.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

18) The therapist said things that helped the client to feel normal and like other people.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

19) The therapist said things that made the client feel that they were working together as a team.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

20) The therapist shared something about his/her personal experience so that the client did not feel alone.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

21) The therapist said things that made the client feel hopeful.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

22) The therapist showed a sense of conviction when making a recommendation.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

23) The therapist gave the client control over what he/she accomplished.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

24) The therapist made the client aware of people and resources in the community that were not a part of the hospital or clinic.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

25) The therapist gave the client a compliment or other kind of reward for something he/she did.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

Client Confidential ID# _____
 Matched to Therapist Confidential ID# _____
 RA Name: _____ Date: _____

26) The therapist helped the client consider many different ways of doing things.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

27) The therapist taught the client something.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

28) The therapist helped the client contact people who had a similar experience or disability.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

29) The therapist tried hard to understand the client's needs by listening and asking as many questions as necessary.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

30) The therapist helped the client look at a problem by breaking it down into smaller parts.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

Section II. Satisfaction

31) Overall, how satisfied are you with the occupational therapy services the client received from this therapist?

| | | | | |
|------------|-----------|----------------------|-----------|----------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all | Slightly | Somewhat | Very | Extremely |
| Satisfied | Satisfied | Satisfied | Satisfied | Satisfied |

32) If there was ONE thing you wished this therapist would have done differently, what would it have been? (Please choose only your top priority)

been more directive or firm
 given the client more control
 introduced the client to other people with disabilities and/or connected him/her with resources in his/her community
 asked more questions and listened more to try to understand what the client needed
 been more positive or reinforcing, instilled hope more
 outlined options, analyzed potential consequences of choices, and asked logical questions
 none of the above, I am satisfied with what this therapist did

Appendix I. Clinical Assessment of Modes, Therapist Outcomes version (CAM-T)

Communicating with your Client in Therapy (CAM-T)

The purpose of our research is to better understand the different ways that therapists communicate with their clients in therapy.

When responding to these questions, please reflect only on the one client originally been enrolled for the pre-test. If none of your clients completed the pre-test, then please select any client from your caseload who is willing to answer the following questions and follow the same procedures above. We will be summarizing your answers for research purposes. All of your responses will be kept strictly confidential. Your client will NOT EVER see your responses. Please answer as truthfully as you can.

Section I. About You

1. Your Age?

2. Are you a...

PLEASE CIRCLE THE CORRECT RESPONSE

Female..... 1

Male..... 2

3. Indicate the degree that you earned in order to become an OT, PT, OTA, or PTA.

Associates/Certificate..... 1

Bachelors..... 2

Entry Masters..... 3

OTD..... 4

4. Indicate the highest degree you have earned (in any field).

Associates/Certificate..... 1

Bachelors..... 2

Masters..... 3

Doctorate (OTD, DPT, PhD, EdD, DrPH, etc.) 4

5. How long have you been practicing as a therapist or therapy assistant?

Less than 1 year..... 1

1 to 5 years..... 2

6 to 10 years..... 3

11 to 20 years..... 4

More than 20 years..... 5

Section II. Communicating with your Client

By circling a number, please rate the extent to which you have done the following with your selected client thus far. For example: "I read a mystery novel"

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

1) I helped this client to get access to resources or people in the community in which he/she lives.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

2) I listened to this client with true interest.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

3) I explained what was happening or told this client what would happen next.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

4) I helped this client think about a problem or activity in a different way.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

5) I pointed out what this client was good at doing.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

6) I allowed this client to choose what would happen next.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

7) I asked questions that made this client feel comfortable talking.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

8) I told this client how to improve his/her performance or behavior.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

9) We talked about legal rights for people with disabilities.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

10) I made sure that this client worked on what mattered most to him/her.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

11) I said things to make this client feel confident.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

12) I explained different choices to this client when guiding him/her make a decision.

| 1 | 2 | 3 | 4 | 5 |
|-------|--------|--------------|------------|-----------------|
| Never | Rarely | Occasionally | Frequently | Very Frequently |

13) I tried to understand this client's thoughts and feelings, no matter what they were.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

14) I improved or changed something when this client indicated that it was not helpful.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

15) I provided this client with clear directions.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

16) Being particularly positive showed that I believed the client was ready to try something he/she was not confident of doing.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

17) I helped this client think about a problem in a clear-headed, non-emotional way.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

18) I said things that enabled this client to feel normal and like other people.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

19) I said things that made this client feel that we were working together as a team.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

20) I revealed something about my personal experience so that this client did not feel alone.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

21) I said things that made this client feel hopeful.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

22) I conveyed a sense of conviction when making a recommendation.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

23) I gave this client control over what he/she accomplished.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

24) I made this client aware of people and resources in the community that were not a part of the traditional medical care system.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

25) I gave this client a compliment or other kind of reward for something he/she did.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

26) I helped this client consider many different ways of doing things.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

27) I taught this client something.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

28) I helped this client contact people who had a similar experience or disability.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

29) I made a special effort to listen and ask as many questions as necessary to understand this client's needs.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

30) I helped this client look at a problem by breaking it down into smaller parts.

| | | | | |
|-------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Rarely | Occasionally | Frequently | Very Frequently |

Section III. Satisfaction

31) Overall, how satisfied do you think your client was with the therapy services he/she received from you?

| | | | | |
|----------------------|--------------------|--------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all satisfied | Slightly satisfied | Somewhat satisfied | Very satisfied | Extremely satisfied |

32) Overall, how satisfied were you with the way you carried out treatment with this particular client?

| | | | | |
|----------------------|--------------------|--------------------|----------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all satisfied | Slightly satisfied | Somewhat satisfied | Very satisfied | Extremely satisfied |

33) If there was any ONE thing you would have done differently with this client, what would it have been? (please choose only your top priority)

- ☐ been more directive or firm
- ☐ given the client more control
- ☐ introduced the client to others with similar disabilities or connected the client with resources in the community
- ☐ asked more questions and listened more to try to understand the client's needs
- ☐ been more positive or reinforcing with the client, instilled hope more
- ☐ outlined options, analyzed potential consequences of choices, and asked logical questions
- ☐ none of the above, I think that what I did adequately met the needs of this client.

Thank you for responding to these questions. Is there anything else I have left out that you feel is important for me to know or something you would like to share?

Appendix J. Key Terms and Definitions of the Rasch Analysis

The below definition were retrieved and adapted from the Facet software manual (Linacre, 2013).

| Term | Definition |
|---|---|
| Difficulty | The difficulty (challenge, easiness, etc.) of an item (task, prompt, etc.) is the point on the latent variable (unidimensional continuum) at which the highest and lowest categories have equal probability of being observed. This is usually near the center of the middle category of an odd number of categories, or close to the transition between adjacent central categories of an even number of categories. |
| Fit | The extent to which a particular individual, task etc., has consistent pattern of item responses with that predicted by the Rasch model. |
| Infit MnSq = Infit Mean-Square | The information-weighted, inlier-pattern-sensitive, mean square fit statistic, with expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean-square is a chi-squared fit statistic divided by its degrees of freedom. |
| Infit Zstd = Infit Z-standardized <i>t</i> -statistic | The Infit MnSq statistic standardized toward a unit-normal distribution so effectively a <i>t</i> -statistic with infinite degrees of freedom, i.e., a <i>z</i> -score. The accuracy of this standardization is data dependent. This tests the statistical hypothesis: "Does the Infit Mean-Square indicate that apparent randomness in these data fit the Rasch model exactly?" |
| Outfit MnSq = | The unweighted, outlier-sensitive, mean-square fit statistic, with |

| | |
|--|---|
| Outfit Mean-Square | expectation 1, and range 0 to infinity. Less than 1 indicates muting: too little variation, lack of independence. More than 1 indicates noise: unmodelled excess variation. A mean-square is a chi-squared fit statistic divided by its degrees of freedom. |
| Outfit Zstd = Outfit Z- standardized <i>t</i> - statistic | The Outfit MnSq statistic standardized toward a unit-normal distribution so effectively a <i>t</i> -statistic with infinite degrees of freedom, i.e., a <i>z</i> -score. The accuracy of this standardization is data dependent. This tests the statistical hypothesis: "Does Outfit Mean-Square indicate that the apparent randomness in these data fit the Rasch model exactly?" |
| Unidimensionality | Assumes that one underlying (or dominant) factor (variable or trait) accounts for a person's response to an item within a scale. |
| Rater severity/leniency | Rater severity or leniency is a consistent tendency on the part of the rater to give a score that is higher or lower than is appropriate, which is usually interpreted to mean higher or lower than the average of the other raters. |
| Separation | <p>Separation = True S.D. / Average measurement error</p> <p>This estimates the number of statistically distinguishable levels of performance in a normally distributed sample with the same "true S.D." as the empirical sample, when the tails of the normal distribution are modelled as due to measurement error.</p> <p>www.rasch.org/rmt/rmt94n.htm</p> |
| Strata | Strata = (4*Separation + 1)/3 |

| | |
|---------------------------|---|
| | <p>This estimates the number of statistically distinguishable levels of performance in a normally distributed sample with the same "true S.D." as the empirical sample, when the tails of the normal distribution are modelled as extreme "true" levels of performance.</p> <p>www.rasch.org/rmt/rmt163f.htm</p> |
| Separation Reliability | <p>It is the Rasch equivalent of the KR-20 or Cronbach Alpha "test reliability" statistic, i.e., the ratio of "True variance" to "Observed variance" for the elements of the facet. This shows how reproducibly different the measures are. High (near 1.0) person and item reliabilities are preferred.</p> |

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VITA

Chia-Wei Fan

E-mail: cfan5@uic.edu ; r95429005@gmail.com

Education

- University of Illinois at Chicago, College of Applied Health Sciences, Department of Kinesiology, Nutrition and Rehabilitation, Rehabilitation Program, PhD Candidate (Passed PhD thesis defense on 3/10/2014)
- National Taiwan University, Master in Occupational Therapy, June 2008 (Rank 1/14)
- National Cheng Kung University, Bachelor in Occupational Therapy, June 2006 (Rank 1/32)

Honor & Scholarship

- 2014 Graduate Student Travel Award, Department of Occupational Therapy, UIC
- 2014 Graduate Student Travel Award, Graduate College, UIC
- 2012 Graduate Student Travel Award, Department of Occupational Therapy, UIC
- 2012 Graduate Student Travel Award, Graduate College, UIC
- 2011 Graduate Student Travel Award, Department of Occupational Therapy, UIC
- 2011 Graduate Student Travel Award, Graduate College, UIC
- 2010 Graduate Student Travel Award, Department of Occupational Therapy, UIC
- 2010 Graduate Student Travel Award, Graduate College, UIC
- 2009 Graduate Student Travel Award, Department of Occupational Therapy, UIC
- 2009 Graduate Student Travel Award, Graduate College, UIC
- 2007 Scholarship of Foundation for the Advancement of Outstanding Scholarship
- 2006 Dean's List of College of Medicine, National Cheng Kung University
- 2005 Certification of Presidential Award of Department of Occupational Therapy, National Cheng Kung University

Certificate

2006 – Present

Board certified occupational therapist accredited by National Health Department, Taiwan (No.001919)

Professional Society Memberships

2006 – Present Taiwan Occupational Therapy Association, member

2009 – Present American Occupational Therapy Association, member

Research Experience

- October 2010 – Present **Research Assistant in the MOHO Clearinghouse**
 - Supervised by Dr. Renee Taylor
 - Work on the Listserv; evidence-based research; help with the international affairs and research collaboration, Model of Human Occupation (MOHO) institute.
- August 2009 – Present **Research Assistant at the Chronic Fatigue Syndrome lab**
 - Supervised by Dr. Renee Taylor
 - **NIH Project:** HERV K-18 as a risk factor for CFIDS
 - Scheduling subjects' blood draw and interview; conducting telephone interview; integrating/ organizing related materials; data entry and data analysis; organizing medical records; communicating with other cooperate parties in Tufts University and Children Memorial Hospital.
- September 2006 – July 2009 **Research Assistant in Taiwan MOHO center**
 - Supervised by Dr. Ay-Woan Pan
 - **NSC Project:** The development of the distant PBL program and the study of its effect.
 - **NSC Project:** The development of the internet-based assessment and intervention system for occupational therapy in mental health.
 - Organizing focus groups; assessment tools translation; conducting pilot and formal study, which includes: literature review, data collection, data analysis, and write publish papers.

Teaching Experience

- Teaching Assistant, August 2010 – December 2010
Department of Occupational Therapy, University of Illinois at Chicago
 - Teach lectures at the course of OT 406 - Development of a Therapeutic Use of Self, also including prepare course materials, conduct group discussion, grade assignments.

- Teaching Assistant, September 2006 –July 2009

School of Occupational Therapy, National Taiwan University

- Teaching the problem-based learning course for junior and senior OT students in mental health occupational therapy.

Book Chapters

1. Taylor, R., Fan, C. W. (2012). Managing Pain in Occupational Therapy: Integrating the Model of Human Occupation and the Intentional Relationship Model. Chapter 17, In Cara, E. & MacRae, A. (3rd Ed). Psychosocial Occupational Therapy: A Clinical Practice.
2. Fan, C. W. (2010). Management. (Translator). In Creek, J. & Lougher, L. (4th Ed) Occupational Therapy and Mental Health. Chapter 9. Taipei, Taiwan: Ho-Chi Book Publishing Co.
3. Fan, C. W. (2010). Research, Evidence-based Practice and Professional Effectiveness. (Translator). In Creek, J. & Lougher, L. (4th Ed) Occupational Therapy and Mental Health. Chapter 10. Taipei, Taiwan: Ho-Chi Book Publishing Co.
4. Fan, C. W. (2010). Cognition and Cognitive Approaches in Occupational Therapy. (Translator). In Creek, J. & Lougher, L. (4th Ed) Occupational Therapy and Mental Health. Chapter 16. Taipei, Taiwan: Ho-Chi Book Publishing Co.
5. Fan, C. W. (2010). Client-centred Groups. (Translator). In Creek, J. & Lougher, L. (4th Ed) Occupational Therapy and Mental Health. Chapter 17. Taipei, Taiwan: Ho-Chi Book Publishing Co.

Publication & Assessments & Manual

1. Ekbladh, E., Fan, C. W., Sandqvist, J., Hemmingsson, H., & Taylor, R. (2014). Work Environment Impact Scale: Testing the psychometric properties of the Swedish version. *WORK: A Journal of Prevention, Assessment, & Rehabilitation*, 47(2), 213-219.
2. Fan, C. W., Taylor, R., Ekbladh, E., Hemmingsson, H., & Sandqvist, J. (2013). Evaluating the psychometric properties of a clinical vocational rehabilitation outcome measurement: The Assessment of Work Performance (AWP). *Occupational Therapy Journal of Research: Occupation, Participation and Health*, 33(3), 125-133.
3. Lee, P., Liu, C.H., Fan, C.W., Lu, C. P., Lu, W. S., & Hsieh, C. L. (2013). The Test-Retest

Reliability and the Minimal Detectable Change of the Purdue Pegboard Test in Schizophrenia. *Journal of the Formosan Medical Association*, 112, 332-337.

4. Fan, C.W., Taylor, R.R., Wong, S., Kjellber, A., Alfredsson-Agren, K., Andersson, E., & Zubel, B. (2013). *Clinical Assessment of Modes - Observer (CAM-O): Communicating with your therapist – observational version*. Chicago, IL: University of Illinois at Chicago.
5. Fan, C. W. (2013). *Clinical Assessment of Modes - client time 1 (CAM-C1): Communicating with your therapist (Mandarin version)*. Chicago, IL: University of Illinois at Chicago.
6. Fan, C. W. (2013). *Clinical Assessment of Modes - client time 2 (CAM-C2): Communicating with your therapist (Mandarin version)*. Chicago, IL: University of Illinois at Chicago.
7. Fan, C. W., Taylor, R. R., Wong, S., & Zubel, B. (2013). *Clinical Assessment of Modes - client time 1 (CAM-C1): Communicating with your therapist (Spanish version)*. Chicago, IL: University of Illinois at Chicago.
8. Fan, C. W., Taylor, R. R., Wong, S., & Zubel, B. (2013). *Clinical Assessment of Modes - client time 2 (CAM-C2): Communicating with your therapist (Spanish version)*. Chicago, IL: University of Illinois at Chicago.
9. Taylor, R. R., Wong, S., Fan, C. W., Kjellber, A., Alfredsson-Agren, K., Andersson, E., & Zubel, B. (2013). *Clinical Assessment of Modes - Client time 1 (CAM-C1): Communicating with your therapist*. Chicago, IL: University of Illinois at Chicago.
10. Taylor, R. R., Wong, S., Fan, C. W., Kjellber, A., Alfredsson-Agren, K., Andersson, E., & Zubel, B. (2013). *Clinical Assessment of Modes - client time 2 (CAM-C2): Communicating with your therapist*. Chicago, IL: University of Illinois at Chicago.
11. Taylor, R. R., Wong, S., Fan, C. W., Kjellber, A., Alfredsson-Agren, K., Andersson, E., & Zubel, B. (2013). *Clinical Assessment of Modes - therapist (CAM-T): Communicating with your client*. Chicago, IL: University of Illinois at Chicago.
12. Pan, A. W., Fan, C. W., Chung, L., Chen, T. J., Kielhofner, G., Wu, M. Y., & Chen, Y. L. (2011). Examining validity of the Model of Human Occupation Screening Tool (MOHOST): Using Classical Test Theory and Item Response Theory. *British Journal of Occupational Therapy*, 74(1), 34-40.
13. Fan, C. W., Smith, C., Kielhofner, G., & Taylor, R. (2010). Motivational Change over the Course of Hippotherapy: An Exploratory Study of Three Children with Autism. *Scientific and Educational Journal of Therapeutic Riding*, 53-61.

14. Kielhofner, G., Fan, C. W., Morley, M., Garnham, M., Heasman, D., Forsyth, K., Lee, S. W., & Taylor, R. (2010). A Psychometric Study of the Model of Human Occupation Screening Tool (MOHOST). *Hong Kong Journal of Occupational Therapy*, 20 (2), 63-70.
15. Fan, C.W., & Pan, A.W. (2009). The Use of the Model of Human Occupation to Classify Domains of Vocational Assessments for Individuals with Mental Illness-A Literature Review. *Taiwan Occupational Therapy Journal: Practice and Research*, 5 (1), 51-64.
16. Fan, C. W., & Pan, A. W. (2009). Chinese Manual of the Model of Human Occupation Screening Tool (MOHOST). Taipei, Taiwan: School of Occupational Therapy, College of Medicine, National Taiwan University.
17. Fan, C. W. (2008). The Study of Psychometric Properties of the Model of Human Occupation Screening Tool (MOHOST). Unpublished Master's Thesis. School of Occupational Therapy, College of Medicine, National Taiwan University.
18. Fan, C. W., Chang Y., & Pan, A. W. (2007). Predictors of Employment for Patients with Psychiatric Disorders—A Literature Review. *Taiwan Occupational Therapy Journal: Practice and Research*, 3(2), 61-71.

Conference Presentation

1. Fan, C. W., Morley, M., Taylor, R., Garnham, M., & Macleod, R. (2014). Exploring Patients' Occupational Profiles in Forensic Settings in England. Poster will be presented at the College of Occupational Therapists 38th Annual Conference and Exhibition, Brighton Centre, Brighton, June, 3-5.
2. Fan, C. W., Morley, M., Heasman, D., & Taylor, R. (2012). The Occupational Participation of Clients in Forensic Hospitals: A Study to Examine Occupational Participation Changes and the Relationship between Ward Type, Treatment Engagement and Participation. Oral presented at the 3th International Model of Human Occupation Institute, Stockholm, Sweden, October, 11-12.
3. Fan, C. W., Taylor, R., & Morley, M. (2012). To Examine Occupational Changes in Patients in Low and Medium Secure Settings in England. Poster presented at the 1st Annual Occupational Science Summit, St. Louis, MO, March, 11-13.
4. Fan, C. W., Pan, A. W., & Chang, C. C. (2011). Self-perceived Obstacles and Expectations toward Employment in Clients with Mental Illness. Oral presented at the 91th Annual

- Conference & Expo, Philadelphia, PA, April, 14-17.
5. Fan, C. W., Pan, A. W., Kielhofner, G., Lai, J. S., & Chen, T. J. (2010). The Comparison of the Item Invariance of an Instrument Measuring Occupational Performance in Three Countries. Poster presented at the 90th Annual Conference & Expo, Orlando, FL, April, 29-May 2.
 6. Pan, A. W., Fan, C. W. & Chou, M. H. (2009). The Use of Item Response Theory - Rasch Measurement Model to Analyze the Psychometric Qualities of the MOHOST in Clients with Psychiatric Disorder. Poster presented at the 89th Annual Conference & Expo, Huston, TX, April, 23-26.
 7. Pan, A. W., Chen, T. J., & Fan, C. W. (2009). The Occupational Therapy Curriculum Design for Distant Problem-Based Learning: Focus Group. Poster presented in the 8th Occupational Therapy Conference of National Taiwan University. Taipei, Taiwan, April, 18.
 8. Fan, C. W. (2008). The Interaction between Self Efficacy and Interpersonal Relationship in Workplace. Invited to conduct a workshop at the Taipei Community and Volunteer Service Extension Center, Taipei, Taiwan. October, 14.
 9. Fan, C. W. (2008). The Self-affirmation Processes and Social Communication. Invited to conduct a workshop at the Taipei Women's Center, Department of Social Welfare, Taipei City Government, Taipei, Taiwan. October, 13.
 10. Fan, C. W., & Pan, A. W. (2008). Vocational Assessments for Clients with Psychiatric Disorders-A Literature Review. Poster presented at the 3rd National Occupational Therapists Association Annual Conference in the Chung Gung University, Tao-Yuan, Taiwan. June, 28.
 11. Fan, C. W., & Pan, A. W. (2008). The Translation and Inter-rater Reliability Study of the Model of Human Occupation Screening Tool (MOHOST) in Clients with Psychiatric Disorder. Oral presented at the 8th Occupational Therapy conference in the National Taiwan University, Taipei, Taiwan. April, 19.
 12. Fan, C. W., & Pan, A. W. (2007). The Application of the Daily Living Scale in Normal Persons and Persons with Depression Using Rasch Measurement Model. Oral presented at the Pacific Rim Objective Measurement Symposium in the National Taiwan Sport University, Tao-Yuan, Taiwan. July, 17-19.
 13. Fan, C. W., Pan, A. W., & Jang, Y. (2007). Predictors of Employment for Patients with

Psychiatric Disorders—A Literature Review. Poster presented in the 4th Asian Pacific Occupational Therapy Congress in Hong Kong, June, 23-27.

14. Fan, C. W., Pan, A. W., & Chang, Y. (2007). The Use of Systematic Review to Investigate the Factors Related to Return to Work of Clients with Psychiatric Disorder. Poster presented at the 2nd National Occupational Therapists Association Annual Conference in the Chung Gung University, Tao-Yuan, Taiwan. May, 26.

Work Experience

- School-Based Occupational Therapist, September 2007 –July 2009
Served at Seven Elementary and Junior High Schools at the Taipei City
(Help students with difficulties to readapt to their school lives)
- Internet Occupational Therapist Consultant, November 2008 –July 2009
(website: <https://lucky.cpa.gov.tw/>)
(Providing psychosocial consultation, physical/mental health instruction for civil servants)
- Home-Based Occupational Therapist, May 2008 – October 2008
(Providing evaluation and intervention for a 2 years old child with Williams Syndrome)
- Investigator for computer-based test for Senior Professional and Technical Examinations for Registered Occupational Therapists, October 2006 – November 2006
Ministry of Examination, the Examination Yuan of the Republic of China
- Part-time Pediatric Occupational Therapist, May 2006 – July 2006
Department of Rehabilitation, National Taiwan University Hospital

Programming

SPSS, SAS, Rasch measurement model software: Facets, Winsteps.

Volunteer Experience

- Deacon, January 2013 – February 2014
Evangelical Trinity Church, Chicago, IL
- Worship Team Leader, June 2010 – February 2014
Evangelical Trinity Church, Chicago, IL

- Volunteered Occupational Therapist, July 2006 – August 2009
Taiwan Dementia Association, Taipei, Taiwan
(Evaluation and intervention for clients with dementia; consultation for caregivers)
- Volunteered Occupational Therapy student, September 2003 – September 2004
Good Shepherd Sister Catholic ST. Lucy's Center, Tainan, Taiwan
(Evaluation and intervention for developmental delay preemies and infants)