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**An evaluation of the efficacy of Motivational Interviewing (MI) in
increasing commitment language (CL) in interviews with clients with
spinal cord injury (SCI)**

**A Thesis in partial fulfilment of the requirements for the degree of
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In Rehabilitation**

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Abstract

The purpose of this study was to compare Motivational Interviewing (MI) as an intervention that differed from other best practice interviewing techniques in that it increased the level of Commitment Language (CL) expressed by clients. Clients with spinal cord injury (SCI) were selected for this study because the use of MI with acute onset disabilities has not received research attention.

It was proposed that Motivational Interviewing increased CL expressed in utterances from clients that identified intrinsic motivators or alternatively possible barriers to engage in the rehabilitation process. The level of CL was seen as a predictor of the client's motivation towards rehabilitation initiatives and identified behavioural change towards adherence to rehabilitation or barriers preventing adherence. The increase in CL depends on the interviewing process.

How CL is expressed in interviews depends on the interviewer's ability to recognise positive or negative direction in the client's response. The ability to measure CL may assist in identifying what it is that MI does in the interviewing process to increase CL. Elevated levels of CL recorded in interviews may be defined as low, medium or high and either positive or negative. The key elements of this study are whether MI increases the level of CL expressed by clients compared with base line best practice strength based assessment questioning (SBAQ).

Recognising MI as an intervention to increase CL may assist clients in engaging or adhering to rehabilitation initiatives. The use of conversational analysis (CA) indicates that CL is a measurable component of MI that differentiates it from other interviewing techniques. Further research is required to promote CL as a predictor of behaviour change. Identifying the integrity of MI principles in studies that can show the relationship of MI to outcomes and compare these with recognised alternative treatments is required to enhance the delivery of the intervention.

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Contents

Abstract	ii
Acknowledgments	iii
Table of contents	iv
List of appendices	vi
Glossary of abbreviations and acronyms	vii
List of tables	viii
List of figures	viii
Chapter 1. Introduction	1
1.1. Purpose of research	5
1.2. Overview of the objectives of the research	6
1.3. Acute onset disability and spinal cord injury	8
1.4. Efficacy of MI and the approach	10
1.5. Change talk, sustain talk and conversational analysis	11
Chapter 2. Literature review	14
2.1. Text used	18
2.2. Meta – analyses	18
2.3. Approaches	24
2.4. Comparison and collaboration	31
2.5. Conflicting evidence	36
2.6. Central issues	37
2.7. Analysis of MI integrity	38
2.8. Therapist effect	40
2.9. Unresolved issues	43
2.10. Building bridges	44
Chapter 3. Research questions / hypothesis	48
3.1. Relevance of research	48
3.2. Previous studies	49
3.3. Research gaps	50
Chapter 4. Methods	52
4.1. Methodological approach	52
4.2. Intervention	53
4.3. The participants	53
4.4. Research design	55
4.5. Consultation	56
4.6. Procedure	59
4.7. Motivational interviewing	63
4.8. Treatment integrity	64
4.9. The motivational interviewing treatment integrity code (MITI)	65
4.10. The motivational interviewing skills code (MISC) (Trainee's)	65
4.11. CA coding	68
4.12. Analysis methods.....	68
Chapter 5. Interviewer integrity measures	70
5.1. The MITI coding system	70

5.2.	MITI treatment integrity	71
5.3.	Motivational interviewing skill code (MISC) (Interviewer)	71
Chapter 6.	Results	82
6.1.	Utterances and recognition of commitment language (CL)	82
6.2.	Explanation of positive and negative CL	90
6.3.	Conversational analysis (CA):	95
6.4.	CA application to audio recordings of interviews	96
6.5.	Summary of results	106
Chapter 7.	Discussion	108
7.1.	Post hoc analysis	108
7.2.	Relevance of findings	110
7.3.	Limitations	112
7.4.	Recommendations for further research	113
7.5.	Conclusions	118
Chapter 8.	References	119

Appendices

Appendix A	Motivational interviewing treatment integrity code (MITI).....	132
Appendix B	List of MITI codes.....	133
Appendix C	Motivational interviewing skills code (MISC) abbreviations.....	134
Appendix D	Conversational analysis transcription symbols.....	135
Appendix E	Strength based assessment questions.....	136
Appendix F	Examples of commitment expressions.....	137
Appendix G	Information sheet.....	138
Appendix H	Consent form.....	140
Appendix I	Authority for the release of transcripts.....	141
Appendix J	Confidentiality agreement	142
Appendix K	Gantt chart.....	143
Appendix L	Canterbury District Health Board locality assessment.....	144
Appendix M	Southern B health and disability ethics committee approval.....	145
Appendix N	Motivational interviewing knowledge and attitudes test (MIKAT).....	147

Glossary of Abbreviations and Acronyms:

Motivational Interviewing and the recognition of various terms can be confusing to readers. Below are common abbreviations or acronyms used in MI research settings.

ACE	Autonomy Collaboration and Evocation
CA	Conversational Analysis
CAT	Commitment, Action and Taking steps
CBT	Cognitive Behavioural Therapy
CL	Commitment Language
CT	Change Talk
DARN	Desire, Ability, Reason and Need
MET	Motivational Enhancement Therapy
MI	Motivational Interviewing
MINT	Motivational Interviewing Network of Trainers
MISC	Motivational Interviewing Skill Code
MI- SCOPE	Motivational Interviewing Sequential Code for Observing Process Exchange
MITI	Motivational Interviewing Treatment Integrity
OARS	Open ended questions, Affirmations, Reflections, Summaries
REDS	Resistance, Empathy, Discrepancy and Self Efficacy
SBAQ	Strength Base Assessment Question
SCI	Spinal Cord Injury
SDT	Self Determination Theory
ST	Sustain Talk
TTM	Transtheoretical Model (of change)

List of Tables and Figures

Tables

2.1	Meta Analyses	19
2.2	Studies in adherence	24
2.3	Reviews of studies identifying language in MI	29
4.1	Behaviour Summary Scores MITI	60
4.2	MI Adherence Scores: Trainees	61
4.3	MITI Global rating Scales: Trainees	63
4.4	Trainee Mock Interview MISC analysis	66
4.5	Languages Analysis Methods	69
5.1	Global MITI rating scores for interviewer for each client interview	71
5.2	MISC Adherence scores Baseline and Interventions	73
5.3	Non MI Adherent or Facilitative behaviours (Participant Interviews)	74
5.4	MITI recordings / Ratio of Questions to Reflections	78
5.5	MITI Recordings for MI adherence	79
5.6	Percentage Talk Time (MISC) Baseline and Intervention	80
6.1	Expressions of Commitment Language. Baseline and Intervention	92
6.2	Amended Expressions of Commitment Language after Conversational Analysis	103

Figures

6.1	Client One. High CL. Positive and Negative	84
6.2	Client One. Medium CL. Positive and Negative	85
6.3	Client One. Low CL. Positive and Negative	85
6.4	Client Two. High CL. Positive and Negative	86
6.5	Client Two. Medium CL. Positive and Negative	87
6.6	Client Two. Low CL. Positive and Negative	87
6.7	Client Three. High CL. Positive and Negative	88
6.8	Client Three. Medium CL. Positive and Negative	89
6.9	Client Three. Low CL. Positive and Negative	89
6.10	Client One. Total CL Expressions	93
6.11	Client Two. Total CL Expressions	93
6.12	Client Three. Total CL Expressions	94
6.13	Client One. Total CL Expressions with Conversational Analysis	104
6.14	Client Two. Total CL Expressions with Conversational Analysis	105
6.15	Client Three. Total CL Expressions with Conversational Analysis	106

Chapter 1.0 Introduction

In this chapter the importance of the interview process as a means of establishing rapport between provider and client is discussed. The language used by clients is considered as an indication of commitment to their own rehabilitation programmes. The need to measure commitment language (CL) is paramount to this study.

This study considers 3 important aspects of the relationship between clients and providers of health services and the efficacy of interviewing methods in assisting with client engagement. Firstly it looks at how the interviewer's performance is assessed. Chapter 2 looks at previous methods of assessment and the measurement of interviewer integrity using Motivational Interviewing (MI). In chapter 3 reasons for in depth analysis of the interview process are discussed and chapter 4 identifies how this has been approached in the past outlining the current rationale for identifying MI and measuring the integrity of the method in this thesis.

Secondly the MI intervention is compared with a current best practice method of client interviewing techniques in an area of investigation looking at acute onset disability. Acute or permanent physical conditions have had little attention in MI research and this thesis looks particularly at Spinal Cord Injury (SCI). A direct comparison is made between strength based questioning and MI as distinctly different interviewing styles; a discussion of this comparison is provided in chapter 3 and how the comparison was measured is discussed in chapter 4. The recognition of differences and comparison of techniques are outlined in chapters 5 and 6 where the methods used for differentiating the result of MI against the baseline information and the current measurement tools used in MI are discussed. Conversational Analysis (CA) is introduced as a concept of measurement to provide an in depth analysis of MI identifying what and how results are achieved through MI supporting the observation that training and integrity to MI principles are an essential element in further MI research.

The relationship between better outcomes in rehabilitation has been linked to the degree of client input into goal setting (Willer & Miller, 1978). Studies thirty years ago relied heavily on

self report questionnaires to base these results on; however, more recent studies suggest the questionnaire style of data collection is too restrictive and lacks definition of what client input is and how to recognise it (Sandlewski, 2000). Attempts at analysing interviews have, in the past, considered such methods as content analysis and discourse analysis to define meaning in interviews that indicate client motivation and interest in being an active participant in their own rehabilitation (Emmons & Rollnick, 2001). The use of CA in this study identified the need to measure not only what was said in interviews but how it was said to clarify the client's meaning and intent.

Although studies of efficacy of MI are dominated by addictions treatment, over the past 20 years, MI has been adapted to the treatment of other behaviours. These include: introduction into criminal justice and probation services (Dunn, Deroo & Rivara, 2001); health behaviour (Dunn, Neighbours & Larimer, 2006); and adherence to treatment for a variety of conditions (Duff, & Latchford, 2010). Still, the focus remains on long term acquired conditions specifically differentiated from SCI because the onset of disability is gradual. Nil studies reviewed have looked at motivation enhancement using MI in acute onset disabilities or conditions such as SCI.

The interviewing process is not merely a matter of identifying client motivators to want to engage in appropriate behaviour changes or not, it is, rather, a matter of understanding the beliefs the client holds that have led to their motivational state and ultimate decision making process (Festinger, 1957; Bem, 1967; Epstein, Hadee, Carroll, Meldrum, Lardner, & Shields, 2007; Britton, Williams, & Conner, 2008). It is often not the behaviour changes that are presented that are the issue, but rather, possibly the way the changes are presented that meets with resistance and failure of interventions (Goffman, 1967).

Many approaches in engaging clients in interviews have been trialled, yet primarily, these present as being conceived by researchers within institutions or therapists, therefore, raising criticism that the approaches focussed on the needs of the interviewer rather than the client (Jones, 2003). Clients may get lost interpreting professional definitions and 'jargon' as they

attempt to recognise whether their personal issues are being addressed or not within an often finite, clinical, therapeutic and mandated environment controlled by the intervention providers. In contrast MI takes a client centred approach; the client becomes engaged with the process which is reinforced through providing a sense that they have control in the context of a collaborative relationship with the interviewer.

Getting to know the client may often be a time consuming and challenging issue; however, if that results in better adherence to rehabilitation, then it would seem a relatively cost effective addition to a treatment programme. Despite efforts to minimise the possibility of a power imbalance between interviewer and interviewee, the ritual of conversation interaction suggests it is difficult to desensitise the imbalance issue, and there will be an initial settling in or acceptance period wherein it is proposed there is an establishment of trust and confidence (Goffman, 1967, p.76). Goffman opined that in order to establish a working relationship, there must be mutual acceptance between the interacting parties, and until that occurs, clients will present a "Face". The term face is analogous with ego as described by van Manen (1990, p.121). Within this context, it is necessary for clients to protect themselves through providing responses to questions in normal interview procedures thus "saving face"; by saving face, the client may offer responses that will not leave them vulnerable or open to criticism, direction or confrontation with the interviewer (Goffman. 1967, p.27).

Ultimately in face to face interviews, self protection may intensify as one party feels vulnerable in the interactive process. In the turn after turn description of conversation and the analysis of the content of each turn described in Conversational Analysis (CA) (Sacks, Schegloff, & Jefferson, 1974), one party may respond in a compensatory effort to protect the other person's self worth, sense of identity or to make up for the lack of response by the other party (Lerner, 2004). Although relieving the other person of the task of responding, Goffman suggests that this unsolicited contribution can produce a direction in the conversation that is one sided, pre-emptive and possibly judgmental (Goffman, 1967, p.9). MI proposes recognition of client signs that warn interviewers of pursuing particular question lines. Where resistance to talk about certain subjects or where a client struggles to respond to sensitive

questions MI promotes rolling with the resistance rather than direct or abrupt confrontation. Identifying the nature and circumstances that evoke resistance or confrontation is a skill in MI called reflective listening (Miller & Rollnick, 2002; Moyers & Rollnick, 2002).

A client seldom gets equal time in interviews and assessments when compared to the MI approach; the presenting problem may often be already defined and the interventions are often pre-conceived. The interviewers translate client concerns into a 'best fit' category within a defined institutionalised agenda. The client's decision to adhere to interventions may subsequently follow one of several possible scenarios or variations based on the provider's behaviour in the interaction. One of these could be agreement with the treatment, if intrinsic or extrinsic motivators are recognised and the benefits of treatment as described are completely understood. However, if the client does not see any positive benefits, does not understand the treatment, or remains amotivated, the provider is likely to encounter resistance or non-compliance with interventions.

Adherence to a behaviour change or continuation in compliance depends on whether the same level of motivation continues throughout the treatment plan. Miller (2000) describes motivation as a state not a trait; therefore, the strength of commitment identified in interviews may indicate the likelihood of ongoing adherence or not. Miller recognised MI as, perhaps, juxtaposed with the institutionalised approach and agrees, in principle, with the premise that the interviewer / client therapeutic alliance warranted investigation. It is reasonable to consider that MI may present as a holistic and transparent alternative to interviewing that serves in the client's best interest by personalising information delivery and the education process that relates to their subjective reasons for considering changes in behaviour and attitudes.

1.1 Purpose of research

It is proposed that this study will identify MI as an intervention that can increase Commitment Language (CL), as opposed to CL expressed in alternative or treatment as usual interviewing techniques. CL will be measured by the frequency (numerical record) of expression of commitment such as “I will do exercise” (High, Positive) or “I will not do exercise” (High, Negative). Levels will be identified as High, Medium or Low and rated either Positive or Negative. Consideration is given to the accuracy of measurement by commitment expression strength and whether measurement can be accurately interpreted with good levels of inter-rater reliability. If CL can be identified and measured, then the task is to identify if there is a significant difference between the CL recorded in the interviews with the intervention of MI and the CL expressed in utterances identified from baseline Strength Based Assessment Questions (SBQA) (see appendix E pg. 136).

The Motivational Interviewing Network of Trainers (MINT) forum recently reported a number of studies presently being undertaken across a wide range of clinical settings. This research broadens the traditional domain of MI in drug and alcohol rehabilitation and seeks to address the criticism pointed at MI's lack of empirical support for both the mechanism of delivery and flimsy relationship to outcomes. The premise by which MI loosely identifies its potential in changing commitment or behaviour is that it produces CL. Apart from a study by Amrhein, Miller, Yahne, Palmer, and Fulcher (2003) which suggested a definition of CL is necessary to support the efficacy of MI, there are no published studies that identify the clear form of MI in CL.

Even recent studies, such as that undertaken by Wahab, Menon, and Szalacha (2008) who studied the improvement in client's uptake of colorectal cancer screening, relied solely on the Motivational Interviewing Treatment Integrity Code (MITI) (Moyers, Martin, Catley, Harris, & Ahluwalia, 2003) to present results. In order to identify MI as a greater predictor of outcome than standard interview techniques or processes, it is necessary to give a definition of CL that is measurable and comparable rather than suggest CL is evidenced by comparison of the

results of the outcome of studies only. If MI increases CL, it is necessary to attribute commitment production to the client's intrinsic motivation and differentiate it from coercion, persuasion or direction from the interviewer. By comparing MI with SBQA and coding transcripts using the MITI and the Motivational Interviewing Skills Code (MISC), any interventions that recognise coercion, persuasion or direction from the interviewer will be identified.

The interaction between client and provider may not only have a profound impact on the success of interventions, but there are also enormous implications for cost saving in health services. In alcohol treatment, as an example, a study of MI by Baca (1983, as cited in Miller & Rose, 2000, p. 528) indicated that therapist empathy during treatment predicted the two thirds variance in client drinking at the 6 month follow up with interviewer empathy being associated with more positive outcomes. MI suggests an engagement style with clients that adhere to the spirit of the intervention described by Miller and Rollnick (2002) as Autonomy, Collaboration and Evocation (ACE). Engaging clients in conversation relating to personal and often unpleasant issues may be the difference in identifying client motivators to want to engage in appropriate behaviour changes or not. However, it is often not the changes that are presented, but rather, the way the changes are presented that influences outcomes, MI works to maximise investment in a course of action through facilitating client centred processes of decision making and action.

1.2 Overview of the objectives of the research

MI posits that the language expressed by clients in discourse during interviews alerts the interviewer to the client's motivators by the level of commitment in that language. This thesis looks at how that commitment can be measured and compares MI with a best practice alternative interview style by evaluating the increase in CL in MI interviews.

The willingness of the client to engage in the interview is multi-factorial. The initial interaction and introduction to the interviewer may be regarded as positive, reserved or negative. This, in turn, may dictate the direction of the interview process identified by the level of the rapport established. How comfortable the client feels may determine the success of the interview process in opening discussions relating to behavioural issues. The result of the interaction with the interviewer may promote engagement recognised by the expression of ambivalence related to their current behaviour and perception of rehabilitation and change (Ryder, 1999; Franche & Krause, 2002).

The client brings to the interview a level of readiness to change that is already established (Goffman, 1967). Amrhein's identification helps to defining readiness as Change Talk (CT) apportioning the readiness to one of four domains: Desire, Ability, Reason and Need (DARN). The relationship of readiness to behaviour change is further identified as Commitment, expressed in language; Action, defined by expression of identification of the change and Taking Steps (CAT), the actual behaviour change (Amrhein, Miller, Yahne, Knupsky, & Hockstein, 2004). By promoting identification of these domains, the interviewer may consider the reasons for a client's ambivalence and the stage of readiness for behaviour change (Prochaska and DiClemente, 1982). The expression of CL identifies the client's readiness by either positive behavioural indicators considered as CT or by negative indicators which are described as Sustain Talk (ST) (Dunn, Deroo & Rivara, 2001).

Although there is a growing list of studies supporting the efficacy of MI in assisting with behaviour change, identification of exactly what it is that MI does to achieve these results is sparse. This study asks whether the development of CT, identified as the client's willingness to discuss behaviour change or the consequences of maintaining the status quo, are influenced by MI. ST is identified as a negative response to behaviour change, and it is proposed that as CT is increased in MI interviews, ST decreases (Leffingwell, Neumann, Babitzke et al, 2007; Larson, 2008).

The recognition of an individual utterance is identified as where one conversation begins and ends. The response from a client to a question or reflection from the interviewer marks the beginning and the end of one utterance; when the interviewer next speaks, in the turn after turn sequence of conversation, a new utterance begins (Sacks, Schegloff, & Jefferson, 1974). The interviewer listens to the specific word choice and construction of the utterance in the responses to determine whether the utterance is either CT or ST; the level of CL; and then either CT or ST is recorded for each utterance (Burke, Dunn, Atkins, & Phelps, 2004; Lundahl, & Burke, 2009; Martin, Moyers, Houck, Christopher, & Miller, 2009).

If CT or ST are recognisable within utterances and can be accurately recorded including the level of CL could this be a measurement that identifies what it is MI does? If so, is that measure a predictor that ambivalence has been recognised and a behaviour change is imminent through the development of discrepancy between the status quo and a new behaviour? Although this question relates to further research the focus of this thesis is to provide an insight into the tangible concepts that are unique to MI which may assist with further research. If CL is the difference between MI and other interviewing approaches, is it something that can be effectively measured and if so, is MI an effective non-confrontational collaborative intervention for recognising and increasing CL? While MI is recognised in treating long term acquired conditions, is MI also useful in increasing CL in those experiencing acute onset disabilities such as SCI?

1.3 Acute onset disability and Spinal cord Injury

SCI accounts for considerable costs and absorbs significant health provision resources.

(National Spinal Cord Injury Statistical Centre, 2009: retrieved from:

www.spinalcord.uab.edu/show.02/03/09). Clients with SCI face enormous social, vocational, and familial changes, an unknown level of recovery and often place unrealistic expectations on themselves regarding their future. Where previous goals and aspirations are in doubt subsequent to injury, clients with SCI are also vulnerable to other health issues both

physically and psychologically. Poor health conditions and psychological wellbeing may have considerable long term effects if not identified and treated. In ideal circumstances, these issues are best identified while clients are still in acute care where resources are more readily available. It is considered important to establish rehabilitation regimes that the client feels comfortable with and can identify as important to their ongoing wellbeing and level of independence (Kendall, & Buys, 1998; Jones, 2003; Kennedy Sheldon, 2005).

Onset of acute disability with SCI presents a person with a significant paradigm shift regarding their future. Many clients with SCI struggle with the futility of rehabilitation that will not ensure that the primary goal of walking again will be achieved. Many are reluctant to participate in some or all rehabilitation programmes unless they can see significant gains; many of which may be unrealistic. For rehabilitation providers, the focus remains on stabilisation of the physical condition and preparation for rehabilitation initiatives that will ensure the best quality of life and reintegration into social, familial and vocational roles for their clients.

Spinal Unit vocational rehabilitation counsellors, physiotherapists, occupational therapists and nutritionists have reported that barriers to adherence to rehabilitation interventions are often greatest with those whose previous life direction had identified with positive goals. These goals included a significant history of such things as sporting involvement, academic achievement, and professional and qualified vocational pursuits. Staff suggested that while in the spinal unit, the previously goal directed clients tended to err to the 'dark side' during their inpatient care. These particular clients may become less interested in rehabilitation initiatives instead choosing to adopt the less goal-directed behaviour of clients with SCI who regularly engaged in risky and/or anti-social behaviour practices such as substance abuse and drink driving motor vehicle accidents. It has been suggested that when positive goal directed clients mixed with clients who did not have clear pre-injury goals, rehabilitation adherence was noticeably reduced (Kendall, & Buys, 1998; Dewar, 2000; Jones, 2003; Bishop, 2005).

This suggestion may add credence to the idea that interventions related to rehabilitation initiatives and adherence to programmes are most efficacious the closer they are to the onset of the disability as possible (Kennedy Sheldon, 2005). The most appropriate environment is expected to be in acute care hospitals where facilities may accommodate interventions and where access to appropriate assistance is more readily available than it is post discharge. At the same time, there is the possibility that the clinical environment may be detrimental to some clients who may be influenced to refrain from rehabilitation because of that same environment. The vulnerability of clients in the acute care facility may mean they orientate towards the most acceptable advice that registers with their intrinsic motivators which in turn influences their subsequent behaviour at that time (Dewar, 2000; Ellenbogen, Meade, Jackson, & Barrett, 2006; Carrier, 2009).

1.4 Efficacy of MI and the approach

Studies in MI suggest that the intervention is likely to produce a behaviour change if ambivalence related to the client's situation is either established or resolved. Better recognition of factors that may initially appear too vague is achieved by eliciting information from the client. By reflecting on client responses, the interviewer assists the client in recognising their ambivalence and assists the client to reflect on their own intrinsic motivators to develop motivation in the direction of a positive behavioural change.

Since its inception, MI has concentrated primarily on addictions, such as alcohol, drugs, and gambling (Bombardier, & Rimmel, 1999; Swanson, Pantalon, & Cohen, 1999; Carroll, Libby, Sheehan, & Hyland, 2001) and these conditions still dominate research. However, MI has expanded into other areas where more recent studies suggest that it is efficacious in assisting with other long term acquired or congenital issues such as adherence to treatment for diabetes, eating disorders schizophrenia and multiple sclerosis (Ryder, 1999; Newnham-Kansas, Morrow, & Irwin, 2006; Arkowitz, Westra, Miller, & Rolnick, 2007; Prochaska, Butterworth, Redding, Burden, Perrin, Leo, Flaherty-Robb, & Prochaska, 2007; Rollnick, Miller

& Butler, 2008; Drymalski & Campbell, 2009). Research on MI as an intervention to assist with rehabilitation adherence with acute onset disability such as SCI, however, is sparse. This study looked at CL expression identified in interviews with clients with SCI in a single case study design with the aim of comparing CL levels identified in baseline best practice SBAQ interviews with CL expression in MI interviews (Barger-Anderson, Domaracki, Kearney-Vakulick, & Kubina, 2004).

1.5 Change talk, sustain talk and conversational analysis

The premise of MI is that the interviewer's reflective responses enable the client to explore meaning in the interpretation of their own language. The client's reply provides clarification of their meaning and intent; this assists the interviewer to guide the client to address the ambivalence relating to their perception of their situation. The interviewer, through MI skills, attempts to recognise and reinforce the client's intrinsic motivators, and that that recognition is identified as CL in the client's responsive utterances to carefully prepared reflections from the interviewer.

Within the client's utterance, the language used is expressed as either CT, indicating interest in a behavioural or attitude change, or as ST, indicating no interest in changing from the status quo. The language is further recognised as CL or not. The level of CL identified within utterances indicates to the interviewer how strong a motivation is to change, or conversely, maintain their set behaviour (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003; Burke, Dunn, Atkins, & Phelps, 2004; Apodaca, & Longabaugh, 2009). If CL is negative, for example, "I don't think I can", the interviewer may be experiencing resistance from the client and ST will be identified; if, in contrast, CL is positive, CT may be identified and the client may be willing to respond.

Recognising the strength of CL indicates to the interviewer areas of CT or ST. The interviewer must consider what factors have produced the CL as these may be the key to identifying the

motivation to change behaviour or not. In this way, MI captures the spontaneity of conversation, and how the interviewer addresses the responses may be the identification of what MI actually does. Various analysis methods have been used to identify the mechanics of the interactive process, however, for this study, CA was considered as an appropriate method to analyse dialogue to ascertain if recognisable MI adherent behaviour by the interviewer actually does increase CL and identify it under the domains outlined in previous studies (Sacks, Schegloff, A. & Jefferson, 1974; Schegloff, Koshik, Jacoby, & Olsher, 2002; Amrhein, Miller, Yahne, Knupsky, & Hockstein, 2004).

Wooffitt (2005) and Lerner (2004) discuss the analytical methods of CA. CA is a relatively simple method of recognising where resistance is evident by transcribing conversation after the event. From audio recordings, a series of symbols is used to denote variance in the way utterances are presented. Un-notated non CA transcriptions alone may miss the vagaries and nuances of non conversational elements such as pauses, sighs, quickened or slowed speech and other elements that may provide clarity and intent to what the speaker is trying to present to the listener. Another issue with CA is that it also accounts for passages or utterances where a transcriber may have recorded a 'best fit' where they were not sure of what was actually said (Sacks, Schegloff, & Jefferson, 1974; Stacks, & Murphy, 1993).

It is suggested that MI addresses patterns of demeanour, word choice and the increase or decrease in spontaneity in conversation as it happens which enables the interviewer to formulate the response by reflection. CA enables an evaluation of how interviewer's reflections steer the course and content of the conversation and this identifies where MI differentiates from standard interview questioning approaches as in SBAQ. Reflections are used to direct away from power struggles, confrontational issues or to clarify questions or answers. Reflections attempt to avoid making 'obvious observations', instead, the interviewer looks for deeper meaning in the responses by formulating reflections that link the body of the reflection to a change in conversational direction from the previous response (Miller & Rollnick 2002). It is proposed that CA will add clarity to how CL is identified and to what extent MI increases CL.

This introduction has provided an outline of the purpose of the research and explained the efficacy of MI and the approach taken in the thesis. Literature that may assist in identifying MI in a quantifiable way was discussed and the introduction of MI to acute onset disability as an area that has not received research attention to date considered. Attention has been given to the importance of recognising CT and ST in interviews to identify motivational factors. CA has been introduced as an analysis method that assists in identifying the client's subjective meaning in their choice of words. The following chapter outlines and discusses MI research and indicates that MI has developed beyond the addictions field from which it originated.

Chapter 2.0 Literature review

The thesis considered how language formation, the construction of response and the delivery of utterances are identified in MI as a component of client / interviewer discourse. Of particular interest to this research is whether the subjective nature of utterance is recognisable and is a measurable component of the influence of MI in conversational interview sessions. The purpose of the interview in rehabilitation settings is to gain information about the client and the issues they face in recovery that are particular to the individual.

Health behaviour or adherence to rehabilitation regimes often requires the client to consider behavioural changes to maintain adherence to rehabilitation interventions. Where changes are therapist driven rather than client promoted, there is a tendency for adherence to waiver (Prochaska, & DiClemente, 1982). Studies in adherence improvement in rehabilitation show that it is important for clients to understand the purpose of engaging in behavioural changes. How receptive the client may be to change may be indicated in the language they use in interviews. If language is identifiable, it is a consideration of this study that it is also measurable. By measuring language, the study may show the effect of MI on increasing the commitment expressed in language.

Individuals relate differently to conversations through what Stacks and Murphy (1993) refer to as “conversational sensitivities” to the dynamics of the interaction. They suggest seven principle components in identifying how individuals relate to conversation: detection of hidden or implied meanings; surface conversational meaning; potential conversational alternatives; conversational imagining; conversational enjoyment; interpretation; and perceiving affinity. Their study identified that the better developed the person’s psychological understanding of the conversation is, the more sensitive to these seven components a person will be. The development of MI as a therapeutic intervention has identified the components of conversation as the relationship between what is said, what is meant and how it is interpreted. MI combines the basic premise of client centred therapy which identifies a person’s motivators for constructive change with their capacity for self-actualization (Rogers, 1951).

Rollnick and Miller (1995, p. 325) define MI as: “a directive, client- centred counselling style for eliciting behaviour change by helping clients to explore and resolve ambivalence”. Studies of MI in treating addictions dominate the research into the efficacy of MI as an intervention. The past 20 years has seen the growth of MI as a globally recognised intervention for addictions in 44 countries. MI has also gained considerable recognition as an intervention in the criminal justice and probation systems. Studies, over the last 5 years, include MI in facilitating behaviour change in the following areas: voice therapy adherence; nutrition health and food behaviour; fruit and vegetable consumption for cancer prevention and control; adherence to antiretroviral therapy; attitudes and adherence to asthma medication; and adherence to medication in patients with schizophrenia (Lundahl, & Burke, 2009). However, long term acquired conditions dominate research studies, and there are very few studies identified that have looked at acute onset disabilities or conditions such as SCI.

Research in MI in the last decade has focussed on language expression primarily through the work of Amrhein, Miller, Yahne, Palmer, and Fulcher (2003) who proposed an addition of a tangible component to MI. They suggested that the possibility of a behaviour change is recognised as Change Talk (CT) and is expressed by the client as Commitment Language (CL) in utterances produced by the client in response to the interviewer’s questions or reflections. Conversely, if there is resistance to change, the client remains amotivated, or they cannot see benefit in a behavioural change, that may be an indication of resistance; resistance is identified as Sustain Talk (ST). Further collaboration with Prochaska and DiClemente introduced domains related to the client’s stage of readiness to change according to the Transtheoretical Model (TTM)¹ (Prochaska, & DiClemente, 1982) and the likely identification of motivating factors to support change through DARN (Amrhein, et al., 2003).

¹ The TTM posits that client experience 5 levels of change: Pre-contemplation; where the client is not considering change; contemplation, where the client is considering change but not actively doing anything; action, where the client begins to become involved actively in change; maintenance, where the client is consistently engaged in change behaviour and finally relapse where the client may revert to a previous level of change.

Stacks and Murphy (1993) confirmed that when both speaker and listener are in different evaluation modes, compatibility may be asymmetrical between speaker and listener or, as they state, “sender and receiver” (p256) looking at different goals or agendas from within the same conversation. The goal of MI is recognition of the client’s interpretation in establishing ambivalence related to choice, behaviour change and the client’s ability to recognise their control and influence over the outcomes. The recognition of language expression and the formulation of reflective responses to examine the level of CT or ST is, supposedly, where MI deviates from many other therapeutic interventions. The recognition of CT and ST, through the skill set of MI identified as reflective listening, focuses on the domains of DARN and results in Commitment, Action and Taking steps (CAT) towards a behavioural change or not (Amrhein, et al., 2003).

Studies chosen for review in this Chapter were those identified from the abstracts as having one or more components of the intent of this thesis that is: they discussed the relationship of outcome to the efficacy of the MI content and integrity identified in the interventions; described the interviewer’s training and ability in delivering MI; suggested language identification as a predictor of change; and clearly identified confounding variables such as delivery of MI in conjunction with other treatments. A search for studies involving SCI or any other acute onset disabilities requiring behaviour change could not identify any studies where MI targeted acute onset issues as a finite group of clients with specific behavioural change issues.

Studies that were inclusive of other treatment or combined with other techniques were not necessarily considered for this study. In general, those studies that identified direct comparisons with other techniques were preferred; of particular interest were studies that identified the outcome of interventions and clearly demonstrated behavioural change or attitude towards change, exhibited and measurable by the client’s involvement and the relationship of that change to the influence of MI. Also chosen were those studies that suggested analysis of the client language as a component of the study or its relationship to the outcome. Studies published since the beginning of this research have included a review of

promoting health behaviours (Martins, & McNeil, 2009); and a greater emphasis on counsellor language and client language (Vader, Walters, Prabhu, Houck & Field 2010; Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010).

Disappointingly, it appears very few studies reviewed for this thesis or identified in several meta-analyses summarised in this study have acknowledged the mechanism of what MI actually does, particularly in relation to language utterance. Without this critical component to support the outcomes from research, the credibility for MI as a medium for promoting change may be compromised and the efficacy of MI may be in doubt. Nevertheless, support for MI concentrates on the interviewer adherence to basic principles and micro skills; however, the outcome of studies, in many cases, point only to the results of the study rather than identifying the actual level, duration and quality of the MI intervention that has been delivered to achieve them often without consideration for the effect of other concurrent treatments or therapies. MI is often measured in comparison against either no treatment at all or an incongruous alternative such as the level of skill presented by the interviewer and whether what was referred to as MI was actually MI. Where the integrity of MI can be questioned the results are also questionable. The contribution of MI is often imbricated with other treatments either unintentionally or without adequate recognition again this presents a problem in identifying the impact MI has had on the results (Burke, Arkowitz, & Menchola, 2003; Lundahl, et al., 2010).

In some studies, the actual MI intervention itself is difficult to recognise, the training the interviewers have had is negligible or has not been identified, or little attention has been given to the consistency of the delivery of MI, particularly in multiple interviewer studies (Burke, et al., 2003). Training in MI is specific in addressing what is acceptable either in proficiency or competency in the delivery of MI. Distinct coding mechanisms have been developed to identify MI from non-MI adherence. Several of these have been considered in this study: the Motivational Interviewing Treatment Integrity code (MITI) (Moyers, et al., 2003); the Motivational Interviewing Skill Code (MISC) (Miller, Moyers, Ernst & Amrhein, 2008) and the Motivational Interviewing Sequential Code for Observing Process Exchanges (MI-SCOPE)

(Martin, et al., 2009). Studies that incorporated any of these analysis methods were of particular interest.

2.1 Text used

This study reviewed search engines including PsychINFO, PubMed, the Motivational Interviewing Network of Trainers (MINT), Web of Science and Google Scholar. Requested information from the MINT membership provided the most robust identification of studies including the paucity of research involving acute onset disorders. The MINT is an international group of MI trainers dedicated to the promotion of MI methodology in a variety of hospital and tertiary education institutions now recognised in over 40 countries. The review identified several meta-analyses of MI (Lundahl, et al., 2010; Hettema, Steele, & Miller, 2005; Rubak, Sandboek, Lauritzen, & Christensen, 2005; Burke, et al., 2003). Search for relevant studies was based on those that: identified MI for any measurement of client input and how that input was related to the intervention; the measurement tools that were clearly identified in the study; and any comparison of MI with other techniques that measured outcomes based on client language where that language was analysed or measured in some way. Attempts were made in study searches to identify studies where language expression in client responses as a predictor of the outcome was also considered. Studies relating to measurement of the components of MI with particular reference to language identified in utterances that could be attributed to the efficacy of treatment outcome were nominal.

2.2 Meta analyses

No studies were found in the review of the meta-analyses outlined in table 2.1 that investigated the use of MI with acute onset disability, nor were there any studies that particularly looked at the aspect of measurement of CL. The majority of studies reviewing the efficacy of MI indicate adherence to the MI integrity and focus on the therapist or interviewer. The findings identified in the separate meta-analyses are recorded in table 2.1.

Table 2.1 Meta Analyses of MI research

Author	Year	Studies	Result
Burke, Arkowitz & Menchola.	2003	30 studies reviewed identified as AMI's (Adaptation of MI). 7 behavioural domains across 4 different settings. Studies had to consist primarily of implementing MI principles. Intervention was to be delivered to individuals (not groups). Met criteria for controlled clinical trial i.e. randomisation of groups before treatment. Adequate measurement controls were available for targeted problem areas.	26 studies were compared with control groups, and 9 studies were compared with bona-fide active treatments. The dependent variable was the target symptom e.g. frequency of drinking. Overall dose of AMI was a mean of 99 minutes. 11 studies produced at least 1 statistically significant effect in favour of AMIs
Hettema, Steele & Miller.	2005	Studies with 1 group or an individual with components of MI. At least 1 post treatment outcome. At least 1 control condition. 72 studies met inclusion criteria across 10 different behavioural domains and 13 different settings. MI was given with some other type of intervention in 31 of the studies. Duration of treatment also varied from 15 minutes to 12 hours. MI training was identified, on average, to be 9.92 hours.	38 of the studies showed a significant effect favouring MI.
Rubak, Sandboek, Lauritzen & Christensen.	2005	Review of 16 Data bases produced 72 RCT's. Control groups included traditional advice giving for helping and advising clients. MI studies were chosen where MI was selected as the intervention. Median duration of intervention was 60 minutes.	Significant effect (95%) for a confidence interval.
Lundahl, Kunz, Brownwell, Tollefson & Burke.	2010	1,128 articles screened. 119 studies in 4 behavioural domains selected for analysis. Diet, smoking, blood pressure and alcohol consumption. Studies had to isolate the impact of MI to another intervention in a clear "head to head" comparison. If MI was an additive component, the comparison group was without MI. AMI was compared with treatment as usual. If MET (Motivational Enhancement Therapy) was used, this was noted and described. Studies were excluded if they were in a combination with another identified intervention such as CBT. (Cognitive Behavioural Therapy).	Judged against weak comparison groups, MI showed statistically significant results. Against specific treatments, MI produced non-significant results. Analysis concluded that MI contributed to counselling efforts.

Burke et al., (2003) looked at four basic principles in MI: rolling with Resistance; expressing Empathy; developing Discrepancy; and supporting Self efficacy (REDS). Empathy is regarded as common to all psychotherapies, however, their analysis considered the difference in the way MI approaches empathy within the concept of 'reflective listening' (Miller & Rollnick 2002). Reflective listening ensures that empathetic responses are in the same context as the language used by the client and focus on current behaviour. MI considers client behaviour from the client's perspective recognising that ambivalence is a normal human reaction to any prospect of change, despite the possibility of what the authors describe as a "pernicious defensiveness" (p.37) of the current behaviour. Recognising, perhaps, the harmful potential of continuing with a particular behaviour, MI approaches change by assisting the client to develop discrepancy regarding the effect of maintaining the status quo or identifying what positive elements a behaviour change might bring. If resistance is experienced, the interviewer recognises it as a sign to respond differently and accepts the resistance rather than having a direct confrontation.

Burke et al., (2003) considered five areas of outcome and direction in the studies reviewed: problem types; settings and treatment lengths; efficacy across clinical problem areas; comparisons against no treatment or weak alternatives; the duration of efficacy; the practical value of the intervention to the client or significant other; and moderator variables. Under moderator variables, attention was focussed on why different studies produced different results. Included was a comparison of studies conducted in William Miller's clinic with studies conducted in other clinical settings. As William Miller is the author of MI his clinic was used to investigate the possibility of bias, as Miller consistently produced higher effect sizes. Two possibilities were considered for these results: (a) the possibility of allegiance effect or (b) the superior quality of the MI training given to the interviewers and the quality of the checks on integrity. The identification of the quality of MI delivery certainly has an effect on the outcomes according to this meta- analysis and the authors recommended that the integrity of MI training and delivery should be factored into any study where MI is used either as a prelude to another treatment or as a stand-alone intervention (Burke et al., 2003). Proficiency in the use of MI

within this study was measured through the use of the Motivational Interviewing Treatment Integrity code (MITI) and the Motivational Interviewing Skill Code (MISC).

Hettema et al., (2005) reviewed 72 studies that had a least 1 group or individual intervention with MI, at least 1 post-treatment outcome measure, at least 1 control or comparison intervention without MI and a procedure to provide pre-treatment equivalence of groups. The authors describe progress towards a theory of MI must insist that there is a need to understand and specify what MI does to support its efficacy. In their review, they reported highly variable effectiveness of MI across a wide range of behaviours, populations, settings and interviewer training levels. MI was rarely given alone and seldom adequately accounted for. Interviewer training varied greatly with a mean of 9.92 hours and a standard deviation of 7.35 hours. Treatment also varied from 15 minutes to 12 hours (mean 2.24 hours; standard deviation 2.15 hours). The review of the 72 studies suggested further research needs to concentrate on the “active ingredients” of MI including, how interviewers trained (p105). Documentation of the fidelity of MI used in the studies and process measures to relate treatment to outcomes is also recommended (Hettema et al., 2005).

Although MI was considered responsible for the doubling of the rate of CT and halving the rate of ST, the hypothesis that MI increased the predictability of a behaviour change was not supported by recognizing CT alone. Amrhein et al.'s (2004) review of language produced in MI provided an additional strategy suggesting that the focus on the level of commitment in CT may offer support for behaviour prediction. Lack of recognition of the strength of CL as an additional measurement of CT may have accounted for the high variability of results particularly in within group effect sizes

Rubak et al., (2005), in their meta-analysis, recorded three quarters of studies showed clinical significance where the interventions of MI were of 15 minutes or more. The review showed that MI outperformed advice giving and was more persuasive than coercion and more supportive than an argumentative approach. This analysis also looked at the potential effect of the interviewer's educational background not including training in MI. The consensus

indicated that there was no difference in educational background that related to the efficacy of treatment across various disciplines including general practitioners, psychologists, psychiatrists, nurses and other health professionals. The authors identified, although speculatively, the importance of the interviewers' training and experience in MI and the client counsellor relationship.

Lundahl and Burke (2009) looked at four previous meta-analyses and identified that there was no specific isolation of the unique effect of MI, principally because of the many confounders with other treatments or problems with the recording of feedback and outcomes. They acknowledged the considerable growth of research involving MI since its inception in the early 1980s which they identified by the number of studies completed from a mere 30 controlled trials in the first meta-analysis produced by Burke et al., (2003) to the significant increase in studies referenced in various search engines. One year later, Lundahl et al., (2010) produced the latest meta-analysis of MI screening identifying 1,128 studies abstracts before selecting 119 which were considered to meet their search criteria.

For the purpose of their meta-analysis, Lundahl et al., (2010) reviewed only studies that could either isolate the use of MI or Motivational Enhancement Therapy (MET) where MI supported an existing programme such as self help treatment programmes as in assistance with binge eating (Dunn, Neighbors, & Larimer 2006) or where there was possibility to clarify the moderator effects of MI. This meta-analysis was also the first to take a hard look at MI and the effect that it had on client behaviour or change in a basic 'Head to Head' comparison with other interventions (Lundahl et al., 2009).

Of particular note and critical to the subject for this study were the outcomes identified in Lundahl et al.'s (2010) review in the specific areas of: alcohol, marijuana, tobacco, and other drugs, (substance abuse); exercise, safe sex and eating (physical health issues); and gambling and adherence to treatment (identified as risk taking). One comorbid condition that matched a condition found with spinal cord injury clients was recognised in these studies; the identification of stress and depression which Skolasky, MacKenzie, Wegener and Riley

(2008) also noted as being some of the behaviours present in clients with SCI that impacted on the adherence and involvement in rehabilitation initiatives.

In all Meta analyses reviewed, the outcome assessments were primarily either related to the motivational engagement within the treatment which is measured by the number of appointments kept or a self report of the intention to make some change. Attention was given to those studies that also looked at the definition of comparison groups. This research study fits with this approach of a direct comparison analysis of MI as it attempts to compare best practice Strength Based Assessment Questions (SBAQ's) with pure MI where there are no concurrent treatments or collaborations with any other therapies. Lundahl et al., (2009) analysis agrees with Miller (Miller & Rose 2009) that although a substantial amount of thought has been put into research devoted to MI that attempts to understand what it is that MI does, how it can be identified and measured in a way that can link it to positive behaviour changes is still illusive. A primary focus of MI is to establish whether a client remains motivated to adhere to a behaviour change. Table 2.2 outlines approaches studies used with MI that looked at adherence in a variety of clinical settings and conditions.

2.3 Approaches

Table 2. 2 Studies in adherence to rehabilitation intervention

Author	Year	Location	Intervention / Health problem	Result
Smith, Heckmeyer Kratt, & Mason	1997	Birmingham Alabama USA	RCT. In improvement in adherence to a weight control programme for obese women. Standard programme with addition of 3 MI sessions	Significant improvement in attendance, Completion of diaries, and recorded blood glucose more often.
Swanson, Pantalon, & Cohen	1999	Hospital USA	RCT. 1 X 50 minute MI session compared with standard treatment for adherence to interventions for dual diagnosis clients	Results showed MI group more likely to return for follow up sessions than control.
Schmaling, Blume & Afari	2001	Seattle Washington USA	RCT In adherence to medication for Asthma. Single 30-60 minutes session of MI	MI participants reported similar or increased motivation to use asthma medication as prescribed compared with education alone group
Carroll, Libby, Sheehan & Hyland	2001	Connecticut USA	RCT for substance abuse in a single interview session	Treatment group were significantly likely to attend at least one additional treatment session.
Zygmunt, Olfson, Boyer & Mechanic.	2002	Various 39 Studies	Systematic literature review of psychosocial interventions for improving medication adherence in Schizophrenia	No MI interventions used. However 33% reported significant intervention effects. (Compare Drymalski & Campbell, 2009).
Adamian, Golin, Shain & DeVellis	2004	Public care Hospital USA	1 X 15 to 30 minute MI session for 20 HIV positive adults to improve adherence to Antiretroviral Therapy	Increase in identification of topics participants wanted to discuss.
Parsons, Rosof, Punzalan, & Di Maria	2005	Centre for HIV /AIDS Hunter College New York USA	15 clients received 8 X 1 hour sessions over 8 weeks. Combined MI with CBT for adherence to HIV medication and reduction in substance use for HIV positive users	Participants who completed all sessions (73.3%) showed high compliance to the treatment.

Thrasher, Golin, Earp, Tien, Porter & Howie.	2006	University of North Carolina USA	RCT. Coded MI sessions to encourage patients to participate in medical decision making in antiretroviral therapy adherence.	Measured both interviewer integrity to MI (MISC) and adherence Significant ($p=.01$) Change in adherence from week 4 – 12 was 6.8%. (S.D. 27.4)
Behrman.	2006	City University of New York. USA	Comparison of MI intervention studies with behavioural change in voice therapy in review with study of 10 adult patients with voice disorders participating in MI adapted voice therapy with the author. 1 x weekly 50 minute session of MI. Average 9 sessions.	MI independent rater of principles of MI in author study. 60% of participants achieved goals.
Carroll, Ball, Nich, Martino, Frankforter, Farentinos, Kunkel, Mikulich-Gilbertson, Morgenstern, Obert, Polcin, Snead & Woody	2006	Multi-site effectiveness study. USA	RCT. 423 substance abusers entering outpatient treatment in 5 community based treatment settings. Randomised into either standard intake evaluation or same session with MI strategies integrated.	Independent analysis of audiotapes. MI trained interviewers had higher skill ratings. Participants who had MI had significantly better retention through 28 day follow up than standard intervention. No significant difference between groups at 28 or 84 day for substance use outcomes.
Prochaska, Butterworth, Redding, Burden, Perrin, Leo, Flaherty-Robb & Prochaska	2008	Major Medical University USA	RCT. Comparison of initial efficacy of 3 treatments: MI; TTM; or Health Risk Intervention (HRI) for adherence to affective action related to 4 health risks (inactivity, BMI, stress and smoking).	MI and TTM groups had significantly more participants in the action stage at 6 months post treatment.
Vader, Walters, Prabhu, Houck & Field	2010	Medium Sized private University USA	MI in the context of Client and Counsellor language related to drinking outcomes.	MI tends to increase talk in support of change.

Lundahl et al. (2010) identified that some studies reviewed appear to have only selected evidence from previous work that supports the outcome without clearly demonstrating the intervention of MI such as Adamian, Golin, Shain and DeVellis (2004) who looked at improving adherence to antiretroviral therapy. The evidence that MI has been delivered without contamination is often weak, (Behrman, 2006) and the link between the intervention and the result often not identified (Carroll, Libby, Sheehan & Hyland, 2001). A review of 1,128 studies

produced only 119 that met the criteria of: clear identification of MI consistency; a direct comparison between a treatment group and a comparison group; the intervention being face to face; the study being published in a peer-reviewed journal; and the study being reported in English (Lundahl et al., 2010).

Many studies reviewed for this thesis did explain in depth the study itself and the intent such as Vader, Walters, Prabhu, Houck and Field (2010) in their study of language expression related to drinking patterns. Several that were reviewed matched this approach and were conducted in the last seven years and two, in particular, were published after this study had begun Drymalski & Campbell, 2009; Duff & Latchford, 2010). The recognition in these later studies of the importance of maintaining the integrity of the intervention may be an indication that researchers are approaching MI from the position of identifying language as a catalyst to give the intervention of MI better credibility as a stand-alone treatment. Amrhein et al., (2003) identified client language under the domains of DARN dividing participants into four commitment levels of prediction to adhere to behavioural changes in drug abuse, according to their commitment strength identified in interviews. This study showed promise for the investigation of CL as a predictor of change through examination of client language. Investigation by the authors prior to commencement of their study did not identify any other study that had assessed the occurrence of CL, its strength, or its capacity to predict a behaviour change.

The prediction of change was defined by client language in the Amrhein et al., (2003) study; however, the behavioural outcome did not alter significantly. A suggestion was that CL towards the end of the intervention increased, particularly in the domain of 'desire'. Outcome related to behaviour change may, therefore, be predicted as desirable but without significant identification of the other domains of ability reason and need, the behavioural change may not be possible. This study adhered to the intervention integrity of MI promoted by all of the authors involved in the development of MI since its inception. As an early study into investigation of CL by respected MI researchers, this paper provided a solid platform in which to expand the relationship of CL to behavioural outcome; however, their approach and

research findings would not appear to have initiated consistent quality MI studies looking at CL.

An example of a study format prior to Amrhein et al., (2003), was the examination of behaviour change in substance abusers where the interviewers had minimal training in MI (1 day) and working with participants who were either given one session of MI or a standard treatment interview. The standard treatment is not further explained and the efficacy of treatment was based on whether participants turned up for a second treatment in the form of another counselling session or not (Carroll et al., 2001). Although the definition of MI is often recorded and the principles of MI are basically outlined in studies, the process for evaluation of what was actually delivered is often difficult to ascertain; many studies appear to lack support for the adherence to MI principles and interviewer proficiency (Carroll, Ball, Nich, et al. 2006).

A study looking at adherence to medication and physical exercise for cystic fibrosis clients typifies studies where MI is considered an appropriate intervention to raise client awareness of a need for a behaviour change, but only provides minimal training with little or no assessment of what level of proficiency the treatment reached. In this study, MI was delivered via a 4 hour workshop to interviewers. The study suggests that MI was considered because in 80% of the studies reviewed, the researchers considered that MI outperformed traditional advice giving in medication adherence. It is important to mention this study as it was published in 2010 when evidence of necessary training levels and evaluation processes in MI had advanced greatly (Duff & Latchford, 2010).

Some studies reviewed did not adequately consider the relevance of concurrent treatments. Schmaling, Blume and Afari (2001) considered it to be appropriate training for interviewers to have didactic training and homework, yet they failed to measure the integrity of MI in the treatment delivery. The Schmaling et al. (2001) randomised controlled trial for adherence to asthma medication assigned participants to treatment group or normal education training. The MI was restricted to 30 minutes with education training ongoing. Pre treatment levels of

motivation and the effect of normal education were not factored; however, encouragingly, the authors described the need for further investigation and the relationship to actual behaviour change.

Other variables such as the relevance of client input and the relevance of group and/or therapist affect did not appear to be considered in many studies reviewed. An example is the study by Smith, Kratt, Heckmeyer and Mason (1997) where MI was introduced to improve weight control adherence in older obese women. The study randomised the participants into two groups, both receiving 16 weeks of a standard weight control group meetings and the intervention group receiving an additional three individual sessions of MI. The possibility of the effect of the group dynamics was not factored. A study by Adamian, Golin, Shain and DeVellis (2004) looked at adherence to antiretroviral therapy for HIV positive clients. Clients were offered the choice of talking about a problem they had and wanted to talk about or alternatively an interviewer generated conversation about general issues. The study acknowledged interviewer training and reviewed audio tapes and transcriptions of interviews looking at themes by content analysis. Post hoc analysis of the study recognised that participants who had an issue to discuss may be more motivated initially which may have skewed results. The effect of MI may also be compromised here as the study used a guide for the interviewers. Previous research has shown manual directed interventions are less effective in MI (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005).

Other studies reviewed did not consider whether the same treatment was delivered across sites or whether the interviewers were comparable in their skills in MI. Variables such as duration and number of interventions was also often not adequately accounted for. A review of MI in enhancing adherence to antipsychotic medication in patients with schizophrenia by Drymalski and Campbell (2009) identified many of these issues in MI studies related to adherence to medication. In their review, only 5 studies were indicative of MI adherence with several studies imbricating other treatments without adequate explanation of the relevance of the combination.

Despite the paucity of studies in MI identifying acute onset disability and adherence to rehabilitation initiatives, there were studies identified that encompassed rigor of delivery of the intervention and identified CL as a component of the study intent. The study by Amrhein et al., (2003) had suggested that CL was both identifiable and measurable and, therefore, provided a reference for this study in an approach to identifying CL and possible methods of measurement. Studies identifying language as a component of the research are outlined in table 2.3.

Table 2.3 Reviews of Studies Identifying and Measuring Language in MI

Author	Year	Health Issue	Targeted Behaviours	Conclusion
Amrhein, Miller, Yahne, Palmer & Fulcher	2003	Drug use	Commitment Language (CL)	Indications presented that client CL is a dimension worthy of attention in the specific case of change in drug use. Review commented on the importance of readiness language as a construct for behaviour change.
Moyers, Martin, Christopher, Houck, Tonigan & Amrhein	2007	Identifying determinants of mechanisms of therapeutic treatments including MI	Determining if clinician behaviour influences client speech.	Behaviours consistent with MI were significantly likely to be followed by client CT; behaviours inconsistent with MI were significantly likely to be followed by ST.
Apodaca & Longabaugh	2008	Substance use Disorders	Within- session mechanisms for behavioural change.	No systematic review that examines specific techniques that identify the mechanisms that support MI
Cummings, Cooper, & McClure Cassie	2009	Improving functioning for those facing serious health challenges	Behavioural change in older adults. Strategies that address behavioural and psychological aspects of disease management	Existing studies with older adults provides evidence that social work students should be introduced to MI principles and techniques.
Martins & McNeil	2009	Review of 37 articles	Diet and exercise, Diabetes and Oral Health	Further investigation into client CT on behaviour change is recommended. MI is effective in all these health domains

Drymalski & Campbell	2009	Schizophrenia	Literature review of adherence to health regimes among patients	Research is extremely limited. Only 5 empirical studies using MI for this purpose. Two studies reported an increase in adherence and three found no change.
Duff & Latchford	2010	Cystic Fibrosis (CF)	Nutritional recommendations and physiotherapy regimens.	Treatment specific understanding thought to be important where adherence problem is clinically significant. No large studies related to CF and MI. Style is well received by patients and encourages approach to treatment.
Forsberg, Forsberg, Lindqvist & Helgason	2010	Substance abuse treatment, prevention and policy	Study on: clinical acquisition and retention of MI skills.	Despite the theoretical simplicity of MI, counsellors working with MI require ongoing supervision including feedback and monitoring of clinical practice to maintain adherence to MI identifiable interventions.
Vader, Walters, Prabhu, Houck & Field	2010	Binge drinking in College students	Reduction in alcohol consumption	Effective in recognising CT and ST. Interviewer skill and adherence to MI principles led to greater adherence to behaviour change

Vader et al., (2010) studied client language in relation to counsellor language in predicting drinking outcomes in college students. The premise was that if CT was recognised in interviews, it may predict a behaviour change in drinking patterns whereas if ST was recognised, the status quo was likely to be the case at the three month post intervention follow up. Students were assigned to MI and this only consisted of one session of MI or MI plus feedback. The results showed several distinct comparisons: where CT was expressed in interviews related positively to consistent interviewer adherence to MI, this, in turn, had a positive effect on behaviour change; those students who expressed CT and had feedback also showed lowered ST; students who showed greater ST were associated with negligible behaviour change; and finally, students interviewed by interviewers who were more skilled and experienced in MI showed greater CT. This study supports the efficacy of MI as a stand-alone treatment and encourages the consideration of the skill level of the interviewer and adherence to MI principles.

Forsberg, Forsberg, Lindqvist and Helgason's (2010) study concentrated on the interviewer skill retention over a two and a half year period. The MITI was used over audio recorded interview sessions at 11 intervals. The interviewers received ongoing training and support throughout the evaluation period. Although general skill levels were seen to increase over time, there was a substantial difference between the counsellor's skills and fluctuations in delivery that were apparent on occasion throughout the evaluation. Although this study was limited by the number of participants, it suggests that the area of continuing training and peer review of MI delivery is appropriate. The authors cite the need for better validated treatment integrity assessment instruments and greater use of what is available. The findings in this thesis support the research proposal in the present study, and the idea of more rigorous attention to treatment fidelity (Wagner, & Ingersoll, 2008). More recent studies in MI appear to suggest that both treatment integrity and what it is MI does have been overlooked. A recent systematic review found only one of 14 studies attempted to validate the fidelity to MI principles within the research (Forsberg et al., 2010).

Lundahl and Burke make a significant point in support of this current study indicating that clinical popularity of MI may not equal evidentiary support (Lundahl & Burke, 2009). Their later meta-analysis of MI (Lundahl et al., 2010) identified one theory that MI may work in increasing a specific type of client CT. If this premise is correct, then CT indicated in utterances in interviews may be identifiable by the level of commitment expression which gives further support to the initial premise of Amrhein et al., (2003) that commitment expressed in utterances is identified as CL.

2.4 Comparison and collaboration

Studies incorporating other interventions were reviewed primarily to see if language was identified or measured; these studies also showed promise for the integration of MI with other therapeutic modalities and treatments such as Cognitive Behavioural Therapy (CBT) and MI for the treatment of anxiety and depression (Arkowitz & Westra 2004); Self Determination

Theory (SDT) combined with MI for treatment of clients with acute suicidal ideation (Britton et al., 2008); SDT and MI for weight control and obesity (Silva, Vieira, Minderico et al., 2007; Silva, Markland, Minderico et al., 2008; Teixeira, Silva, Vieira et al., 2008); MI and SDT with antiretroviral therapy (Thrasher, Golin, Earp et al., 2006). MI has also been incorporated with those interventions defined as Motivational Enhancement Therapy (MET) Dunn et al.'s (2006) study that looked at self help treatment and motivational enhancement therapy for binge-eating disorders, they did not look specifically at CL as a component for consideration. While studies point to the results of interventions involving MI, the measurements are often clouded because concurrent treatments were often not factored into the findings (Cummings, Cooper, & McClure Cassie, 2009). The primary method of the research identified is by randomised controlled trial and the outcome is often measured in terms of duration of abstinence, such as in alcohol and drug treatment by subjective self report assessments (Burke et al., 2003). Comparison groups and treatment groups are often not sufficiently identified, and the integrity of MI in the treatment often appears to be weak or omitted altogether. A measure to compare MI that, perhaps, may have been inadvertently used in comparison groups is often not factored as a possible confounding variable incorporated into the research findings. The result is that it is difficult to attribute the success or otherwise of MI based solely on the report and intention of the study to use MI as the intervention without first establishing criteria to measure what MI is and how it can be defined (Rollnick & Miller, 1995).

In studies related to adherence issues, MI has been used in conjunction with SDT and has been linked to providing specific support mechanisms for establishing where a client's motivation is likely to be strongest (Vansteenkiste & Sheldon, 2006). While SDT focuses on identifying the client's external and internal motivators, MI attempts to focus on those motivators within the domains of DARN or CAT. Where clients show little internal intrinsic motivation towards change in one or more domain, MI attempts to link the relevance of behaviour change to the strongest intrinsic motivator and assists the client to identify how that may be relative to the other domains. Neighbors, Walker, Roffman and Mbilinyi (2008) considered SDT to be a theory that assisted MI in its treatment approach with voluntary behavioural change in partner abusive men. This study was chosen for review in this thesis

because of its simplistic and graphical explanation of how a behaviour change is implemented through MI. The authors identify partner abuse as an unacceptable practice that is governed by cultural and environmental norms. Taking those external demands as a basis for change in behaviour and assisting the client to internalise them is the focus of the intervention.

The behaviour changes, although considered essential in the social environment, may not be of concern to the client. When the consequences of the behaviour affect something that is significant to the client, the behavioural issue is presented back to them from that perspective. SDT identifies motivators in a clinical classification of intrinsic, extrinsic or amotivated, and MI builds the open ended questions and reflections around these motivators. Within the interaction between client and interviewer, the relevance of the conversation is in the client's language and involves their specific issues within their own identifiable behaviour compared to their environment.

Studies were also reviewed where MI was a supportive intervention to other treatments. MI is growing in popularity in studies as either a vehicle to deliver treatment as in CBT, or as a means to implement another theoretical construct such as with SDT. As MI has grown from its beginnings in alcohol treatment and other addictions, its relevance to treatment of medication adherence has been identified from the efficacy of its non-confrontational client centred approach as worthy of investigation for other treatment adherence and behavioural change conditions. The combining of some MI principles with CBT, for example, has introduced a recent hybrid intervention termed Compliance Therapy (Lundahl & Burke, 2009).

SDT has also been popular with its focus on establishing motivators, irrespective of the target condition, and defining a generalised concept of an individual's motivational domains identified as external or internal; and intrinsic, extrinsic or amotivated. Successful examples of this positive integration of therapeutic styles identify the knowledge an individual has related to their condition and their current behaviour as well as their consideration of possible alternative behaviour. In the case of health behaviours, the relationship with motivation suggests that non-adherence can be attributed to the intrinsic motivator of non-adherent

behaviour being stronger than that of adherent behaviour (Silva et al., 2008). Again, this perspective may lend support for the identification of CL.

SDT identifies motivational factors and the likelihood of specific origins unique to each individual. In essence, this is a clinical overview of the client's likes and dislikes. To investigate the reason for a behavioural change, the influence of, particularly, intrinsic motivators is a key to approaching clients from their perspective enabling the interviewer to speak in the client's language; the therapeutic style of MI would appear to be the appropriate conduit to approach the question of change as it identifies these motivators and promotes change via DARN. The importance of SDT in MI is the application of MI principles to recognise CT or ST which is then identified according to the commitment level expressed in utterances and recorded as CL. SDT assists by defining the CL. MI identifies and promotes client autonomy through these motivational signs and directs them to the domains of DARN and CAT.

van Leer, Hapner and Connor (2008) identified the TTM for their study in adherence to treatment for clients undergoing voice therapy. This study emulated the theory defined in many MI research projects of the relevance of the TTM in identifying the readiness of clients to enter rehabilitation. Prochaska and DiClemente (1982) identified the relevant stages of change that a client addresses when confronted with a behaviour change. Initial theory was directed at acquired behaviours and addictions such as smoking. Miller and Rollnick (2002), also researching work in the addictions area, adapted the TTM in collaboration with DiClemente as an integral part of the training implemented for MI practitioners. Of particular relevance to the interventions with MI were the initial stages of TTM of pre-contemplation and contemplation of a client's motivation for change. The levels of motivation may be recognised in the expression of CT measured by CL (Prochaska & DiClemente, 1982). In the pre-contemplative stage, the client is not contemplating any rehabilitation or change at all. MI evokes reasons for a client remaining pre-contemplative in order to develop ambivalence and build discrepancy towards a behaviour change. Addressing the behaviour change involves the next stage of TTM which is contemplation of rehabilitation. The contemplation phase in an

MI context involves further evocation of the client's intrinsic motivators to consider their options including the positives and negatives of the status quo (Miller & Rollnick, 2002).

The theory of TTM is a neat fit with MI and is recognised as an adjunct in training programmes. While TTM assists with the definition of the client's current motivational state, MI posits that its client centred approach, through identifying with the client's barriers that prevent a shift in focus from the pre-contemplative state to a state of contemplation, enables understanding of a person's motivational state to develop. From this position, MI reflects on motivational signs elicited from the client through the use of the micro skills of MI which include open ended questions, defined as those that are difficult to respond to with a simple yes or no; affirmations, which are designed to compliment and recognise a client's effort in presenting information to the interviewer; reflections which are the repeating, paraphrasing or rephrasing of clients responses to confirm meaning and intent that is verified by the client; and finally, summaries, which are described as collection of reflections where they position the conversation towards a shift in focus based on information gained from identifying CL within the preceding conversation (OARS) (Miller & Rollnick, 2002; Prochaska et al., 2007).

While the incorporation of other treatment interventions shows promise from the review of these studies, particularly the relationship with CBT, it was felt that part of the concern for this study was to identify MI alone and the relevance of it as a treatment that provided a discernable difference and a measurable value from other treatments. The identification of possible symbiotic relationships with other interventions here goes some way to explain the difficulty many studies have had in identifying a pure form of MI in their intervention with many interviewers already perhaps more familiar with other interventions, thereby, compromising the integrity of MI.

2.5 Conflicting evidence

A literature review by Drymalski and Campbell (2009) identifies much of the frustration in identifying how MI is considered and used in interventions. Although only five studies matched their specific topic interest of adherence to rehabilitation initiatives in treatment of Schizophrenia, the results were collectively disappointing and echo much of what literature reviews across behaviours using MI have indicated. This review, in particular, clearly shows that there is little evidence of what is perceived as MI in many studies is correct.

The accuracy of recording of what Goldwater, Jurafsky and Manning (2010) categorised and coded as: before/after filled pause; before/after fragment; before/after repetition and the position in repeated sequence would appear to be critical elements in examining the client's expression of CL. In the majority of transcriptions examined in Goldwater et al's study, however, these elements were either missing or incorrectly transcribed. Such inaccuracies may alter the strength of CL or, unknowingly, infer intent or dismiss the importance of utterances. Coding of utterances, as defined in Martin et al.'s (2009) manual is a critical element of establishing CL from transcripts and audio recordings.

When data is extracted from written transcriptions, it has been suggested that inaccuracies may occur in coding where one utterance begins and ends, where another utterance starts, and who instigates it (Martin et al., 2009). While the recognition of speech in the transcription may be accurate, the linking of single utterances from transcriptions alone may be missed due to the links described by Goldwater et al., (2009) as either inaccurately transcribed or left out all together. This presents a problem in that a single utterance may be coded differently than a series of linked utterances that then are coded as one. As an example, a long pause in between 2 passages of conversation by the same speaker could be transcribed as 2 utterances, when, in fact, the speaker may have only been reflecting on how to present the next part of the same utterance.

2.6 Central issues

Miller and Rose (2009) admit that there is no reliable way to measure MI fidelity other than the direct coding of samples of transcripts. Self reporting of clinicians' proficiency or competency varies considerably when examined by standards for inter-rater reliability. When analysed for the influence MI has on establishing CL that results in a behaviour change, the results are encouraging but not totally convincing. Initial studies by Miller, Benefield and Tonigan (1993) focussed on the way resistance is dealt with either confrontationally or focussing on the client's understanding and concerns and whether the counsellor used persuasion, directing or warning to promote change in the client. While interviewer persuasion, directing or warning is regarded as the antithesis of an MI approach, it is a difficult process to accurately define non-adherence to MI principles from transcriptions alone.

What is disappointing is that many studies clearly identify the issues where a behavioural change is required and can quote the relevance of MI from the literature that point to the suitability of it as an intervention, however, where many studies fall over is the actual delivery of MI and the subsequent analysis of whether what was delivered was in keeping with the integrity of MI. Although numerous studies identified client non-compliance as the primary reason for a need for behavioural change and produced statistics relative to the costs in a number of areas, notably extra medication, hospitalisation, social and quality of life, there was not the same attention to detail in identifying MI as a form of treatment nor did they assess the validity of the treatment as described where they did identify it; very often the treatment was MI in name only and bore little resemblance to that described by Miller and Rollnick (2002).

It is doubtful if some of the studies reviewed here would stand up to critical analysis of either the MITI or the MISC which further complicated the efficacy of treatment through MI as identified in outcomes. As an example, studies looking at non-adherence to medication in Schizophrenia clients (Drymalski & Campbell 2009) and promotion of fruit and vegetable consumption for cancer prevention and control, (Kramish Campbell, Carr, DeVelliss et al, 2009) included in depth discussion and statistics related to the severity of the conditions and

the importance of adherence to rehabilitation initiatives, yet failed to describe the integrity of MI either from a perspective of interviewer proficiency or from the results. Similar problems were evident in a study of diabetes and hypertension by Drymalski and Campbell (2009). Although MI is prescribed as the treatment intervention, the relationship between the ability of the interviewer to deliver MI and whether MI is recognisable in the interview is questionable as no comments related to the integrity of the treatment is recorded.

Studies were reviewed that referred to the application of MI in context with the delivery of other treatment methods without accounting for the separate or combined effect of this process. Treatment integrity is seldom identified; of the studies selected for in-depth review, only those by Vader et al., (2010) and Forsberg et al., (2010) considered and clarified interviewer background and level of training and discussed the relevance of concurrent treatment regimes that may impact on the overall behavioural change or outcome. Of particular note is that these two studies were published after the beginning of this study. Perhaps, this is an indication of the growing importance of providing documented evidence of training and that a robust format of coding to support trainer proficiency to defend MI efficacy in studies is required and is being recognised. It remains though that the study by Amrhein et al., (2003) not only accounted for the scrutiny of MI delivery, but also drew attention to the possibility of further investigation into the measurement and identification of CL as a theorem for what it is that MI does.

2.7 Analysis of MI integrity

MI was considered suitable as a treatment in the majority of studies reviewed for all the right reasons. It was client-centred, showed efficacy in studies considering behaviour change for addictions such as alcohol and substance use, was cheap to administer and, therefore, cost effective and presumably was easy to administer. Post study analyses looked at the conclusions and adherence rates in the majority of studies with few identifying the training that had been given to the interviewers, seldom analysing the training for proficiency or

competency in delivery of MI and whether the delivery met with identification of MI by either the MITI or the MISC.

A number of studies including those by Drymalski & Campbell (2009) and Campbell et al., (2009) included MI with the logical combination of other treatment interventions, yet failed to establish the connection between them and to what extent the interventions were combined in a logical sequence from the introduction of the intervention to the results. Despite these shortfalls in recording of the application and adherence to the integrity of MI either as a stand-alone intervention or in combination with others, most studies identified MI as being more effective than no treatment at all (Lundahl & Burke, 2009).

Although the MITI and the MISC have been used extensively in studies identifying integrity of the interviewer's performance and show supportive evidence for inter-rater reliability, it is unclear why they were not used more often in the studies reviewed. One possible explanation may be that the impression of MI as a discernable cost effective and relatively brief intervention becomes a more time consuming and less cost effective exercise if analysis by either of these codes is implemented. It is also recognised that using these codes requires a level of skill in MI and coding that is relatively scarce in most environments where MI is being considered.

The MI-Scope and other analysis methods were considered for this thesis. The MITI and the MISC were used to identify proficiency in training interviewers and to recognise the integrity of MI within the interviews with the study participants. The selection of a specific analysis method was considered necessary to accurately measure the intent and level of CL expression in utterances from the MI interventions; however, most were not considered suitable as they either failed to measure the turn after turn content and strength of utterances or were not reliable in measuring the beginning and ending of complete utterances. Conversational Analysis (CA) was the only measure that accurately accounted for pauses, fillers, speed of speech delivery, intonation, pitch, volume hesitation and overlaps between the client and the interviewer (Goldwater et al., 2009; Martin et al., 2009). The MI-Scope,

although specifically designed for encoding recorded and transcribed interviews between clients and interviewers from MI sessions, was considered more appropriate for measuring the integrity of MI in the interview and the client outcome. This thesis was concerned with the identification of CL and the ability of MI to increase it.

To accurately measure CL, the measurements must be transferable. At present, there is no way to say what MI did within interviews studied that produced the results other than MI was the intervention. This literature review has already identified the concerns of Miller and others (Miller & Rose, 2009) that recognise how interpersonal variance accounts for the effectiveness of MI interventions. Recognising what MI does and how it does it will assist in the training of MI interviewers and establish MI as an intervention in its own right rather than a tool to introduce or support other therapies. Although combining MI with other treatments, such as CBT which it has been closely associated with in recent studies, has merit (Parsons, Rosof, Punzalan & Di Maria, 2005).

Analysing MI poses several problems for researchers, the most complex of which is the way discourse is reviewed. MI looks at language from an emic perspective that is peculiar to each client yet most analytical methods review conversation content from an etic or 'observer' perspective. Schegloff et al., (2002) suggest that an etic perspective does not capture the naturally occurring development of the focus, meaning and intent within language and this observation may be applied to the use of language as described in MI. The etic approach seems more compatible with less specific analysis techniques; however, it is argued that merely applying a best fit approach is inappropriate for accurately measuring the level of CL and how that measurement can be attributed to a specific intervention such as MI.

2.8 Therapist effect

In-session identification of client input to the direction and subsequent outcomes that are suggestive of the efficacy of MI in interviews is insufficient to consider the results as tangibly

attributed to the intervention itself. Confounders that have been identified are, primarily, related to: the relationship between the interviewer and the client; the skill the interviewer has in promoting conversation in general; and the imbrications of other techniques with the delivery of MI. Martin et al., (2009) identify the problems in separating the effect of MI from these confounders and present a simple but interesting concept that may assist future researchers in developing measurements for this purpose. By identifying CL within utterances, it is suggested interviewers focus on this component to assist in the directional flow of the interview. Once CL is identified, the interviewer supposedly formulates a reflective response. Reflections are developed to identify the level and intensity of the client's motivation within their reply and the process is repeated.

This literature review attempted to analyse the measurement tools that have been used for MI integrity to date and that have promoted the efficacy of MI in studies related to behavioural change and adherence to rehabilitation initiatives. Identification of MI specifics that assist in promoting the concept of MI as the catalyst for the behaviour change and the positive effect of adherence to treatment appear to be heavily reliant on the verification of the skills of the interviewer. Although evidence suggests, particularly the work of Amrhein et al., (2003), that the proficiency of the interviewer is paramount for the reliability of the treatment intervention, the focus on this aspect appears to be a one-sided approach in an effort to define what MI does and how it does it (Vader et al., 2010). While the interviewer can be identified as compliant or proficient in MI by incorporating the coding systems identified in the MITI, MISC or MI –SCOPE, this does not necessarily account for any other variables that possibly relate to outcome, such as participant willingness to communicate. Vale (1981, as cited in Miller, 2009) reported client-centred interpersonal functioning accounted for a substantial proportion of variance in relapse rates of clients in a randomised controlled trial of drug use.

Limited consensus, after decades of research, on the nature and process of adaptation and conceptualisation of outcome has been reached with few rehabilitation counsellors utilising existing measures of adjustment or adaptation in counselling processes. The medical or psychopathological model suggests specific types of disabilities bring about specific types of

personality characteristics or psychological problems and that there is a direct relationship between condition and impairment on all levels (Bishop, 2005). Rollnick and Miller (1995) indicated that the psychopathological model neglected the individual and the unique relationship they have with their environment and how that relationship may not necessarily fit with a sequential pattern of rehabilitation delivery. Kendall and Buys (1998) also rejected psychopathological model theory as lacking sufficient empirical validity to support it, particularly in terms of progressive conditions such as Multiple Sclerosis. Although SCI has been selected as an example of an acute onset condition for this study, it, too, has a pattern of progression and the opinion of authors rejecting the linear sequential pattern of rehabilitation delivery indicate that support for an MI style of approach is appropriate to this study.

The collaboration of Paul Amrhein, a language specialist, and MI researchers introduced the concept of identifying intrinsic motivators based on DARN measured by commitment. This supported the premise of MI and gave direction to key elements of language recognition based on motivational elements that could be attributed to any individual. This concept addressed, to some degree, what MI actually contributed to identify barriers and reluctance on the part of clients to make changes (Amrhein et al., 2003). Further collaboration with Carlo Di Clemente and the stages of change model allowed MI interviewers to recognize a client's level of readiness to adopt change. In most instances, it was found that MI was most efficacious in assisting those clients who were considered pre-contemplative (Prochaska & DiClemente, 1982).

While research has since continued to recognise that there is a difference in how the approach by the interviewer can influence the response by the client, there is a dearth of research on an appropriate and accurate measurement of the level of CL expressed in CT and how the recognition of CL may predict the efficacy of the intervention. Goldwater et al., (2009), in an interesting project, studied speech recognition systems suggesting that consistent errors in transcriptions were recognised where infrequent words, extreme prosodic characteristics and loud or fast speech were encountered in the audio recordings. According

to this study, this inevitably leads to incorrect transcription often based on 'best guesses' by the transcribers. While this study concentrated on examining speech recognition, they were not concerned with meaning within the context of the speech produced.

2.9 Unresolved issues

Many studies reviewed referred to the identification of MI as a collaborative client-centred counselling style that elicited client strengths and intrinsic motivation to change; however, very few actually specifically identified how intrinsic motivators were recognised or how they were elicited and how those factors could be attributed to the intervention of MI. Studies that identified client behaviour as the target for the intervention often gave a good account of the behaviour, settings, demographics and client details but minimalised details related to how the intervention was identified in relation to the outcomes. This aspect has a significant impact on the efficacy of MI as a stand-alone treatment procedure. Lack of information about training, proficiency and subsequent measurement for integrity by recognised and accepted measures suggests that as long as someone indicates MI is the intervention then whatever that intervention is, it is classified as MI irrespective of whether it could be recognised by an independent observer as MI or not.

This study reviewed what research had been undertaken to identify CL, and how CL has been or could be measured. Although Amrhein et al., (2003) provide an intensive review of CL in their study on the relationship between MI and drug abuse, outlining a systematic approach to the measurement and identification of CL; they suggest the prediction of outcome is not necessarily related to DARN. The findings of their study identified the domains of DARN with participants, and the relationship of CL to each of those domains within the client interviews. In addition to these findings, additional CL was expressed not necessarily attributed to any objective goal. Their discussion suggests the dimension of CL requires further consideration as motivation apportioned to the domains of DARN was not as indicative of behaviour change as was CL, in general. CL was also found to be more relevant in predicting change from the

intensity, that is the level rather than the frequency of CL identified in utterances (Martin et al., 2009).

While even small advances may be acceptable, the poor recording of the interventions and the tenuous relationship of the outcome to MI is not. It is of some concern that studies have identified the shortfalls within previous research and then have made the same errors arriving at the same conclusions. Interviewer training, quality of the MI, consistency of delivery across interviewers, client level of motivation pre-intervention, and the integrity of the intervention all require more quality control. While there is a plethora of training available for MI interviewers and adequate measures for testing the proficiency or competency in trainer ability (which is recommended to be ongoing) such as the MITI and the MISC, these are often not applied. It is reasonable to conclude from this approach that the small effect sizes may not, in fact, be due to the intervention rather the way it is delivered and this may have a noticeable negative effect (Amrhein et al., 2004). What is missing from the majority of studies and literature reviewed is research or studies that identify the relevance of client expression as a predictor of behaviour change. Clearly, client expression is recognised and there have been attempts at measuring language with some relative success (MI-SCOPE). Amrhein and others identified the domains of DARN and CAT in order to give some direction to analyzing language and the change that could be identified in conversations with clients. The contribution of Prochaska and DiClemente (1982) was considerable as research began to identify the levels of commitment within different domains that could establish reason for clients considering a behaviour change.

2.10 Building bridges

The “spirit” of MI is, therefore, fundamental in the approach as it ensures that the interviewer is seen as a facilitator of change, recognising the client’s willingness to do so and for the reasons they themselves identify. The spirit suggests: delivery of MI should show the autonomy of the client in any decision making; the interviewing style is one of collaboration

with the client which is an integral part of the process; and the interviewer shows empathy in the recognition of the client's confounding issues.

The above description does little to suggest that MI is anything different from the broader concept of client centred interviewing or counselling. Where MI took a turn in attempting to differentiate the style from other conceptual approaches, such as rational emotive behaviour counselling or client centred counselling, was in the analysis of language expression as a means to determine client motivation. MI is separated from other styles in its use of reflective listening. Reflective listening allows the interviewer to analyse the client's conversation and approach aspects of behaviour recognition based on the client's motivation to address that behaviour and or make a commitment to a change.

Later studies included the influence of Paul Amrhein who applied psycholinguistic analysis to taped sessions. The results showed higher frequency and strength of CT related to the level of training the interviewer had in MI (Amrhein et al., 2004). This work was followed by examination of interviews by Moyers et al., (2007) that supported the recognition of MI consistencies and MI inconsistencies in utterances, and the corresponding responses from clients identified as either CT or ST.

CA considers how utterances are developed and presented. Because of the simplicity of coding without the need for special equipment or training and its relevance in identifying meaning and intent in word choice and combinations in utterances, the coding system for CA was also considered more appropriate for this study to recognise CL within utterances and the measurement of the level and strength of CL in both MI and in best practice SBAQ interviews (Stacks & Murphy, 1993; Sacks et al., 1974).

The argument in interpretation of meaning and intent in conversations may be related to the recognition and meaning of 'non-words' which are also considered in CA. CA considers what has been referred to as a 'moving Gestalt' (ten Have, 2008), which is explained as recognition of what is presented now may be subject to change later. In the client interviewer relationship

in MI, the interviewer identifies with the client's perspective of their position and assists the client to explore the possibility of alternatives based on the client's motivators and DARN. The purpose of MI is to recognise intrinsic motivators of change; in essence, this approach considers the whole conversation as a building block that increases discrepancy which, in turn, is recognised by the interviewer as CL. As such, there are no rules to the format of MI as in SBAQ (see Appendix E). The interview without rules or boundaries that allows expansive dialogue as in MI is fundamentally a different approach to SBAQ.

Conversations in interview situations may be considered epiphenomenal. There is the turn after turn identification of question (reflection) and answer (response) as a primary phenomenon within the interview (Sacks, 1992), and there is often a secondary conversational process to this relationship that may indicate whether what the client wants to express or discuss is being catered for by the interviewer (Stacks & Murphy, 1993). Dependent on the agreement and the motivation to discuss issues, the client will respond with either CT or ST or perhaps both. It is the identification of several possible meanings within expression that differentiates MI from other therapies and reinforces the necessary skill of reflective listening. While that observation seems simple, it gives some clarity to what further study of MI should consider to support reflective listening and to provide epistemological evidence as it remains a concept that has not been adequately considered and warrants further investigation (Moyers et al., 2007).

The epiphenomenal concept in client utterances would necessitate the dissemination of data from MI interviews into 2 parallel measurements. Firstly, that related to the primary phenomenon that identifies with adherence to a behavioural change, and secondly, how the interviewer identified the client's CL and how that CL directed the formulation of further reflections related to DARN that enhance the behaviour change. By analysing the content and flow of interviews and the language produced, it may be clear to an observer how the interviewer directed the reflections within the interview to acknowledge CL and reinforce the commitment. It may be possible that this recognition is reliably measured by any increase in

the numeracy and level of CL expression identified in utterances of CT as well as noticing any reduction in client ST (Moyers & Rollnick, 2002; Moyers et al., 2007).

This chapter recognises the increasing awareness of researchers in establishing the tangible elements of MI that differentiate it from other counselling styles to support the efficacy of the intervention as either a standalone therapy or a recognisable adjunct to other treatment modalities. This review of previous studies points to the paucity of research involving MI with acute disability clients and exposes the negligible connection in some studies between what is considered to be MI and what has actually been delivered. This review highlights the need for adherence to MI principles in research to define the actual role MI plays in the final results and to gain better understanding of what MI is and what it does. The next chapter considers CL as a measurable component of MI.

Chapter 3.0 Research Questions / Hypothesis

The aim of this study is to identify whether CL expressed in utterances from clients with SCI is increased in MI interviews compared with baseline interviews of a best practice alternative interview of SBAQ, using an AB single case study design.

Over 5000 studies citing MI as a prelude to treatment, MI as a stand-alone psychotherapeutic intervention, or MI in collaboration with other therapies have been recorded (Lundahl et al., 2010). This thesis looked at three specific elements within these 5000 studies particularly those looking at MI as a standalone psychotherapy that could be used to promote MI as a worthwhile intervention that could identify the efficacy of the treatment over other interviewing styles or therapies:

- If the commitment expressed in language is a critical component of how MI interviewers predict behaviour change, how is it recognised and measured?
- What analysis methods are used to indicate adherence to MI principles and is the importance of analysis recognised?
- Does MI increase commitment language in clients who have acute onset conditions that require behaviour change and adherence to rehabilitation initiatives?

3.1 Relevance of research

The relevance of this research is that it fundamentally goes backwards in order to promote MI going forward. MI, despite its existence for nearly 30 years, has had a recent rapid rise in popularity and has broadened its field to incorporate a number of health behaviour conditions. It is not readily discernable why this has occurred, however, from researching study abstracts, it would appear its popularity is, primarily, because: it parallels some basic already widely accepted principles from client centred therapy; it is cheap to administer; designed for brief intervention; does not require face to face intervention, necessarily, as it can be administered by telephone; and can be adapted to a variety of interviewer's personality styles. The

relevance of this study, therefore, is to attempt to provide some tangible attributes of MI that warrant its promotion.

As the number of studies and the broad spectrum of conditions that MI is being applied to increase, there is a concurrent tendency to imbricate MI with other therapies such as Cognitive Behavioural Therapy. Rather than be recognised for its stand alone therapeutic and unique qualities, the importance of brief intervention being one of these, the efficacy of MI may be somewhat watered down. The available qualitative measure in studies of MI fits well with social science investigation; however, to protect, preserve, and promote MI research, it may be necessary to provide some concrete measurable quantitative approaches as well.

The application of MI to acute onset issues, such as SCI, would indicate a seamless fit based on the idealism that MI is autonomous, collaborative and evocative, and that client's with SCI, or many other acute onset issues, require this sort of approach (Kennedy Sheldon, 2005; Carrier, 2009; Dart, 2011). Unfortunately, those most likely to deliver this intervention are health care workers and nurses only after acute medical treatment has been completed or the condition is stabilised and the opportunity to recognise many possible barriers to rehabilitation are delayed (Dunn, Deroo, & Rivara, 2001; Dart, 2011). If research shows the efficacy of MI as a treatment intervention, there is no reason why all team members responsible for a client's recovery and rehabilitation cannot use the approach beginning at day 1 of a treatment programme (Dewar, 2000; Ellenbogen et al., 2006; Epstein et al., 2007).

3.2 Previous studies

One reason for engaging in this thesis was that while previous studies looked at the key elements already mentioned in this chapter of the relevance of recognising commitment in language expression, the importance of identifying the treatment adherence and delivery to support outcomes in primarily drug and alcohol studies the application of MI to acute onset conditions was sparse, as identified in the literature review in chapter 2.

It is pleasing to note that within the research time frame applied to this study, there have been several research projects published that ask similar questions and point to the direction research in MI should take. Vader et al. (2010) identified language recognition and the importance of training in MI that, in turn, supported the prediction of outcomes; the lengthy in-depth research project by Forsberg et al. (2010) clearly showed not only the importance of the integrity and adherence to MI by the interviewer, but also the necessity of ongoing training and peer review to maintain a consistency in delivery.

The consistent efforts of Terry Moyers and others to improve on the analysis methods and systems for MI, recognising client speech as a critical component of what MI does, needs to be mentioned (Moyers et al., 2003; Miller et al., 2004; Moyers et al., 2007; Martin et al., 2009). Notable in many recent studies is a concern for the integrity of the treatment with the question being asked if MI is actually being delivered and if so, how this is being identified? Where strong analysis of treatment intervention and the integrity of the interviewers have been established, the outcome measurements of behaviour change and adherence statistics are noticeably higher than where unidentified training in MI and no consistency of treatment provision is accounted for (Vader et al., 2010). Still, many studies that have identified poor analysis and delivery often show that MI still outperforms the advice approach only or when there is no treatment provision (Adamian et al., 2004; Behrman, 2006; Cummings et al., 2009).

3.3 Research gaps

The focus of this research relates to the provision of MI and the outcomes as presented in numerous studies and meta-analyses. Research gaps are clearly evident that promote discussion about the need to ensure the consistency of the treatment provision to maintain credence with the outcomes and prevent MI from becoming solely a promotional package for the introduction of other treatments thereby losing its individual status as a therapeutic intervention in its own right (Miller & Rose, 2009). If language expression is considered a

measurable component of MI that may predict behaviour change, then there is currently insufficient research to support this.

One of the attractions of MI is the simplicity of the approach, while another is the identification of MI as a brief intervention; unfortunately, although these attributes are a promotion of MI in themselves, the training in proficiency and analysis of treatment integrity is not equally as brief or as simple. The additional components within research studies of these two components would give support for the treatment efficacy that can be directed at the MI component which, in turn, should lead to improved training ideas and coding systems for researchers.

The application of MI to a number of behaviour conditions is encouraging, and the recent publication by Arkowitz et al. (2007) looks at MI in assisting with the treatment of psychological disorders. Research into what professions are best suited to the delivery of MI have basically shown that it is adaptable to most health care professions (Emmons, & Rollnick, 2001).

The following chapter discusses the methods used to investigate the component of CL in MI and how the interventions were conducted in comparing MI with a best practice interviewing alternative of SBAQ's. An explanation is given for the selection of the single case study design and its particular relevance to the unique circumstances of the participants involved.

Chapter 4.0 Methods

The direct comparison of MI with baseline interviews of SBQA was an approach designed to identify CL and measure whether there was a discernable difference between the two styles and whether the frequency and trend were increased by the intervention. Although a simple A-B design was used, its suitability in this study was considered appropriate. Both the limited number of available participants within the target population and the fact that returning to a baseline after removal of the intervention was not possible severely limited the type of methodology that could be applied to provide a direct comparison as was required.

4.1 Methodological Approach

This study involves single case research methodology designed to demonstrate control of the independent variable over the dependent variable in individual subjects by recording the level of CL expressed in baseline SBAQ, and the level of CL in MI interviews. Results are not expected to generalise from individual subjects to a larger sample or populations. Power calculations are not applicable. The number of baselines follows the premise of Wolf and Risely (1971) which suggests a set of replications across three or more baselines is convincing although, in reality, only two are required to show statistical difference.

A visual analysis of level, trend and overlap in responding across phases and subjects will be conducted as is common practice when using AB designs (Minichiello, Sullivan, Greenwood & Axford, 2004). If marked effects are not noted, however, a paired samples t-test will be conducted between phases to determine if there is a significant difference in responding across phases. Collecting phase one data from each individual allowed for the establishment and availability of a baseline as an experimental control for that participant (Barger-Anderson et al., 2004). Single case studies were also considered suitable, because it is impossible to return to the baseline after the introduction of the independent variable. The visual analysis of the data is recorded by frequency across phases. Comparisons between baseline frequency

and the intervention look at any distinguishable differences across the phases, whether the trends are constant and the level of overlap if any.

SBAQs are considered as a standard practice commonly used in client interviews. The selection of SBAQs for the baseline interviews was considered appropriate in order to compare the intervention with the current best practice used in rehabilitation interview settings. SBAQs allowed for elaboration of responses rather than simple yes or no answers. Simplifying and restricting the responses by participants to simple yes or no answers may have prevented a more direct comparison and analysis of CL expression.

4.2 Intervention

The study was conducted using an A B single subject design (Barger-Anderson et al., 2004). Participants were interviewed over time as indicated in the Gantt chart (see appendix K pg. 145) to establish baseline data related to levels of CL expressed prior to the introduction of the dependant variable, MI. The recorded interviews were transcribed and measured using the MITI (Moyers, Martin, Manuel, & Miller 2008) to analyse interviewer adherence to MI principles. The transcription of the interviews identified, within the utterances recorded by the participants, expressions of CL which were coded as either positive (CT) or negative (ST) and by the level recorded as high, medium or low. Appendix F (pg. 137) shows examples of word recognition for this coding. To strengthen the recognition of CL, CA was used to identify specific words and statements and confirm the levels of high medium or low commitment and the direction of intent as either positive or negative.

4.3 The participants

The three participants required for this study were recruited from the inpatient spinal facility at Burwood hospital in Christchurch, New Zealand. Kaleidoscope counsellors, who provide

vocational rehabilitation to clients with SCI at Burwood Hospital, were initially approached for the study to be the interviewers as well as providing assistance with engaging the three participants. As a result of the amendment to the recruitment and training of interviewers, Burwood Hospital's Kaleidoscope Unit's staff members were given more time to approach and recruit the participants as they were free from the training schedule required to reach competency in MI skills.

Once changes to the respective roles of the researcher and the Kaleidoscope staff were implemented, prospective participants were approached by Kaleidoscope counselling staff and given an information sheet (appendix G pg. 138). Although recruiting commenced shortly after ethics approval was received in September 2009, it was not until February 2010 that the 3 participants were recruited to the study. The researcher had not considered the reluctance of SCI clients at Burwood to be involved in the study and numerous potential participants declined the offer to participate. During the time period between September 2009 and February 2010, there was also a noticeable decrease in the numbers of clients with SCI being admitted to the Burwood Spinal Unit. Eventually, Kaleidoscope counsellors were able to engage the 3 participants who completed the study interventions and interviews. Each participant was given a consent form to sign which was forwarded to the researcher (see appendix H pg. 140).

One major concern for the ethics committee related to the study had been the perception that the study may overload the clients who were already in a vulnerable state and who were subjected to constant interventions and intrusions from medical and physical therapy staff. Although the study indicated that participants would be selected from the inpatient population at Burwood Hospital, it was also a recommendation that the participants had clearance from the medical teams for further rehabilitation. It was a pre-requisite that the clients approached were ready for the next phase of rehabilitation which included coping mechanisms for reintegration into their social, familial, environmental and vocational roles and had been cleared to do so by the medical staff from Burwood Hospital.

Although the acute phase of injury was completed, each participant had yet to be released from hospital care. At the point of participation in this study, each participant was around one year post accident or onset and contemplating returning to their homes. The severities of ongoing complications were similar for all three participants with mobility issues of particular concern although only one participant remained wheelchair confined. The prognosis was, however, the participant who used a wheelchair was expected to regain the capacity to walk. Vocational issues and the ability to maintain independence in personal care were also of primary concern.

4.4 Research Design

Single-subject experimental research personalises data collection for each participant, and is individually analysed. The term single-subject is not used because there is only one participant; it rather refers to the procedure for data collection and the focus of the study as opposed to the number of participants (Neuman & McCormick, 1995) and experimental control is, therefore, established with each participant (Johnston & Pennypacker, 1993). The procedure looks at the treatment of the independent variable on the dependent variable, the same behaviour, for different participants; once a baseline has been established, the treatment or independent variable is applied. Barlow & Hersen (1984 p.232) state baseline and treatment phases for each subject in the study can be conceptualized as separate A-B designs. When rate changes are observed in at least three subjects, after the treatment variables have been directly applied to each, the experimenter gains confidence in the efficacy of the procedure. Thus, there is a direct replication in three matched subjects exposed to the same environment. The intervention can then be considered as the most probable reason for the observed changes.

4.5 Consultation

Initial consultation was undertaken with the Kaleidoscope New Zealand manager, Mr Arron Perriam, and the Chief Executive Officer of the New Zealand Spinal Trust, Mr Andrew Hall, in February, 2009 regarding issues of rehabilitation adherence in the acute care of spinal cord injured clients in Burwood Hospital in Christchurch, New Zealand. The implementation of MI for rehabilitation was discussed and there was an agreement that Kaleidoscope staff would undertake training in MI and conduct interviews with willing participants for the study invited from the inpatient population at the Burwood Spinal Unit.

An approach to the Christchurch District Health Board (CDHB) was made and approval was given for the research project to go ahead subject to approval from the Southern B Ethics Committee (appendix L pg. 144). The study necessitated English first language speaking participants as the current methods of coding and CL recognition are related to English expression. In order to consult and explain this requirement to satisfy Maori interest, Mr Graham Warren, the Chief Maori Advisor for the ACC, and Ms Francis Rangihuna, the ACC spokesperson on patient injury and patient safety for Maori, were contacted and their understanding and approval was given. Finally, approval was sought from the Southern B District Ethics Committee before final arrangements to begin the training of the interviewers and the recruitment of participants could begin.

Once ethics approval had been given to commence the study, the initial proposal required Kaleidoscope rehabilitation staff from Burwood Hospital to be trained in MI (Miller & Rollnick 2002; Miller, Yahne, Moyer, Martinez & Pirritano 2004). The trained staff would then complete and record the interviews with participants who were clients with SCI recruited from the inpatient population at the Burwood Hospital Spinal Unit. Ethics approval was requested in April 2009; however, several presentations were required before approval was granted.

The first application did not satisfy the ethics committee. It was the committee's interpretation that the interview process itself may disadvantage a vulnerable group in an attempt to coerce

the participants into agreeing to rehabilitation initiatives when they were already exposed to a considerable amount of rehabilitation interventions and may feel powerless to say no. In response to these concerns the second presentation of the ethics application identified the client centeredness of the intervention and the approval of the medical team for the initial approach to the potential participants having ensured they were ready for further discussion about rehabilitation issues.

A second concern of the ethics committee was the requirement that participants must be fluent in English for participation in the study, as the committee felt this was not explained in detail in the original application; the committee considered that this may disadvantage Maori speakers. An explanation of the rationale for a requirement of the interviews to be recorded in English was discussed with the local Pae Arahi and Maori Liaison for the CDHBT, identifying the requirement for communication in English was due to the fact that all testing and coding practices and measurement tools were in English and there was no reliability measure for any other language. The MITI and MISC were created in English and these were the only available testing procedures to ensure the integrity of MI in the interviews. In addition neither the researcher nor the trainees available in the initial programme were fluent in Maori; approval from Maori was presented in a subsequent application.

Another concern addressed was that the researcher was an employee of the Accident Compensation Corporation (ACC). Some members had felt that information or, indeed, the programme itself would be used against the participants in an attempt to prematurely shift the focus of rehabilitation into return to work initiatives.

The initial submission to the ethics committee was on the 10th of June, 2009 and the second request for information dated the 17th of August 2009 indicated to the researcher that in order to receive ethics approval, further clarification of the concerns would be required. It became apparent that each time the committee met, individual members were only considering aspects of the application during the hearing sessions which required an inordinate amount of time in which to review the application. Application and submissions are only afforded fifteen

minutes of consultation and discussion at each hearing. Therefore, in order to expedite the process, the researcher accepted an invitation to be present when the application was next heard and, subsequently, travelled to Christchurch and attended the September 2009 meeting with the committee to satisfy their concerns.

At the hearing, it was apparent that the researcher's employment with the ACC did not sit well with several members. There was some concern that the study may be or was, funded by ACC. Several other members were also uncertain whether the exclusion of Maori speakers was acceptable. The researcher was able to explain the absolute anonymity of the participants and ensured the committee that no information from the study would be available in any form to the ACC. Again, the rationale was explained for the necessity to conduct the study in English.

The researcher acknowledged the limitations of the study and suggested the possibility of further research being conducted specifically for Maori speakers providing the initial results from this study indicated significance in the results. The significant number of Maori in the target population of clients with SCI would otherwise warrant it. The process of negotiating these concerns finally led to the study beginning which consequently put pressure on the ability to train the interviewers in MI techniques within the timeframes allowed for completion of this research.

Ethics approval was finally received from the Southern B ethics committee on the 14th of September 2009 (appendix M 145) and initial MI training for Burwood Hospital Kaleidoscope staff commenced. Kaleidoscope is a rehabilitation unit attached to the Burwood Hospital that focuses on vocational rehabilitation for clients with SCI. Kaleidoscope works in conjunction with hospital medical staff, usually concurrently with medical and physical rehabilitation, to ensure a level of focus on reintegration into the workforce for clients with SCI. Funding for Kaleidoscope is partly from Burwood hospital and the CDHB, partly from the New Zealand Spinal foundation and the remainder is through self funding through contractual arrangements with the ACC and the New Zealand Department of Social Welfare (WINZ).

4.6 Procedure

In order to ensure baseline data transcriptions were not contaminated by the inadvertent use of MI techniques during the collection of baseline data, the MISC.2 was applied to both baseline and MI intervention interviews. To prevent or minimise the exchange of MI techniques, it was first necessary to train interviewers in MI to a level of proficiency measured on the MITI. Trainees were first assessed for their knowledge of MI practice and skills using the MIKAT as in appendix N (pg.147) (Leffingwell, 2006).

Training included pre-course reading material relating to MI as an intervention followed by an intensive initial two day course. A system of follow up training by teleconference and e-mail including the submission of role play interviews between the trainer and the trainees was conducted over a further three month period. The decision to continue training by this method was made due to the location of Burwood Hospital and the cost restrictions for travel necessary to provide ongoing training in person. Telephone training has been shown to be successful both in training participants in the use of MI and as a method of delivering MI to clients (Bombardier, Bell, Temkin, Fann, Hoffman & Dikmen, 2009). In the study conducted for this research, the trainer was also the researcher and a recognised MI trainer.

Trainees were tested for competency using the MITI (Moyers, et al., 2005). The MITI identified the interviewer's practice in the interview process as a style that differentiates it from other interview techniques or practices. Primarily, the MITI was used to ensure that the format of the interview was within guidelines that expressly identified the intervention of MI as complying with MI practice. The MITI was considered a reliable assessment of the integrity of MI for the purpose of this study (Moyers et al., 2003). For a list of MITI Codes used to assess the trainees, see appendix B (pg. 133). The Behaviour Count or Summary Score Thresholds showing the measurement required for proficiency and competency required for MI interviewers are included in table 4.1.

Table 4.1 Behaviour Summary Scores MITI

Behaviour count or Summary Score Thresholds (MITI)	Beginning Proficiency	Competency
Global therapists ratings	5	6
Reflections to questions ratio (R:Q)	1	2
Percent open questions(%OC)	50%	70%
Percent Complex Questions (%CR)	40%	50%
Percent MI Adherent (%MIA)	90%	100%

Unfortunately, application of the MITI to role play interviews indicated that the trainee's were below the level of significant proficiency or competence to the principles of MI after 3 months of ongoing training and support via e-mail, mock interviews and telephone question and answer sessions. It was decided by both the researcher and the trainees that training should concentrate on one individual who showed the highest global scores and ability in defining MI micro skills of questioning techniques recorded on the MITI coding sheet. However, their scores were still too low to ensure a level of competency required for this study. The trainee scores related to questions to reflections ratio and non-adherence to MI were recorded and identified in table 4.2.

While the figures recorded in table 4.2 show that non-adherence to elements of MI in baseline interviews is evident in this interviewer's style and may differentiate that style from other techniques of interviewing, it would not be acceptable as MI consistent interviewing. The record of 11 non-MI adherent recordings taken over a mock MI interview with the trainee over time and with ongoing training was of concern for the integrity of the MI content.

The results in table 4.2 indicated the trainee scores were two points below the minimum requirement for proficiency on the MITI scale; this suggested that the baseline interviews could not be differentiated substantially from that used in the trainee's MI interviews. The comparison between the results and the requirements identified by the MITI did not show a competence level sufficient for the study although there was improvement shown that time.

With the dearth of available participants within New Zealand for this study, it was considered that if the study were to proceed with the trainee completing the interviews but with results indicating that the MI integrity was not evident in the interventions, it may not be possible to recruit another three suitable clients with SCI in the time frame allowed the researcher to complete this study.

Table 4.2 MI Adherence Scores: Trainees

MITI RECORDING	Trainee	
	Base	MI
MI Adherent score	0	7
MI Non-adherent score	14	11
Questions	32	19
Reflections	0	5

It was important to the validity of this study to show whether or not the interviews could be equally identifiable as a style that could be interpreted as MI, either wholly or in part, to prevent contamination of the findings. Baseline interviews were not constructed in such a way that the expression of CL was in any way repressed. Participants were given the opportunity in response to give further information or to make requests to the interviewer. Baseline interviews were conducted using SBAQ.

The result of analysing the trainee's interviewing style was taken over a series of stages of a mock interview with the researcher and MI trainer adopting the client role. Included in the analysis was the trainee's use of the micro skills of MI. Micro skills are identified as open ended questions, identified as questions that are difficult to answer simply yes or no; affirmations, which are identified as recognition of significant effort on the part of the client to respond; reflections, which are regarded as the most important skill in MI practice, and are defined and coded by either simple or complex. Simple reflections are referred to as repeating a client's response, while complex reflections are rephrasing or paraphrasing the client's response, and finally summaries. Summaries are defined as a response to the client that links

together the threads of the conversation matrix; in essence, summaries are a collection of reflections. These micro skills are identified by the acronym (OARS).

Indicators taken from the transcript of the mock interview were also analysed for adherence to the global rating of MI which included evidence of expression of the Spirit of MI identified as: promoting the client's autonomy, a collaborative process between the client and the interviewer that is non confrontational and the degree of empathy shown by the interviewer towards the client. The spirit is identified by the acronym ACE.

Non adherence to MI was also analysed which included elements of warning, giving information without permission, directing, confronting and directing without permission. The trainee's results compared with beginning proficiency and competency are shown in table 4.3 where scores were compared with basic proficiency levels and competency levels required in MI interviewers. The decision to change interviewers was reached when further role play transcriptions were measured against the thresholds outlined in the MITI (Moyers et al., 2005) and coded according to the coding sheets identified in appendix A (pg. 132).

When questioned, the trainee did not feel confident in their ability to conduct an MI interview within the time frame allowed to complete this component of the study. As the previous delays in obtaining ethics approval put pressure on the researcher to complete the data collection and analysis components of the study, there was an inevitable impact on the time available for further training.

The trainees were, however, also responsible for the recruitment of the participants from the inpatient population of the Spinal Unit at Burwood hospital. As there was also some reluctance on the part of potential participants to engage in the study and again due to those time restrictions, it was decided that the researcher would travel to Christchurch and complete the interviews as soon as the participants were engaged. (See Gantt chart appendix K pg. 143).

Table 4.3 Global rating Scales: Trainees

Behaviour count or Summary Score Thresholds (MITI)	Beginning Proficiency	Competency	Trainee
Global therapists ratings	5	6	3
Reflections to questions ratio (R:Q)	1	2	.25
Percent open questions(%OC)	50%	70%	23
Percent Complex Reflections (%CR)	40%	50%	<10%
Percent MI Adherent (%MIA)	90%	100%	<50%

A schedule of interview times over several days was compiled by Kaleidoscope and the interviews were conducted at the Burwood Hospital Spinal Unit in the Kaleidoscope offices. Audio recordings were made of all the interviews which were then transcribed. Data was taken over both baseline and intervention phases initially to measure for the integrity of the interviewers use of MI techniques according to the MITI. To further ensure that MI could be differentiated between the baseline interviews and the MI interviews, the transcriptions were subjected to analysis using the MISC (Miller, Moyers, Ernst & Amrhein, 2008).

Expressions taken from client utterances were coded for either positive or negative CL or the level of expression as high medium or low. Audio recordings were then analysed using CA to give clarity to the meaning and intent of expressions of CL for each client for both baseline and MI interviews.

4.7 Motivational interviewing

The procedure includes specific interviewing techniques identified in MI as the micro skills of open ended questions, affirmations, reflective statements, and summaries (OARS). The most defining characteristic of MI is the inclusion of reflective statements which ensure meaning in client dialogue and are the directional leads in conversation towards change. The interviewer concentrates on positive reflections which are formulated from expressions of CL identified in client utterances.

Reliability of the identification of CL is measured by reviewing transcripts of the interview. The ratio of a minimum of two to one reflective statements to open ended questions is an indicator of consistency with MI. MI identifies four main focus areas including the client's desire, ability, reason or need (DARN) to change and elicits CL attributed to each of these areas to determine where the interview process is best directed, and in what areas the commitment is either high or low. The focus remains on determining intrinsic motivators to resolving barriers. Non MI interviews may pre determine direction and outcome following a formula of advice and direction that is unsolicited and challenging which culminates in resistance.

4.8 Treatment integrity

The first pass analysis of the audio recordings of the interviews considered the global rating of the interviewer's proficiency or competency as indicated in table 4.4. This process gives an overview of the entire set of interactions identified from transcripts of the interview and considers MI adherent or non-adherent behaviour recorded by the interviewer (Miller et al., 2008). In this study, the first pass was performed to demonstrate the comparison of baseline interviews to MI interviews. Global ratings by the coder's were given for the interviewer's proficiency or competency levels during the interviews at both baseline and for the intervention and incorporate recognition of the following elements:

- 1) Acceptance; defined as the unconditional positive regard for the client
- 2) Empathy; rated as the interviewers ability to understand the client's perspective
- 3) The motivational interviewing Spirit which is further defined and includes: Autonomy, Collaboration and Evocation (ACE) (Arkowitz et al., 2008 p.41).

The single case experimental design across participants was considered appropriate as it allowed for the restricted number of participants available in the target population. A Meta analysis of 85 single subject studies concluded that the single case design was appropriate with limited numbers of participants who shared the same environmental conditions and were exposed to the same extraneous variables. These studies were indicative of the conditions for

this study which allowed for a reasonable measure of control, not possible with a larger group across localities (Swanson & Sachse-Lee, 2000, p.144).

These environmental controls primarily, relate to contamination of findings that could occur due to the disparity in the availability of suitable participants and interviewers within such a small target group. Contamination could occur if a separate control group were selected from within such a small population in a confined environment due to client interaction with one another or because of procedural differences related to client care and rehabilitation interventions if multiple sites were used or across clinical settings.

4.9 The Motivational Interviewing Treatment Integrity Code (MITI)

Global scores are intended to capture the impression of the interviewer's ability and skill in delivering MI. The scores identify elements that meet certain criteria. In particular, criteria must show unconditional positive regard for the client that includes an expression of empathy and understanding of the client's situation. The Spirit of MI is identified by the acronym ACE which includes recognising the client's autonomy within a collaborative environment while evoking change talk from the client. Rating for global scores requires the raters to evaluate a variety of elements all at once. The global scores reflect the holistic evaluation of the interviewer given on a seven point Likert scale. A score of five is considered proficient and six or seven indicates competency. The global ratings for the interviewer related to interviews with each of the three participants recruited for this study were recorded in table 4.4.

4.10 The Motivational Interviewing Skills Code (MISC)

The MISC version 2.0 requires three passes through each audio tape. The first is an initial pass to complete the global rating; the second classifies both client and interviewer's utterances within a behaviour code; and the third pass records the client and interviewer talk

time. The MISC 2.1 no longer includes the measurement of talk time primarily as the authors felt it did not add to the information recorded from the first two passes and was time consuming (Miller et al., 2008). However, for this study, talk time was included.

The transcriptions for the trainee's behaviour counts from the mock interviews were subjected to analysis using the MISC (Miller et al., 2008). (See appendix C pg.134). The areas of MI non-adherent recordings and primary concerns with the transcripts and interviewing style were identified from the trainee interview transcripts and the recordings are indicated in table 4.4.

Table 4.4: Mock Interview MISC analysis for trainees

MISC	Meaning	Count
ADW	Advising without permission	3
CO	Confronting	1
DI	Directing	1
GI	Giving information without permission	4
RCW	Raising concern without permission	1
WA	Warning	1

These diversions from MI practice appear to focus on the trainee's propensity to advise and give information without permission. In MI terms, this generally shows where the interviewer is getting ahead of their client. The interviewer may pre-empt the client's interest, desire, ability, reason and need and provide advice or direction. By providing advice and advising the client, the interviewer may imply their own ideas of what is suitable for the client; if the client is reluctant to correct the interviewer, the client may, in turn, show resistance at some point to the interventions or advice given and rehabilitation adherence may be in jeopardy. The interviewer may, however, be under the impression that the client agrees with their advice or information.

Examples taken from the mock interview transcripts of non-adherence are as follows:

- **Client to interviewer:** “They reckon swimming would be good for me, but I hate going to the public pools with everybody watching me”.
- **Interviewer to client:** “They’re right, of course, most people with spinal cord problems find swimming very beneficial, I would suggest you don’t worry about people looking at you and just do it; you’ll soon forget about them”.

Here the client has expressed a reason for the reluctance to go swimming. The Interviewer has ignored the client and generalised the efficacy of swimming instead. They have given advice without permission as well as not gaining permission before giving information that is unsubstantiated and may be irrelevant to understanding the reluctance. If reluctance is solely because of the people watching at the public pool, informing the client about the benefits of swimming for clients with SCI ignores the problem perceived by the client and may be seen as directing.

Below is an example taken from the mock interviews of warning:

- **Client to interviewer:** “I’m not happy with Tom, do you know Tom? He’s the psychiatrist I have to see every week. He’s pushing me to increase my gym work and that physio keeps telling me I can do more. I can’t”.
- **Interviewer to client:** “I know Tom and he’s a psychologist not a psychiatrist. Most people in here (Burwood Spinal Unit) find him very helpful; perhaps, you just haven’t got to see the benefit of his work yet or have missed the point of what he’s trying to do for you. I also know the physios here are excellent; they will just be working to get the best out of you. Without 100% effort on your part now, you may wind up with complications later on”.

Here the interviewer is attempting to give information that they feel corrects the client and, in turn, assists them in understanding that the problem is not with Tom or the physiotherapist but rather it is with the client. In this instance, they are raising concern about the client’s motivation by suggesting that they may not be giving 100%. They

are also warning the client that if they do not give 100% and comply, they may have complications later.

In MI consistent interviewing, the objective of the interviewer would be to ascertain what it is about Tom and the physiotherapist that is not compatible with the client at this point. The client clearly states that he is “not happy with Tom” and feels that perhaps the physiotherapist is siding with Tom and not listening to the client.

4.11 CA coding

CA coding was applied to the transcriptions after careful review of the audio tapes to ensure clarity and accuracy of the transcriptions using a system of symbols devised by Sacks (Sacks et al., 1974) recorded in appendix D (pg.135). This analysis was applied to both baseline and MI intervention interviews. CA provided better clarity to the turn after turn expressions in the client / interviewer exchange assisting in identifying where one utterance began and finished. It was envisaged that CA notations would be able to give better reliability in coding the level of expressions as parallel expressions, such as inhalation, exhalation, pitch, and volume, cannot be identified from un-notated transcriptions alone. It was expected that in non CA adherent transcripts transcribers may also not choose to record ‘fill ins’ such as sighing, crying or laughter or indicate pauses where no conversation is recorded (Zemel, Xhafa, & Cakir, 2007).

4.12 Analysis Methods

Where there is a lack of appropriately trained interviewers or even those willing to be trained in MI techniques, there could also be a possibility of disparity in the introduction of the intervention. Comparing localities rather than individual clients may not show results indicative of the impact of the intervention, but rather it may indicate the impact of the interviewer. While that may be a criticism directed at this study, it does support the effect of the interviewer’s

ability and style which may be the subject of further investigation into the efficacy of training methodologies for interviewers. Figure 4.5 summarises literature related to the analysis methods considered for this study showing what was measured and their strengths and weaknesses in relation to what was required for this study.

Figure 4.5 language analysis methods

Method	Author	Measure	Strength
MI-SCOPE	Martin et al. (2006)	Linking of utterances. Describes speech and syntactical relationships	MI specific coding system compatibility
Discourse Analysis	Spitzer (1928) ²	Analysis of written or spoken language	Semiotic
Content Analysis	Lindesmith (1931) ³	Summary of messages; quantitative measure of messages	Adaptable to various analysis approaches dependent on information required
Conversational Analysis	Sacks, Schegloff & Jefferson, (1974)	Construction and sequence of utterances. Measures volume, intonation, inhalation, exhalation speed, volume and prosody.	Inter-rater reliability can be coded easily. Measures strength of language within utterances

The methods incorporated into this study highlight the issues faced in previous studies of MI where the integrity of the intervention itself is paramount to the results. The selection and training of interviewers to conduct the study requires strict observance of the spirit of MI displayed by the interviewer and the measurable components of the interviewer interaction and use of MI micro-skills. Adherence to the principles of MI ensures that any measurable results are attributable to MI and not to other techniques which may include the personal characteristics of the interviewer themselves. Chapter 5 outlines the importance of

² Leo Spitzer's early work was identified as Discourse Analysis (DA). DA is best known for the work by Michel Foucault. DA studies relationships of sentences in a canonical form. For this study the analysis was not considered appropriate as the relationship of language in the study pertained to the individual not language in general.

³ Alfred Lindesmith's work referred to by Glaser as "the constant comparative method of qualitative analysis" looks at frequencies of keywords and was not considered appropriate for this study as its categorisation of text was not transferable and would not capture the individual's subjective meaning of language used.

maintaining the integrity to MI principles and the measures available to differentiate MI from the baseline interviews.

Chapter 5.0 Interviewer integrity measures

The initial proposal for the study included training of interviewers to conduct the interviews with the clients. The rationale for this was to ensure that there was no contamination of MI within the baseline interviews. The reality was that it was more appropriate to ensure that the integrity of MI was maintained in the interventions and that the interviewer's conduct was measurable against reliable coding using known and available systems. Trainee interviewers were not considered to be proficient enough in MI to conduct the interviews. The selection of standard questions for the baseline interviews, while allowing for client elaboration also showed the capacity for recognising language and how the interviewer reacted to that language. Contamination by any MI interviewing techniques in baseline interviews could be identified if necessary and was factored into the analysis process.

5.1 The MITI coding system.

The MITI coding system consists of two basic components (see Appendix A pg.132); the first is a global score where a coder analyses the interviewer's performance which is recorded as a number on a Likert scale of one-seven. The global score is usually taken from a single pass of the interview. Essentially, global scores identify issues of the empathy expressed explained as the ability to understand the client's perspective, and the MI spirit of information gathering. The second component is the behaviour count where a tally is kept of the interviewer's behaviours from beginning to end recorded from a single pass of the interview (see Appendix B pg.133) The purpose is to apply a gestalt approach⁴ to the interviewer's behaviour requiring a minimum proficiency score of four (Moyers et al., 2003).

⁴ A gestalt approach or gestalt theory challenges the idea that constructs, or generalised statements such as all persons with SCI will experience depression, will apply to everyone in a given situation. It

5.2 Treatment integrity: MITI

Important to the integrity of this study was the ability to recognise categorically the difference between the intervention of MI and the SBAQ baseline interviews by the interviewer behaviour (see appendix E pg.136). The MITI coding system that was used in the initial training sessions with the trainees from Kaleidoscope clearly identified where interviews met with the integrity of MI or not. The MITI, as a brief coding system, was, therefore, considered appropriate for the identification of interviewer integrity. Global scores identified for each participant at baseline and from the interventions are recorded in table 5.1

Table 5.1 Global MITI rating scores for interviewer for each client interview

Global Rating	Baseline	Intervention (MI)
Client 1	5	6
Client 2	5	5
Client 3	4	6

The global scores recorded in the MITI identify that ACE are common across both baseline and the interventions for all three participants. This is supportive of the general empathetic style common to all psychotherapeutic interventions. The global score does not indicate the proficiency or competency in MI skills but, rather, indicates the interviewer's ability to express these fundamental approaches to client centred interviewing. The global score is considered in context with the recording of the interviewer's use of Micro skills (OARS) also identified using the MITI.

5.3 The motivational interviewing skill code for interviewer (MISC)

is guided by the premise of understanding the uniqueness of the individual through focussing on the subjective nature of experience.

A second pass identified the behaviour counts for both the interviewer and the client from the transcription of the interviews. The individual expressions within the interviews by either the interviewer or the participants were recorded as 'utterances'. The identification of utterances is in keeping with the identification of the separation of items within language expression. Utterances are defined in the MISC 2.1 as: "where one thought is completed or where a new thought begins" (Miller et al., 2008, p.8).

In this study, utterances identifying interviewer integrity to MI were coded as either MI or non-MI adherence. The process that identified the trainee scores of non-MI adherence in the mock interviews as indicated in the MISC was again adopted for coding the interviewer's proficiency or competency in the interviews with the participants in the study (See appendix C pg.134).

Table 5.2 shows the recordings related to the MISC for the interviewer's scores taken from the transcripts of the interviews with each client. These show the specific MI micro-skills identified and are recorded here in Table 5.2 which also shows the number of closed questions which are considered in MI but are not recorded as an MI micro-skill.

Focusing on the talk of the interviewer Table 5.2 shows the number of closed questions (CL) and open questions (O) recorded; the number of affirmations presented to the participants, total number of reflections broken into simple(S) or complex (C) and the number of summaries in both baseline and intervention interviews for each participant.

Table 5.2 MISC Adherence scores from interviews: baseline and intervention for interviewer

MISC	Client one				Client two				Client three			
	Baseline		MI		Baseline		MI		Baseline		MI	
Question	CL	O	CL	O	CL	O	CL	O	CL	O	CL	O
Number	25	28	2	23	33	4	11	18	31	35	6	8
Affirmation			1				2		1		1	
Reflections	S	C	S	C	S	C	S	C	S	C	S	C
Number	19	0	9	30	2	1	12	29	13	0	5	12
Summaries			3				2				2	
Key												
CL	Closed question											
O	Open question											
S	Simple reflection											
C	Complex reflection											

Any coding of utterances that included: advising without permission (ADW); confronting (CO); directing (DI); raising concern without permission (RCW); giving information without permission (GIW) or warning (WA) are considered contrary to MI. Other codes are identified in an expanded explanation of the MISC in appendix C. These codes identify interviewer behaviour that is generally considered either non-adherent to MI or facilitative to MI. A facilitative approach is identified in utterances as: 'with permission' this differentiates between an MI approach and a more directional or confrontational style. Table 5.3 codes the non-MI adherent or facilitative behaviours from the participant interviews.

Non MI adherent behaviours are indicated where advice (AD), giving information (GI), and raising concern 'without permission' are recorded here prefixed with 'W'. These behaviours are facilitative if they are given 'with permission' identified above prefixed with 'P'. The other codes are identified as facilitative and are taken from the MISC Coding list in appendix C (pg.134).

Table 5.3: Recording of non-MI adherent or facilitative behaviour counts

MISC	Client One				Client Two				Client Three			
	Base		MI		Base		MI		Base		MI	
AD	P1	W	P	W	P	W	P	W	P	W	P	W1
CO							1					
DI												
EC			3									
FA							1		1			
FI			1						1		1	
GI	P	W	P1	W	P	W	P	W	P1	W	P	W
RC	P1	W	P	W	P	W	P	W	P2	W1	P	W
RF							2		1			
ST									3			
WA												
P	indicates 'with' permission											
W	indicates 'without' permission											

An example of advising without permission, as in non MI adherent interviews, is identified here from the transcript with client 1 taken from the baseline interviews. The client's response to questions related to his expectations on returning to his former occupation was that he wanted to push himself to get back to his job. The response from the interviewer was recorded as: **"You are setting your expectations too high!"** This response could have been made MI adherent by asking permission first like this: **"I would like to offer you some advice from what I know, would that be alright?"** This clarifies that the response is from the interviewer's knowledge which may or may not be from an expert position, indicating that it is up to the client to act on that advice or not. Provided the client agrees to receive the advice a less directive response identified as 'directing with permission' then would be **"Are you setting your expectations too high?"** This is MI specific as it places the direction on whether the expectation is too high or not back to the client for clarification. A reflective response from the interviewer to the client then allows the client to consider what good things

and what bad things there are about their expectations or perceptions. In MI terms, this is 'building ambivalence' (Miller & Rollnick, 2002).

'Confronting' coded as CO, using the MISC 2.1, is a problem in counselling interviews where the behaviour might appear to be putting the client at risk or is contrary to what would normally be advised for them. In the baseline interview with client two, a confrontational comment was identified. The transcript records a statement from the client as "**It's just not knowing what is going to happen next**". (Sic) The interviewer responds with: "**that doesn't seem so challenging to me**". Confrontation is defined as any resistance displayed by the client to rehabilitation initiatives or recommended behavioural changes that are in turn challenged by the interviewer. An example of a non-confrontational response in this instance would have been: "**what is it that is so challenging to you?**" This allows the client to evaluate their reasoning and consider whether their concern was appropriate or not. It is not that confrontation is not considered in MI, it is how confrontation is handled that differentiates MI from other approaches.

Directing (DI) often occurs where the interviewer gets ahead of their client in the interview or where they presume the client is willing to do things 'as directed'. Although no directing comments were identified in the transcriptions from the participants in this study, an example of directing is given from the trainee's mock interview. This was identified where the trainee interviewer stated: "**keeping your medication regimen as your medical team have indicated is imperative for people like you to ensure you get the best possible results**". Although appearing fairly innocuous, this is a common example of directing in medical and rehabilitation settings where well meaning rehabilitation providers inform the client that they will take a specific medication at a certain dosage at a certain time of day (Arkowitz et al., 2007 p.278).

There are a number of reasons why the client may resist this direction: They do not like the medication side effects; they have been told that it will harm them in other ways; or they may simply want to know why they should take it and what issues they are likely to encounter if

they do not? Instead of directing the client to do this, MI seeks to ensure the client is aware of what the medication is for, the reason why it is taken in a certain way and how the regime may be appropriate for them. MI ensures that the client is able to query the process and understand for themselves; this includes the decision of whether they will take the medication or not (Dart, 2011, pp. 42-43).

Warning (WA) is also not considered to be MI adherent and is marked against the interviewer if recognised in coding using the MISC 2.1. Although, again, no warnings were coded in any of the transcriptions from the participants in this study, an example of a warning is given here from the mock interview with the trainee interviewer. This example followed the conversation related to the medication adherence situation where directing was identified. The trainer was aware that there was a propensity for the trainee to adopt non-MI adherent behaviours when normal rehabilitation interventions were queried. Medication was identified and introduced as part of the client's normal practice for the mock interview. To test the trainee's ability to refrain from non-adherent interventions in the interview, the trainer made a statement: **"I hate my medication; it makes me drowsy and I can't see any point in taking it. No one else I know has to take it"**. The trainee then gave the statistics of negative effect and complications related to stopping medication, quoting similar patients poor prognosis of recovery as a result. The interviewer then went on to say: **"If you don't adhere to taking your medication as we have outlined, you will develop significant problems which will compromise your health"**. Although clearly the intent was for the client's benefit, the result can be taken as a warning and may be received negatively by the client (Dart, 2011, p. 246).

An urge to warn is often presented in MI interviewing; however, the MI adherent approach is to ensure that ambivalence about behaviour such as avoiding medication has been considered from both the positive and negative consequences about the decision to take the medication or not. The client is assisted by the interviewer in understanding the rationale for taking medication and how that might affect them. The more intrinsically motivating the reason for taking the medication is, the more likely the decision will be made to take it. The premise of MI is that not only will the decision be reached by the client themselves, but it is

more likely that they will comply more accurately with any other recommendations made, such as frequency and amount.

Giving information without permission (GIW) is often overlooked in interviews. Where interviewers feel that they have a collaborative relationship with their client or are getting ahead of their client, there is a possibility that the interviewer may attempt to speed up the interview by giving information about what the interviewer feels may be the problem or the appropriate solution. The result of giving information without permission may be that the client tends to offer less to the interviewer; they may feel that they are not being listened to and may become alienated from the interviewer and/or the interview.

In contrast, giving information with permission (GIP) allows the client to feel an integral and equal partner in the interviewing process. An example of giving information with permission is taken from participant one's intervention interview where the interviewer stated: **“Do you mind if I give you some information?”** This was in relation to an explanation on what the various medications the participant was taking were for. All other coding that is noted in appendix C is considered either MI adherent or facilitative which does not identify specific MI micro-skills relevant to MI but may support the MI intervention. Examples of MI adherent coding are given in both baseline and MI interviews recorded as affirmations (AF) in table 5.4. Affirmations are given on recognition of the client's efforts in providing information that may be sensitive or difficult to convey.

The MISC validity test for the findings from the MITI indicated that the MI interviews complied with adherence to MI integrity. Data recorded using the MITI compared the baseline interviews with the intervention of MI and the ratio of Questions to Reflections in each interview as seen in table 5.4

Table 5.4: Ratios of Questions to Reflections: baseline and intervention for interviewer

MITI Recordings			
Ratio of Questions to Reflections comparing Baseline with Interventions			
Client 1 Baseline	2.8 to 1	Client 1 Intervention	1 to 1.56
Client 2 Baseline	12.33 to 1	Client 2 Intervention	1 to 1.41
Client 3 Baseline	5.08 to 1	Client 3 Intervention	1 to 1.2

Table 5.4 identifies the ratio of questions to reflections, comparing the baseline interviews of SBAQ's which were measured against MI in the intervention interviews. Proficiency in MI suggests that the interviewer will follow each open question with at least one reflection, on average, throughout the interview. A rating of 1 question to 2 reflections indicates a level of competency with MI. In the baseline interviews, the interviewer ranged from 2.8 questions to one reflection for client one through to 12.33 questions to one reflection for client two and 5.08 questions to one reflection for client three. In the intervention interviews, the interviewer rated above proficiency for all three interviews with scores of one question to 1.56 reflections for client one; one question to 1.41 reflections for client two; and one question to 1.2 reflections for client three.

For the purpose of defining the MI content in interviews, records were taken including elements of each interview that were MI adherent or not. The recognition of reflections in baseline interviews was included to support the concept that reflective responses may be included in other interviewing styles. Where MI differs is that the direction of conversational flow is determined by these reflections to assist in the clarification of the level of CL expressed in client utterances. The number of questions and the number of reflections were also recorded as indications of the interviewer's overall use of MI in each interview so as to identify the interviewer's level of proficiency or competency. Interview transcriptions were rated by separate coders and scores were finally identified after any uncertainty over inclusion

or exclusion of a recording was discussed. The comparison of those final results using the MITI is shown for each client in table 5.5.

Table 5.5: MITI recordings for MI adherence and numerical record of questions and reflections at baseline and intervention for interviewer

MITI RECORDING	Client	One	Client	Two	Client	Three
	Base	MI	Base	MI	Base	MI
MI Adherent	0	5	0	0	1	3
MI Non-adherent	1	1	0	0	1	0
Questions	53	25	37	29	66	14
Reflections	19	39	3	41	13	17

The format of interview ensured that the SBAQ's used for the baseline interviews were viewed as a comparison of current best practice interviewing questions with the intervention. SBAQ's allowed for simple or expanded responses based on the participant's willingness to do so. However, although it was expected that the interviews would primarily consist of brief responses, this did not take into account the personality differences between the three participants. This was evidenced in their willingness to talk to the interviewer without prompting. The provision of unsolicited information was unexpected.

Although the MISC version 2.1 no longer identifies with the measurement of talk time, it was included in the MISC version 2 and measured proficiency and competency in global MI rating. Proficiency at a ratio of 50% interviewee talk time to 50% interviewer talk time and competency at a ratio of 40% interviewer talk time to 60% talk time for the interviewee were considered adherent to MI integrity (Moyers et al., 2005; Moyers et al., 2008). It was felt that this measure would assist with the identification of proficiency or competency in the training of the original trainee interviewers, and so it was decided to keep talk time as an indicator of interviewer proficiency specific to this study throughout. This was one criterion that the trainees did not reach a competency level on under the MISC.2. Talk time was, therefore, measured from the interviews with the participants and included as a measurement of

interviewer proficiency in this study. It was also expected that the percentages of talk time for the client would be increased by the intervention of MI; however, this was clearly not the case with two of the three participants actually decreasing their percentage of talk time in the MI interviews. This may be particular to this study, and the number of participants may not reflect the expectations across a wider population. The percentages of talk time for each participant across baseline and MI intervention interviews are recorded in table 5.6.

Table 5.6: Percentage of talk time MISC: client ratio to interviewer for baseline and intervention.

	Client 1	Interviewer	Client 2	Interviewer	Client 3	Interviewer
Baseline	69.9%	30.1%	55.79%	44.21%	81.91%	18.09%
MI Intervention	56.1%	43.9%	58.8%	41.2%	79.77%	20.23%

The reduction in talk time recorded for the participants in the MI interventions was not anticipated; however, the increased ratio of participant talk time in the baseline interviews may be attributed to several possible reasons not subject to investigation in this study, such as a second interview effect in which the client may assume that the interviewer is familiar with their situation and assumes that further explanation is not required as there is a perception from the client that the interviewer already has the information. Although it may be reasonable to consider there may have been a general willingness by participants to talk in the baseline interview, an early establishment of a collaborative rapport with the interviewer or the interviewer's unwillingness or inability to control the information flow could also contribute to differences in talk time recorded. The relevance of the difference may indicate that the process of MI, particularly through the careful presentation of reflections by the interviewer, does more than establish and identify CL but may also control the flow and duration of response from the client meaning that side-tracking is avoided and more focused talk around rehabilitation produced.

This chapter outlined the fundamental differences between SBAQ's and MI showing the relevance of tools like the MITI and the MISC in establishing the key components that identify

MI. While talk time is not incorporated in newer versions of the MISC its relevance to this study was considered important in the justification of interviewer selection and assisted to rationalise the decision not to use trainee interviewers for the study. Also identified is the relevance of reflections in minimising the repetition of information and as a means to identify meaning and intent in client utterances.

The following chapter reports the results, recognises the efficacy of MI in increasing CL and discusses the important part Conversational Analysis made to give clarity to the process by which MI identifies client commitment and how reflections are used as fundamental tool that differentiates MI from SBAQ's.

Chapter 6.0 Results

The results depict the differences in the levels of expressions of CL identified in clients' utterances between the baseline interviews and the intervention of MI. Results also indicate the metacognitive strategies that are employed in the MI techniques of OARS. These techniques specifically investigate domains within client utterances that identify areas of motivation, and their intrinsic value related to the client's DARN- CATS. The motivation within client utterances may indicate the client's willingness to engage in behaviour change. The CL expressed in utterances may be increased by MI (Amrhein et al., 2004).

6.1 Utterances and recognition of (CL)

The transcriptions were reviewed for the use of CL expression identified by the following classifications: numerically; utterances; expressions of CL coded high, medium or low and finally frequency.

- 1) Numerically: This was simply a count recorded across the total number of utterances of CL as defined by each rater from transcripts of the client's responses in their interviews from baseline and then the intervention for each participant. Discussions about what should be counted were undertaken after the transcriptions were completed and were identified from the complete list shown in Appendix F.
- 2) Utterances: Utterances were defined as the whole sentence that contained the expressions of commitment. The sentence structure, as a complete utterance, then helped to define and clarify the level of commitment which was divided into expressions of high (H), medium (M) or low (L) commitment. Again, the identification was made from the transcriptions. A mean score was taken from the observations of two separate raters and the results are shown in table 6.1. An example of each level of commitment is as follows: "I have no choice" HIGH (H). "It might be the right thing

to do” MEDIUM (M). “Why would I bother?” LOW (L). High can basically be defined as a definitive statement “I have no choice” indicating that all there is to consider has been considered, with the word no giving the indication that the utterance is rated high, therefore assisting in designating its commitment code. “It might be the right thing” is medium commitment where the client is not sure; they could consider this further and may change the commitment level depending on how intrinsically motivating the information they receive is. “Why would I bother?” is low commitment with the word why suggesting there may be no interest and action is not deemed necessary; the utterance is identified as low commitment by the word bother which confirms the coding rating as it is clear that there is no interest at all for consideration.

- 3) Frequency: Trend and overlap were recorded by the number of utterances recorded at 15 minute intervals comparing baseline interviews with MI interviews. Figures 6.1 to 6.9 show the frequency trend and level of utterances for each participant from baseline to intervention by timed intervals. (Miller et al., 2008).
- 4) The CL expressions were further divided as representative of either negative or positive expression and are included in figure 6.1 to 6.9. This recorded whether the participant was expressing commitment either for or against a particular aspect of discussion. As an example, “I want to do that” was recorded as (H) positive expression whereas, “I don’t want to do that” was recorded as (H) negative expression.

In MI, although positive high expression of CL may indicate interest in the topic of the conversation and that may be a predictor of positive behaviour change, it is not guaranteed. The recognition of high negative expression of CL, conversely, does not necessarily indicate that the topic of conversation is not interesting to the client nor is it a predictor of a refusal to consider a behaviour change. Both positive and negative expressions of CL indicate a level of motivation. Once the level of motivation is established, the interviewer can then focus on the motivational source as either intrinsic, extrinsic or amotivating. MI explores the client’s

reasons for it and to what extent it either supports the status quo identified in MI as sustain talk (ST) or assists in identifying ambivalence and possible behavioural change recognised as change talk (CT).

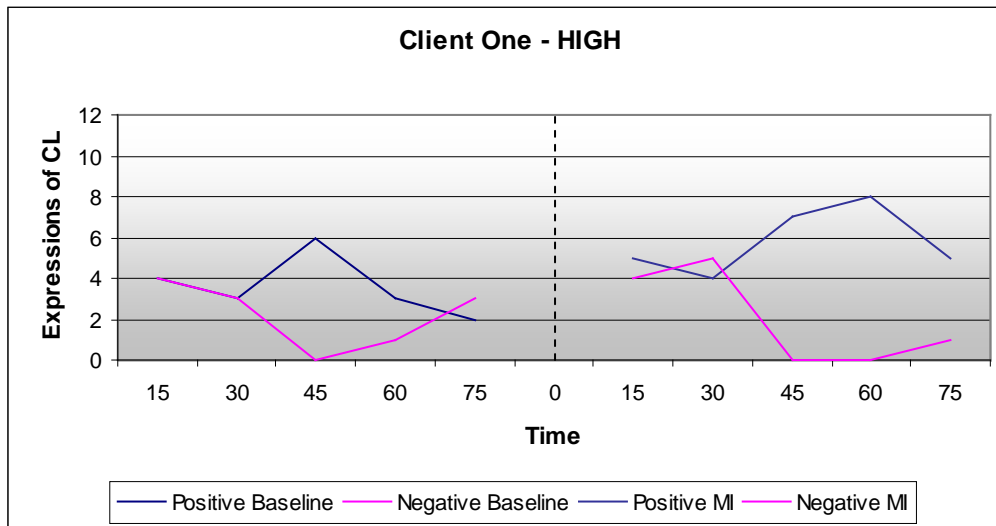


Figure 6.1 CL: Positive and Negative; HIGH: baseline and intervention Client 1

Client one's numerical recording of expression of high positive CL showed that frequency was greater in MI compared to baseline interviews. Overlap of frequency in expressions of high positive CL between baseline and MI was recorded in 3 out of 5 (60%) of the plotted points on the timeline suggesting that MI produced a greater number of positive comments in 40% of the interview. The trend showed the highest frequency for both MI and baseline high positive CL at 45-60 minutes. High negative CL was similar in frequency and trend between both baseline and MI. The trend for high negative expression of CL, decreased at around midpoint of 45 minutes in both baseline and MI interviews. The trend increased from that point to the end of the interview in baseline and MI although insignificantly. There was consistent 80% overlap over time between MI and baseline for the frequency of expressions of high negative CL suggesting differences between the two interviews were negligible.

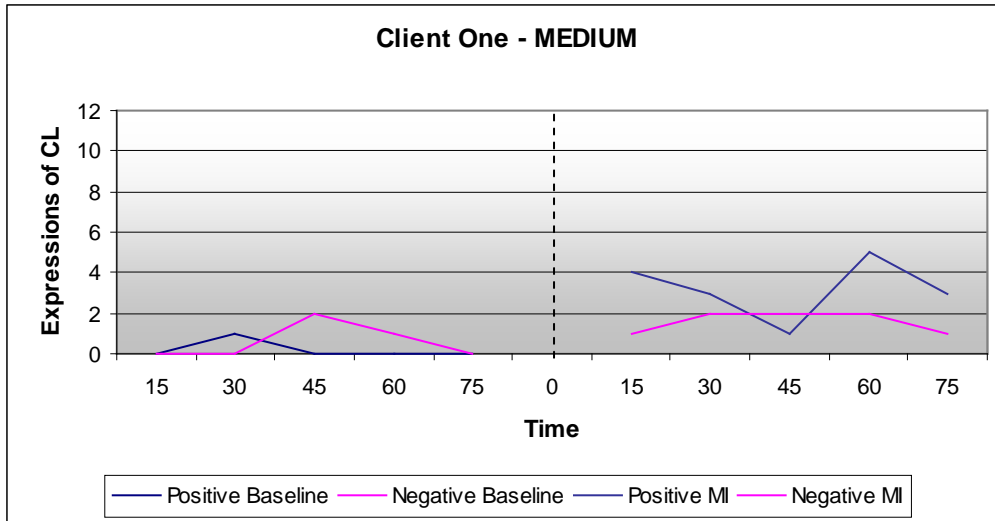


Figure 6.2 CL: Positive and Negative; MEDIUM: baseline and intervention Client 1

The frequency of medium expression of positive CL was negligible in the baseline interviews, however frequency in MI of positive expression was significantly greater than baseline with minimal overlap of 1 in 5 (20%) in expressions recorded mid-point at 45 minutes. Medium negative expression in MI and baseline were minimal and insignificant with a 100% overlap of negative CL between baseline and MI recorded. Trend showed an insignificant rise in both baseline and MI interviews at 45 minutes for medium negative CL and 60 minutes for medium positive CL respectively. Frequency of positive medium CL decreased midway for both interviews however, the trend as in figure 6.1 for high CL increased from this point in medium positive expression.

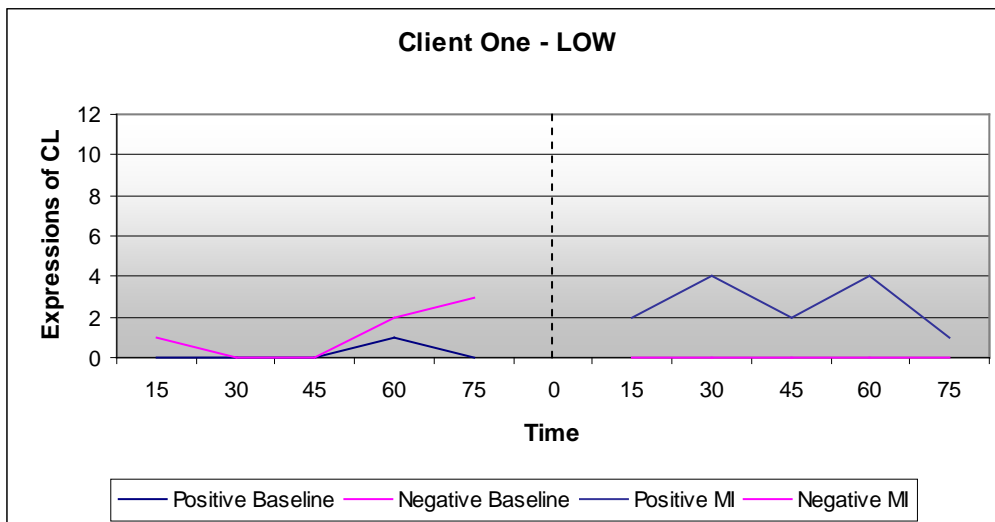


Figure 6.3 CL: Positive and Negative; LOW: baseline and intervention Client 1

Expressions of negative low CL were generally insignificant. The trend for negative expression of low CL increased throughout the baseline interview compared with nil expressions of negative low CL in MI. The frequency of positive low expression was greater in MI than baseline with a minimal overlap of 20% recorded. Overall the trend of expression of positive CL was greater in MI than negative CL when all three domains of high, medium and low were combined and higher levels of CL were identified in MI than in baseline for client 1.

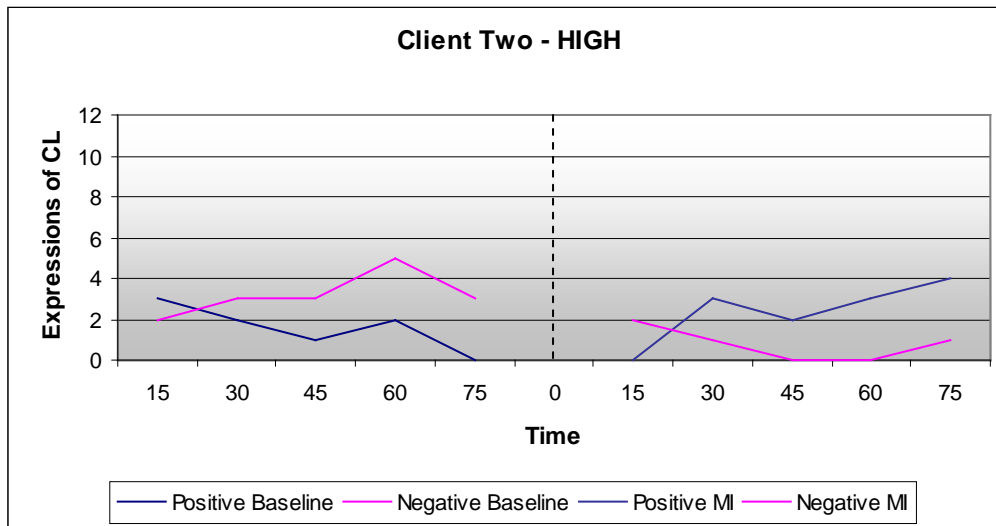


Figure 6.4 CL: Positive and Negative; HIGH: baseline and intervention Client 2

Client two's frequency of expression of high positive CL was significantly greater in MI than in baseline interviews, while the frequency of high negative recording of CL were considerably higher in baseline interviews. There was an overlap of 60% between high positive CL and 100% for high negative CL in the MI interview compared to baseline, with convergence in expressions of high negative CL in baseline and MI between 45 and 60 minutes with the trend for negative CL then increasing sharply in the baseline interview. Negative CL in MI overlapped with baseline from the start of interviews to 45 minutes, however, unlike client one, client two's negative trend increased significantly from midpoint in the baseline while negative high CL in MI was negligible throughout. As in client one's interviews, the frequency of high positive CL peaked at the midpoint in MI and decreased towards the end. The trend of expressions of CL indicated an increase in high negative CL in baseline and a decrease in high positive CL from midpoint in MI.

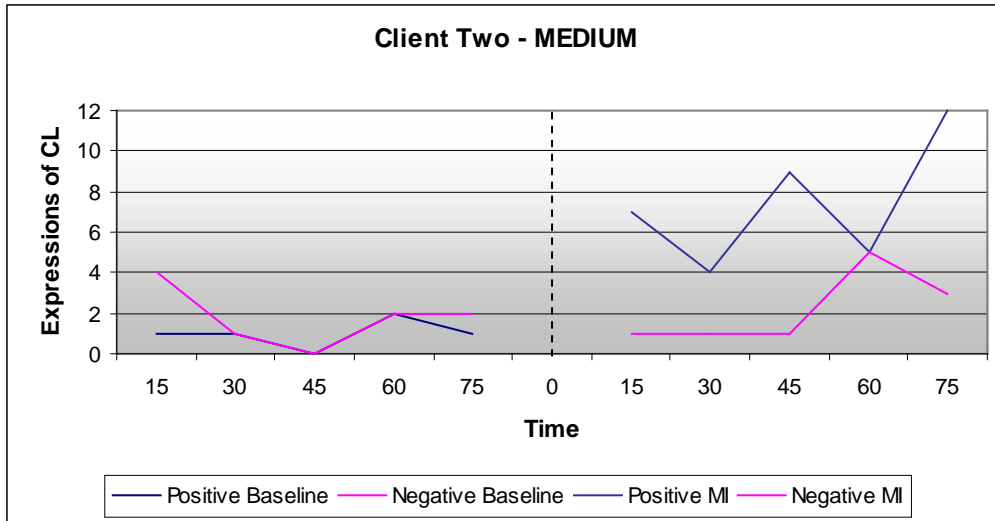


Figure 6.5 CL: Positive and Negative; MEDIUM: baseline and intervention Client 2

Significant differences in frequency were noted between baseline and MI in medium expressions of positive CL. In this graph, the trend of positive expression decreased towards the midpoint of both baseline and MI interviews, but unlike client one, expressions increased from the 45 minute mark to the 60 minute mark before slightly decreasing until the 75th minute at the end of the interviews although there was no overlap noted. The frequency of negative medium expressions was negligible and insignificant across both baseline and MI with a 100% overlap recorded.

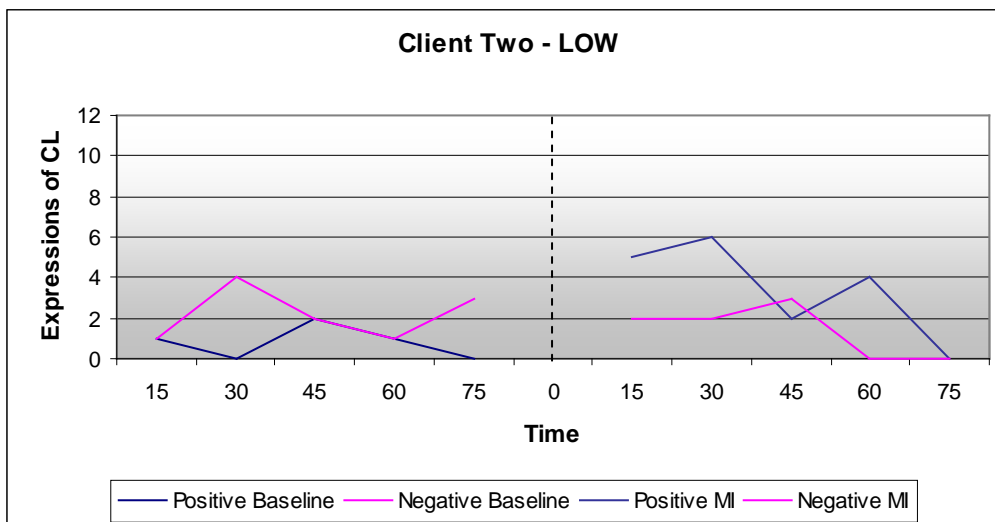


Figure 6.6 CL: Positive and Negative; LOW: baseline and intervention Client 2

This graph shows negligible frequency of negative low expression of CL at baseline with an increase in frequency of negative low expression from the midpoint in MI. The increase in negative low expression in MI is compared with a decrease in positive low expression from the midpoint in the baseline interview. The trend shows overall, positive low expressions were greater in MI compared with baseline, while overall negative low expression was greater in baseline than MI. Overlap was recorded between both medium positive (at 100%) and negative CL (at 80%) throughout the interview.

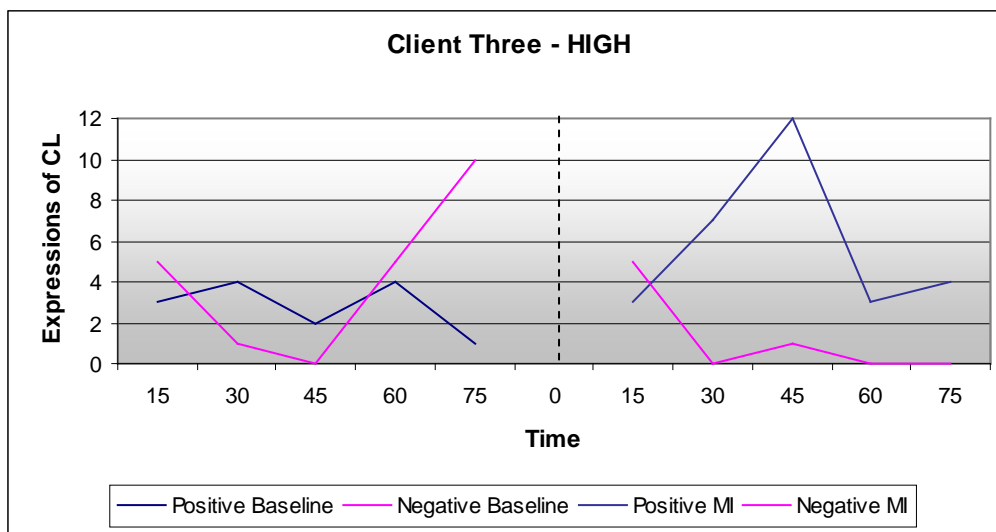


Figure 6.7 CL: Positive and Negative; HIGH: baseline and intervention Client 3

The frequency of positive high CL remained static across baseline with a slight decrease in trend towards the end of the interview, while in MI, frequency of positive high CL increased significantly towards the midpoint and then dropped back to the similar frequency as the beginning of the MI interview. A 60% overlap between positive high CL was recorded with convergence occurring at the beginning of each interview at 15 minutes and again at 60 minutes with the trend in positive high CL increasing in MI and decreasing in baseline at completion at 75 minutes. Positive high CL overlapped with negative high CL in baseline interviews between 45 and 60 minutes. Frequency of negative high CL recorded strongly in the opening 15 minutes of both interviews, with a 100% overlap noted. Negative high CL in interviews decreased from the beginning until mid-point then remained negligible for most of the MI interview. In comparison, the frequency of negative high expressions of CL increased sharply from midpoint with a significant upward trend at completion of the baseline interview.

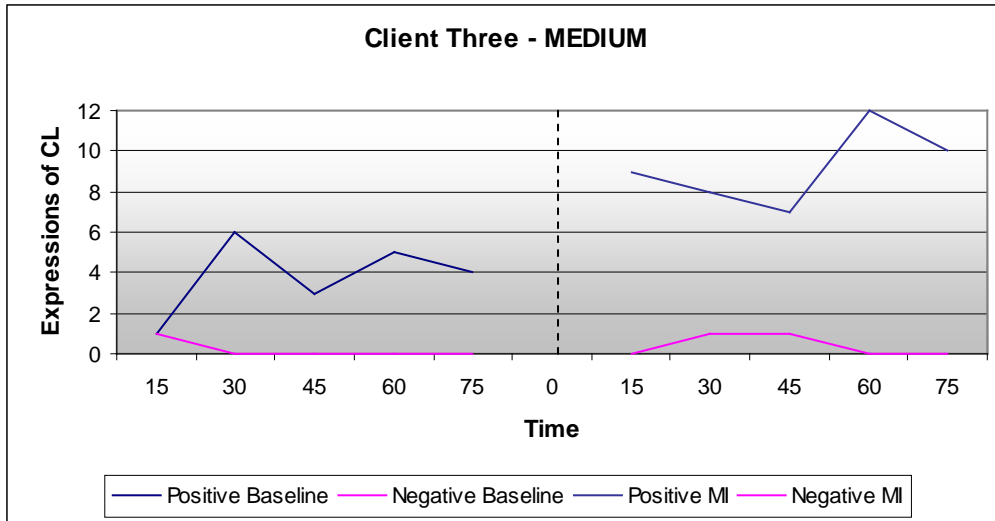


Figure 6.8 CL: Positive and Negative; MEDIUM: baseline and intervention Client 3

The frequency of negative medium expressions of CL for client three were negligible in both the baseline and MI interviews with 100% overlap recorded. Frequency of positive medium CL expressions were significantly greater than baseline in the MI interview with a significant trend upwards between 45 and 60 minutes for MI. Baseline showed an upward trend between 15 and 30 minutes and remained reasonably stable for the remainder of the baseline. There were no overlaps of expressions between baseline and MI.

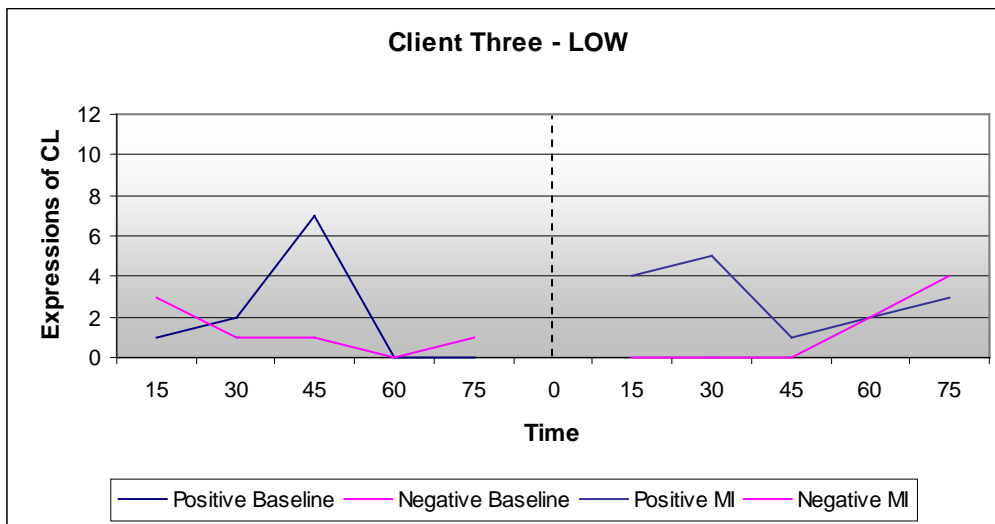


Figure 6.9 CL: Positive and Negative; LOW: baseline and intervention Client 3

The frequency of negative low expression remained negligible across the baseline interview with an 80% overlap noted; however, it significantly increased from the midpoint in MI

interview. Positive low expressions increased significantly at midpoint in baseline, and then decreased to nil. Conversely, at the comparable point in MI, positive low expressions significantly reduced before trending upwards over the final part of the interview. A 100% overlap of expressions of positive low CL was noted between MI and baseline with an insignificant trend of increased frequency at the end of the MI interview.

When frequencies were compared at 15 minute intervals, an interesting trend in the intervention (MI) interviews was identified. In all three participants, MI interviews indicated the greatest levels of low CL were recorded at 30 minutes, the greatest levels of high CL at 45 minutes, and the greatest level of medium CL was identified at 60 minutes. As this indicated the greatest level of CL expression was at 45 minutes with the level decreasing thereafter, this may indicate there is an optimal duration for a MI interview. The same analysis of the baseline interviews did not identify any similar trends across the three participants in their expressions across intervals.

6.2 Explanation regarding the interpretation of positive and negative CL

This section provides an explanation of how positive and negative CL was identified in the interviews and categorised as low, medium or high. Situational examples of high positive and high negative commitment language taken from the actual interviews are provided by way of illustration. Total expressions of commitment language for high medium and low across the three cases are presented and the need for CA as a supplementary form of analysis introduced.

From a negative commitment perspective, the participant may not have been willing to do something; they may have had an unpleasant experience in the past or felt uncomfortable in a situation. In this case, the participant may be giving indicators to the interviewer of areas that they may not want the interviewer to reflect on due to the sensitive nature or they may be uncertain about the relationship with the interviewer and they are not yet that comfortable with

them. Recognising how comfortable a client is with the interviewer should not be overlooked if a collaborative environment is to be established. Clients may feel a need to justify or reinforce their comments if they feel the interviewer may be judgmental. In the interview with participant one who received their SCI in a motorcycle road crash, the interviewer asked if the client would still consider riding a motorcycle if he was able, and the participant replied: “> **YES I WOULD**< (1.2) at least I’m thinking positively”. The participant response was very quick; perhaps, sensing the interviewer may be judging their desire to reengage with an activity that caused the injury. There was a significant pause of 1.2 seconds and then an explanation that indicated riding a motorcycle was not necessarily important but that indicated to the interviewer that they were willing to try was important. The arrow pointing down indicates a fall in intonational shift, perhaps indicating submissiveness in the response. They may believe that they already have sufficient information and education about something (riding motorcycles) and they feel discussion about it is irrelevant or not applicable to them. From positive commitment expression, it is also likely that the participant may be willing to discuss and elaborate as the topic is motivating to them and has some elements that they are eager to engage the interviewer in. If the interviewer senses motorcycle riding is intrinsically motivating to the client/participant, they may elaborate on this lead to encourage a more comfortable relationship within the interview.

The positive response could also be a deliberate diversion onto a topic that the participant will freely engage in; however, their prime motive may be to avoid the interviewer getting too close to something they are not willing to discuss. As an example, participant two was asked when they intended to promote their physiotherapy treatment - an intervention they had been avoiding. The response was: “I’m not::: **physically able-**, they said at **lea:::st 12 months so (.) >I’ll look at it after 12 months<**”. The reinforcement of the first part of the utterance is a warning sign to the interviewer that, from their perspective, they are not physically able. This is recorded as high negative language or ST. A brief pause is noted where the participant constructs further response that gives justification for not considering physiotherapy at this time. They (medical staff) said 12 months and it is not 12 months yet; the client is willing to take the advice from the medical staff literally, at least, when it is motivating to do so as in

support of avoidance. A positive recording may indicate that the participant was willing to do something new, had a pleasant experience in the past (with physiotherapy) or felt comfortable in a similar situation. Whether positive or negative, the language expressed in the interviews showed each individual participant's commitment within an utterance. How the participant structured their response and produced the utterance with the words chosen gave the interviewer an indication of how strong that commitment was.

Although frequency and separation into either positive or negative expression proved easy to recognise from the transcriptions, it was considered that this separation may be confusing leaving an impression that negative CL may be of lesser value than recordings of positive CL. This is not so; in fact, both positive and negative expressions of CL are useful in MI as high negative and high positive CL indicates a preferred path of action by the client. The recognition and separation of positive and negative expressions into high, medium or low did little to show any real significance of the intervention of MI to increase CL although overall expressions across the three measurements did indicate the intervention of MI showed a greater number of expressions than the baseline.

The intent of this study was to evaluate whether MI increased CL. Separating commitment expression as either negative or positive does not suggest that a positive recording would be of greater value than a negative recording in interpreting a participant's overall level of CL. In terms of value, therefore, positive or negative expressions remain equal and have been aggregated in the presentation of results for high medium and low CL and are shown in table 6.1.

Table 6.1 Expressions of Commitment Language at Baseline and MI for each client

Client	One	Two	Three
Baseline	24	23	33
MI Intervention	71	75	47

As CL is identified by expression and this study questioned whether MI increased CL, it is important to record CL expressions from both baseline and intervention.

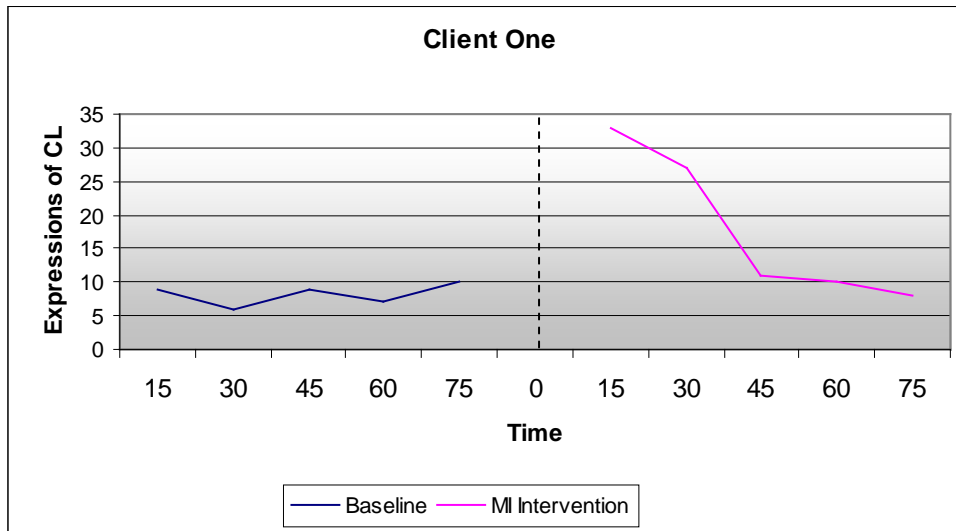


Figure 6.10 Total number of expressions of CL: High, Medium and Low. Client 1

The frequency of expressions of CL is significantly higher between 15 and 30 minute intervals of the MI than the baseline for client 1. The total number of expressions is also significantly higher; however, the trend of expressions at the completion for the interviews converges between 45 and 75 minutes with an overlap of 60% recorded between baseline and intervention. These figures suggest that in comparison to baseline MI produced an overall increase in CL in 40% of the interview.

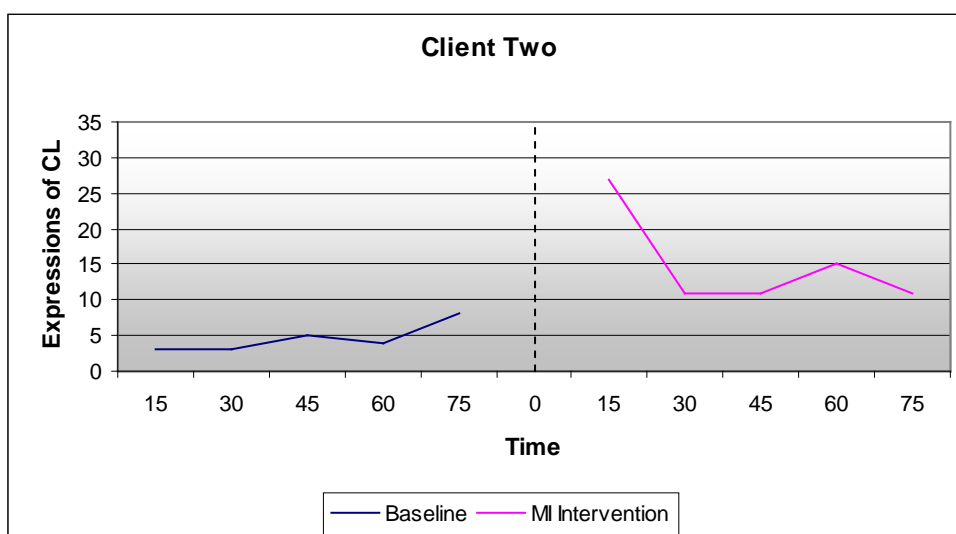


Figure 6.11 Total number of expressions of CL: High, Medium and Low. Client 2

As with client one, the frequency of expressions of CL in MI are significantly higher at the beginning of the interview than the beginning of the baseline interview and are significantly higher overall. Again, the trend and expressions of CL are similar at the completion of each interview, although no overlap of results recorded.

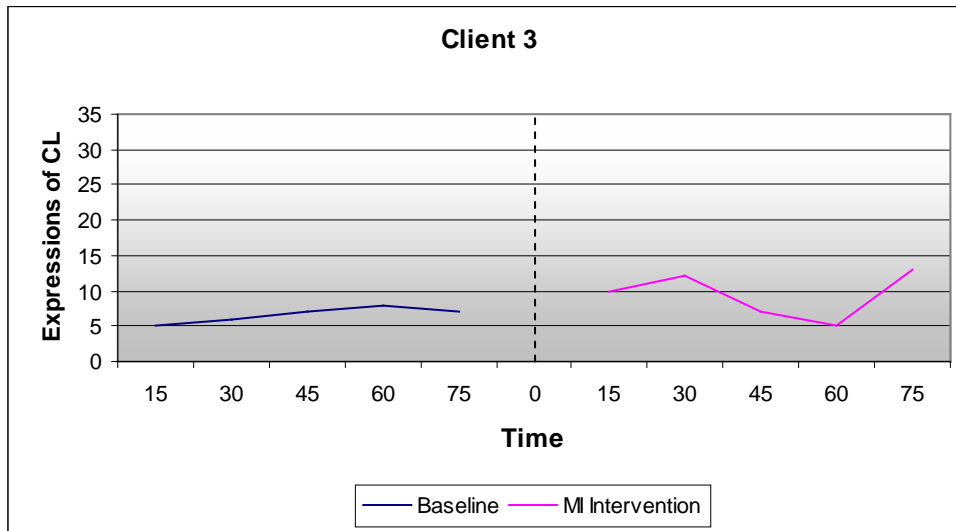


Figure 6.12 Total number of expressions of CL: High, Medium and Low. Client 3

Significantly lower overall expressions of commitment language were recorded for client 3 compared to the other two interviews however the trend towards higher expressions of CL in the MI interviews is still present. The frequency of expressions of CL in MI was higher at completion of the MI interview compared to baseline with an overlap of 60% in the frequency of expression of CL recorded for client 3.

It was considered that analysis of the frequency trend and overlap of CL the participants were expressing was not accurately captured by analysing the transcripts of the interviews alone. In particular, confusion remained about the relevance of positive or negative expression identified from transcriptions. As the global rating for interviewer proficiency or competency relied on audio recordings to examine the interviewer's approach to the interviews from a holistic or gestalt perspective, it was considered that this approach should also be adopted for further analysis of the participant interviews.

To strengthen the reliability of the measurement and to further identify the levels and frequency of CL, it was considered that a gestalt analysis of the audio recordings of the interviews may assist in further defining the levels of CL expression in each utterance. Of particular interest was the relevance of including CA notations on the transcripts to test the accuracy of positive or negative utterances that were initially coded initially from the un-notated transcriptions using standard MI criteria.

6.3 Conversational Analysis

CL identified in the transcripts was then analysed again from the audio recordings of the utterances. Conversational analysis (CA) was applied to the transcripts of the interviews and was selected on its suitability after researching studies involving CA and noting the simplicity of coding equipment required (Sacks et al., 1974; Allen & Guy, 1974; Gale, 1991; Sacks, 1992; Schegloff et al., 2002; Wooffitt, 2005; Richards, & Seedhouse, 2005; ten Have, 2008). The process involved the raters listening to the audio recordings and coding the utterances onto the transcriptions using basic symbols on a computer keyboard. CA was considered as a suitable measure for this purpose after review of other analysis methods. Methods researched to provide measurement for this study included the MI-SCOPE; Content Analysis, Sequence Analysis, Discourse Analysis and Components Analysis (Abbott, 1995; Wooffitt, 2005; Martin et al., 2009).

The audio recordings improved the levels of accuracy and inter-rater reliability. CA allowed for closer observation of CL and the context in which it was used. Utterances were coded according to: hesitancy, lengthening of word utterance, falls in tone, rise or fall in intonational shift, increase or decrease in volume, and other elements of prosody. A limited range of relevant CA symbols were identified and added to the written transcripts as identified in Appendix D (Sacks et al., 1974).

6.4 CA application to audio recordings of interviews

This section provides an overview of how CA was applied to client audio recordings and subsequently transferred to the written transcriptions. Explanation of how CA identified each individual client's word choice and expression is offered. CA assisted in giving subjective meaning to word choice allowing greater recognition of emphasis and intent not possible by transcriptions alone.

In each recording, CA analysis was used to identify the participant's word choice within a purposeful selection of their responses. Participant one used quite distinct expressions of CL which were often repeated throughout the transcript. Many of the expressions were looking back to his pre-injury condition. An example taken from participant one's transcript shows how CA analysis from the audio recordings and coded onto the transcripts identified the emphasis within an utterance from a passage of text where CL had been recorded.

The utterance was "I had a lot of problems." The words that identify this as CL from the transcript were this self reference by the participant expressed as 'I' and the word 'had'. CA analysis breaks this passage down to: "I (.) had a ↑ lot:::: of problems." A pause after "I" of less than 2/10ths of a second is indicated by a period between the brackets. The ↑ shows a marked rise in intonation in the following utterance or word, the underlining indicates the speaker has emphasised this word or words, and the number of colons after the word indicates the client stretched the preceding sound or word. The use of the word 'had' is an indicator of CL; it refers directly to the speaker and indicates a loss or change. It is not necessarily high, medium or low unless examined in context with the sentence structure within the utterance in which it was identified. In this instance, the level of CL expressed was defined from the written transcript as medium; there was not enough information identified from the written form of the utterance of the value of 'had'. The indicators were that whether positive or negative expression was intended with the use of the word 'had', it did not necessarily express the presence of any form of motivation. If motivation was identified, it may have raised the CL to high or, alternatively, if more information related to 'had' was

available that indicated it referred to a negative perspective, it may have identified the CL as low.

Within the transcription of the complete utterance, it was then understood that the participant was referring to 'problems' he 'had'; there is no way of knowing what the problems were, whether the problems simply went away or whether he had made some conscious effort to ensure they did. Therefore, it was considered important to be coded, but in the transcript format, it was deemed to be taken to mean 'now resolved'. To clarify further possible meaning and intent, it was necessary to review the previous and post utterance to ensure we had not merely focussed on a part of an incomplete utterance.

Passage of turn by turn recording of transcript from baseline interview utterance/s:

Interviewer: "Do you have any issues now?"

Participant response: "I had a lot of problems, "Where I started a job and they would expect too much of me, (1.0) and I was going BACKWARDS instead of forwards and I just felt like (1.3) they wasn't giving me the proper chance to prove myself" (sic).

Pre-utterance observation indicated the response was an 'in turn' sequence of conversation which indicated that the pre-utterance was a question posed by the interviewer; therefore, the utterance recorded was the beginning of a new utterance. Post utterance review indicated that coders had, in fact, identified an incomplete utterance from the transcription. Following 'problems', there was a pause indicated by (2.5) showing a long pause of 2.5 seconds before adding to the utterance the following: "Where I started a job, they would expect too much of me". After CA analysis, the emphasis within the sentence was still clearly on the word 'lot'; however, CL was now deemed to be high negative as it appeared that the participant wanted to express that they had a significant number of problems to the interviewer.

These problems were the participant's perception of what rehabilitation providers expected of him. The participant had identified "starting a job" as the physical exercises set out for him by

the physiotherapists and occupational therapists assigned to him in the Spinal Unit. The emphasis on the word 'lot' adds intent to the previous words, indicating that while the participant 'had' something (problems), he may or may not have them now, and there was no indication if they had been successfully resolved. It also added to the following word 'problem' indicating an issue or issues that may be of concern for him and which he may be willing to discuss.

The reference to expecting "too much of me" gave clarity to the 'problem' and the interviewer was able to focus on the participant's perception of his rehabilitation team's expectations to identify whether his 'problems' had been resolved or required further assistance. The course of interviewer reflections then focused on these concerns until the participant was comfortable with their understanding. By amplifying the response via complex reflection, the interviewer was establishing whether the participant believed that the expectations were too high or the rehabilitation team was knowledgeable in his ability and were encouraging him within his means. The following reflection by the interviewer: "Their expectations were **too high**, and you felt like you **had to** do the work" links the reflection to the utterance by referencing, in the reflection, the word 'had'. Here, the interviewer emphasised '**HAD**' encouraging the participant to clarify his intended meaning of the word in relation to where his problems were now. 'Had' provided a reference that the interviewer used to allow the participant to elaborate on and explain, agree with or modify. In essence, this allowed the participant to present his meaning with clearer intent. The interviewer was merely establishing the participant's feelings not his own.

Participant two was not as forthcoming and expressive as client one. This was identified in the MISC where there were 5 expressions of emphasising control by the interviewer. An example of emphasising control in the recording of this interview was where the participant stated: "**I managed 20 minutes in the gym yesterday**". The interviewer responded: "**and you made that choice to get that done**". Emphasising control comments enables the interviewer to reinforce a course of action and to indicate approval that the participant in this situation was able to recognise what was appropriate for him or not. Five reflections of support for the

participant and seven explanations of structure related to the intervention of MI were also recorded in the interviews. An example of support for the client taken from participant one is given here where he stated: ‘...it’s not good for my mind’. The interviewer responded: “**I can see why you feel that way**”. Importantly, the interviewer was not necessarily agreeing with them that ‘it is not good for their mind’, but they were supporting the process by which the participant had come to that conclusion.

Providing information about the structure of the interview is often used where the client may be unsure of the reason for an interview or what the interviewer intends to do with the information. In the interview with participant one, an example of structure is given here where the interviewer stated: “**In this interview, I will record the conversation we have onto this tape and then analyse what we have said and the words we have chosen in either asking questions or in the answers given, is that OK?**” At this point, the participant may feel comfortable with that explanation and not attempt to respond in a way they feel will embellish or minimise their condition.

MI uses these skills in addition to the micro skills of OARS to ensure the participant understands their control of the interview and any subsequent interventions or decisions that may arise from it. In the MI interview with participant two, there was an expression of CL within the utterance that stated: “I would like to get back to work”. This was coded as medium CL. The CL was recognised as ‘like to’. If the expression were, for example, “I need to” this would be coded as high CL. When CA looked at the complete utterance, the sentence read “: **I (.5) > WOULD↑ like to get back to work. = at some:::: stage” <. When looked at in this context, the CL is reduced to low. There is hesitancy about returning to work identified by emphasis of ‘would’ after a pause between ‘I’ of .5 of second; this delay indicated the participant may be considering if they actually would like to return to work or not while they are responding to the interviewer. The rise in intonation may be indicating to the interviewer that there is something about working that they are motivated by; however, while this does clarify the CL as medium, it is reduced by the completion of the utterance which lowers the motivation by declaring an unspecific time frame to get back to work. This was identified by**

the fall in tone indicated by the 'period' after 'work', and the following but continuous utterance of 'some stage' which is indicated as continuous by the = sign. The stretching of the previous word 'some' was possibly intended as a warning to the interviewer that they were not prepared to discuss the aspects of a return to work right now.

Where CA adds a dimension to the analysis of this utterance from that possible by either content analysis or the MI-Scope is evident when each style is compared. Using the MI-Scope or Content Analysis the utterance would be considered on its own as ST which the antithesis of CT. Using CA is this particular passage is analysed as only a part of a complete utterance and provides a condition rather than a finite statement.

To explain: “: I (.5) > **WOULD↑ like to get back to work.** identified the participant expressed desire to get back to work from this utterance as medium high CL; medium was recorded as there was some hesitation (.5) and 'would' was exaggerated giving an indication that there may be something preventing this change from being undertaken immediately. Following this, the conversation rolled into one complete utterance to include “= **at some::: stage”** which was identified after the audio recording was analysed and compared with the transcription of the passage. The initial transcript version identified this as two separate utterances. With the addition of: “= **at some::: stage”** and the application of CA, 'at some stage' was identified as: “ I would like to get back to work 'BUT'; this now identified a condition to going to work and a lack of intention to do so immediately. Hence context changed the meaning to indicate high negative CL. It is the purpose of MI to investigate what that condition is and resolve ambivalence about it.

CA analysis of participant two, throughout the interviews, indicated that the utterances that contained CL were spoken noticeably faster than general conversation. The coding for increased speed of speech delivery was indicated by >< signs, indicating where the utterance sped up and where it reverted to normal. The recording of the speed with which utterances are delivered has two possible connotations. One suggests that the participant is excited about the topic of conversation, has information to share, feels confident in talking about the

subject and can identify with the flow of the conversation in a positive sense. The other possibility is that the participant wants to speed over their response in order to satisfy the question in the hope that the topic and the course of conversation will move on. In each possible case scenario, CA can add another dimension to clarify which of these responses the interviewer is witnessing. In a positive response, additional aspects associated with speed of delivery are recognisable such as increased volume, over explanation of the response, and emphasis on particular word choice.

Although not incorporated in this study, visual cues such as animated actions to add clarity and meaning are also helpful in identifying positive or negative response. In a negative response, volume is generally decreased, words may be mumbled, overall response is subdued, and there are often noticeable breathing changes such as sighing and exhalation. Physical expressions are negligible but include protective mechanisms such as crossing legs and folding arms. Supporting identification of positive or negative CL expression is available from video recording combined with audio recording. The Visual Assessment of Simulated Encounters, Revised (VASE-R) is a tool to assist in coding physical cues; however, video recording was not considered for this study but is suggested for further research (Rosengren, Hartzler, Baer, Wells, & Dunn, 2008).

Participant three was very expressive and willing to talk and provided volumes of unrelated information. This participant often required explanation or further information about what the interviewer wanted in the response when asked an open question. An example from the intervention transcripts from participant three is given here where the initial coding for the utterance from the transcripts was high. The participant had stated: "I know I want to work". This indicates quite forcefully that the participant wanted to work even if it was only she who knew it; this was confirmed by the word 'want'. When CA was applied to the utterance, it was confirmed as high. The CA transcript from the audio recording looked like this. "**I KNOW I WANT TO WORK** – (1.2) I just hh feel this **strong**:::: desire". It is important to note here that the client's expression of desire in this utterance clearly defined level of commitment further and was a direct reference to DARN. If desire has been established as a strong

motivator, the interviewer can identify the area of possible weakness that prevents the behaviour from beginning. It is possible that although the desire is strong as indicated, the ability may be weak (Amrhein et al., 2004; Arkowitz, & Westra, 2004).

The confirmation of this expression as high was identified through CA by the strong emphasis on 'know' and 'want' where elevated emphasis and volume with a sharp cut off after 'work' indicated by the dash precedes a long pause of 1.2 seconds. In this pause, the participant was, perhaps, attempting to formalise further emphasis to the interviewer of her intention to 'work'. To do this, she further enhanced her response by the out-breath addition (as indicated by 'hh') of the word 'strong' which added emphasis (indicated by underlining) and the stretching of the word (indicated by the number of colons) to the interviewer of her intent.

Where simple word count between the two interview styles showed a significant difference in the number of CL expressions in utterances between baseline and intervention as seen in table 6.1, it did not identify the levels of commitment. Recording the levels directly from the transcripts was regarded as too subjective to the rater, and there was some disparity between recordings which was addressed by adopting a mean. The application of CA, however, allowed for a clearer identification of the level of CL expressed.

When CA was applied to the audio recordings of the interviews, the strength of CL was seen to be significantly different in MI interviews compared to baseline interviews. However, as the audio recordings also indicated the speed and accuracy of how the utterances were spoken, this altered the number of CL expressions recorded. Several CL expressions recorded from the transcripts were within the same complete utterance; therefore, where two or more CL expressions were identified in the same utterance, they were coded as one CL after CA was applied. An example taken from participant three's transcript notes identifying CL was recorded and coded as two separate expressions of CL. The response was: "**I like to go and travel, I want to see the Aurora Borealis**". "I like" and "I want" were considered separately as high CL (positive). When CA was applied, the utterance looked like this: ">**I LIKE↑ to GO and travel-< I WANT- TO-SEE->Aurora Borealis↑-<."**

this way, 'I want' was emphasising and clarifying 'I like' giving more detail to the interviewer of what and where the participant wanted to go and see and why, in particular, she 'likes to go and travel'; therefore; this was coded as one expression of CL.

The application of CA showed the level of CL increased over time in the MI interviews although actual numbers of expressions reduced. When compared to the numbers recorded from the transcriptions, there was no difference in numbers for CL expressions, and no significant difference in the strength of the CL in baseline interviews. There was, however, a significant reduction in number of CL expressions compared to those identified from transcriptions alone in the MI interviews. Also notable after CA was the difference in coding for negative and positive CL, with the reduction in CL negative expressions coinciding with the reduction in the overall expressions of CL. The frequency trend and overlap is displayed in figure 6.13. Table 6.2 shows the amended expressions of CL after CA was applied.

Table 6.2 Amended overall expressions of CL after application of CA

Client	One	Two	Three
Baseline Total	24	23	33
MI Total (pre CA)	71	75	47
MI Total (post CA)	49 (-31%)	55 (-27%)	42 (-11%)

The number of expressions of CL identified for client one reduced by 31% after the application of CA. When CA was used to review the audio recordings, it became clear that the number of singular coding of CL expressions was significantly reduced.

Where two or more utterances were initially recorded as separate utterances CA identified on occasion that they were in fact part of the same sentence and therefore were re-recorded as one utterance only.

Client two reduced by 27% and client three by 11% when MI was compared with a CA analysis of commitment language in the MI interviews. Importantly, the combination of CL expressions under one utterance more often identified the expression as high positive. Although there was a reduction in overall expressions in MI, the baseline expressions remained basically unaltered. The expressions in MI also increased in the level of expression throughout the interview compared with baseline (Martin et al., 2009).

Figure 6.13 shows the comparison between CL expressions after CA was applied to audio transcripts. Frequency was recorded at 15 minute intervals and graphs also indicate trend and overlap between baseline interviews and intervention MI interviews.

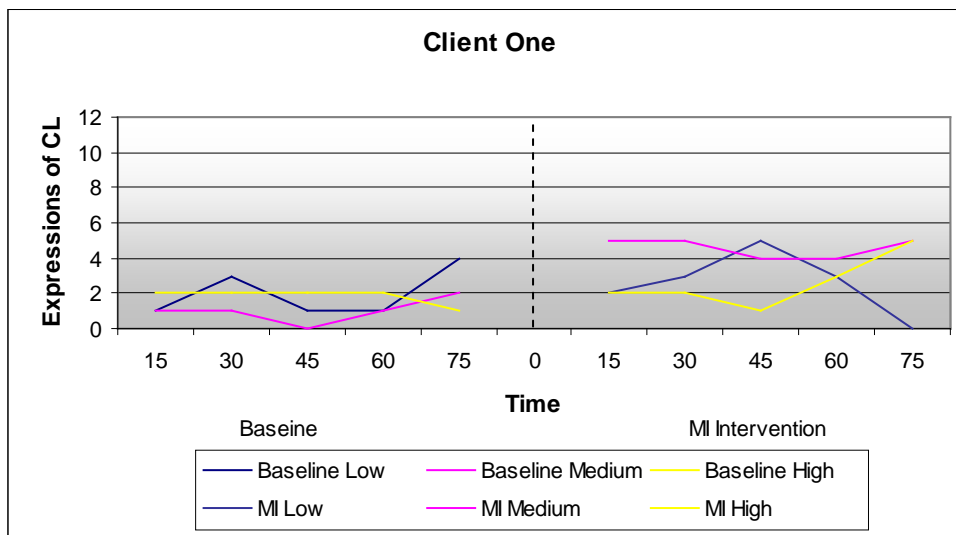


Figure 6.13 Comparison of expressions of CL after the application of CA. Client 1

After CA was applied, the baseline indicators of frequency for CL across low medium and high expressions maintained consistent until the 60-75 minutes where the trend of low and medium CL increased in comparison with high CL which reduced. The actual recording of expressions in baseline is minimal and of no significance in either trend or frequency. In contrast, the frequency of high CL in MI showed an increasing trend from the midpoint to the end of the interview without overlap. Medium expression also increased but insignificantly, again without overlap with baseline recordings, while low expression trended downwards from the midpoint recording nil expressions in the final 15 minutes showing the opposite trend to

baseline recording. Total expressions of CL in baseline for client 1 were 49% of those recorded in the MI interview after CA.

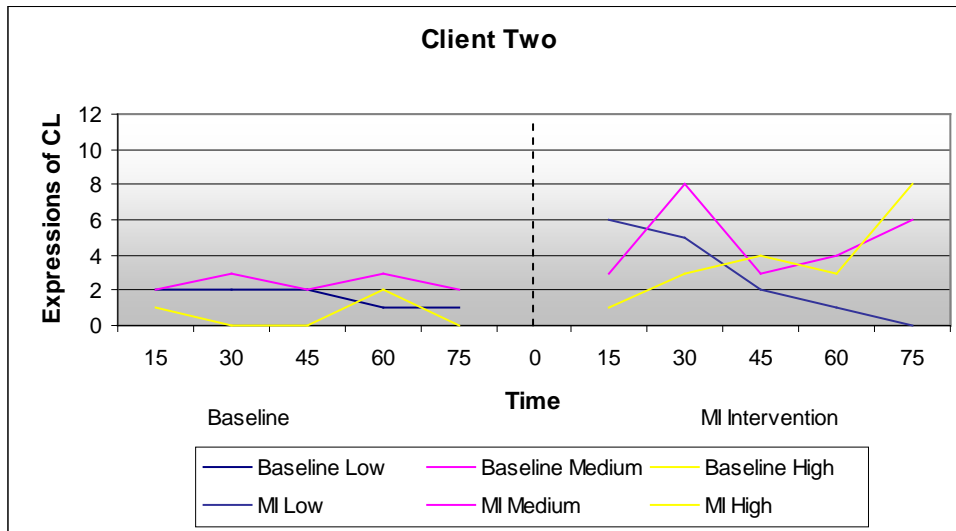


Figure 6.14 Comparison of expressions of CL after the application of CA. Client 2

As with client one, client two at baseline showed no significant trends in high, medium or low CL expressions across the interview with a low total number of expressions at 23 (42% of those recognised in the MI after CA). However, again as with client one, client two showed a significant upward trend in high CL and medium CL expression from the midpoint in MI (at 45 minutes) through to completion. It is also noticeable that low CL expressions consistently trended downward throughout the MI interview. No overlap was recorded between medium and high CL although there was overlap recorded in low CL between 45 minutes and the completion of both interviews.

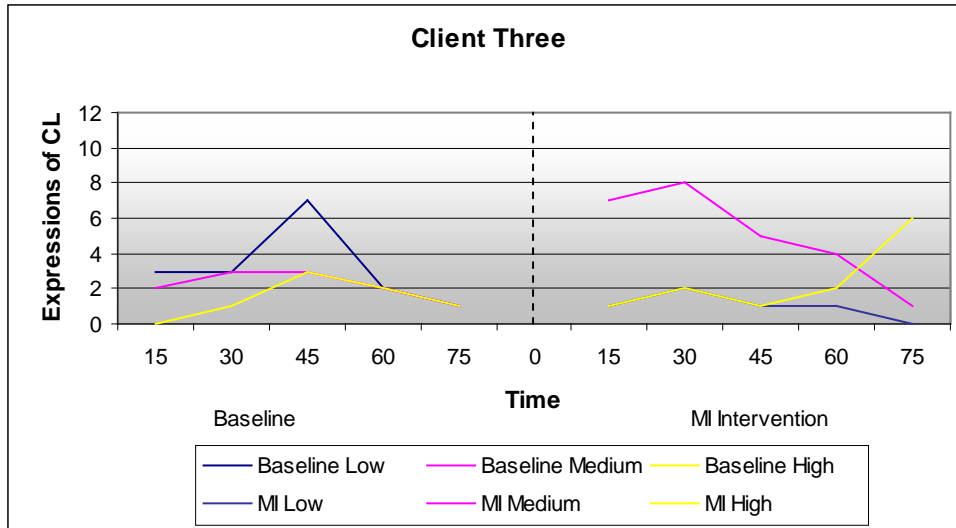


Figure 6.15 Comparison of expressions of CL after the application of CA. Client 3

Apart from a noticeable increase in frequency of low CL expression midway in baseline, the other recordings of CL remained similar to the findings with clients one and two, with no otherwise discernable trends. As with clients one and two, the trend for client three in high CL expression showed an upward trend from midpoint (at 45 minutes) remaining until the end of the interview (at 75 minutes). There is some overlap of frequency of high CL until 60 minutes with the trend in MI showing an increase high CL from that point compared to a decrease in the baseline. The frequency of medium CL in MI overlaps with the frequency of low CL in the baseline findings. There was a high frequency of low CL in baseline with no overlap with MI where much lower levels of low CL were recorded this difference between the two interviews may be regarded as significant.

6.5 Summary of results

The introduction of MI indicated that the number of CL expressions identified in utterances was higher than baseline. Where MI showed significant difference from baseline interviews was in the increase in the level of CL within those utterances across time. The increase in levels indicates that the micro skills of MI, as identified by Miller and Rollnick (2002), may be responsible for the increase in the intensity and level of CL in the MI interviews. Noticeable

were increases in high commitment and a decrease in low commitment across all three clients.

The secondary observation of audio review and the application of CA to the interviews improved the percentage of item by item inter-observer agreement and allowed for closer identification of CL within each utterance than was possible by reviewing the un-notated transcripts alone. Importantly, the method of reflecting client's responses produced longer utterances in MI although total talk time was reduced compared to baseline. This may suggest that the product of participant responses from MI reflections indicates a more specific quality of response from the participant rather than general conversational talk as identified in baseline responses. Although increasing the reliability of the observations, the application of CA greatly increased the time the raters required to complete the recordings and this element of the study. This study does not allow for a measurement of external validity and, therefore, cannot be generalised to other groups; however, the findings do suggest that further research in this area may be warranted.

Chapter 7: Discussion

The aim of this study was to identify whether CL expressed in utterances from clients with SCI was increased in MI interviews compared with baseline interviews of a best practice alternative interview of SBAQ, using an AB single case study design. The results of the study showed that high positive CL, which is synonymous with CT, increased in MI interviews compared to high positive CL expressed in baseline interviews. Levels identified as medium and low CL (CT) were identified in MI interviews; while expressions of ST, or negative CL, recorded according to levels of high, medium and low decreased. Baseline interview utterances that showed expressions of CL did not follow the same identifiable trends. These results indicate that MI increases high level positive CL. The number of utterances that contained CL reduced over time in MI although they were significantly higher across the interview compared with the baseline one.

Review of four meta-analyses and numerous recent or current studies, as discussed in the literature review in chapter 2, investigating the adherence of rehabilitation initiatives as a measure of efficacy of MI did not indicate any similar studies measuring CL or identifying CL, specifically as a predictor of adherence. Prediction and results appeared to be recorded as a consequence of the intervention alone rather than a specific characteristic of the intervention. Most studies also failed to identify if the interviews were MI adherent and to what level. This thesis has established MI adherence for the intervention interviews and measured the degree to which CL increased at intervention compared to baseline.

7.1 Post hoc analysis

A review of coding systems and adherence checks for MI were analysed in an attempt to find suitable methods to ensure this study clearly identified MI in the interviews. The systems examined in this thesis, the MITI and the MISC, are concerned with the integrity of the delivery of MI from the perspective of the interviewer's behaviour. Adherence was a critical

element of this study as the direct comparison with SBAQ's required the study to clearly identify the differences in the two interviewing methods. Without a clear description of the elements of MI and a delivery process that could withstand scrutiny and inter-rater reliability, it would have been difficult to show the difference between the intervention and the baseline styles.

Without understanding and interpretation of the dynamics of the process, MI could be mistaken for two people simply having a polite conversation. The subtlety of delivery and the construction of reflections by the interviewer from the deconstruction of client utterances is the key to the effective delivery and subsequent outcome of information collection in MI. The MITI, despite its simplistic form, has proven its reliability in identifying treatment integrity (Moyers et al., 2008). The coding system serves to measure treatment integrity in clinical settings while also identifying where MI is not discernable. The primary focus of the MITI is to examine practitioner behaviour acting as a robust method for improving practitioner delivery. This study utilised the MITI to ensure proficiency of MI delivery was maintained in the interventions.

The MITI incorporates a gestalt approach yet remains sensitive to inter-rater reliability. The importance of the MITI assisted in the decision making process to finally change the interviewer for this study. The effect of using the MITI allowed the researcher to recognise progress in the trainee's delivery and the integrity of MI in mock interviews. The speed of coding, particularly in identification of behaviour counts within one review of transcriptions, assisted greatly in making the final decision and minimised disruption to the study that otherwise may have compromised the narrow time frame restrictions within which to complete the research data collection.

A more robust indication of interviewer behaviour is accomplished with the MISC and was incorporated in this study to further clarify how the intervention differed from the baseline interviews (Moyers et al., 2003). Although the MISC has gone through several changes since first developed in 1997, this study chose to adapt the earliest version. A significant difference

in coding between the various forms of the MISC is a lessening from three coding passes to two. The decision to eliminate the code for 'talk time' was after due consideration by Moyers et al., (2003) of the cost effectiveness of this component. However, in this study, the aspect of cost was not considered as problematic nor was the extra time an issue, due to the minimal numbers of transcripts required to be coded. Improvement in technology since 1997 meant that the recording and transcription equipment was able to provide much of this information at little expense, both in terms of time and cost, which may have an influence on the other researchers thinking of incorporating this measurement in future studies (DeJonge, Schippers, & Schaap, 2005). The MI-SCOPE (Martin et al., 2009) was the only coding system that identified CL as a reference for the evaluation of outcome from MI interviews; however, there were no studies identified in the literature that had used the MI-SCOPE in the results or outcomes of a study.

A search was conducted specifically looking for studies involving MI in any acute onset disability intervention; however, research looking at acute conditions and subsequent behavioural change using MI appears to be negligible. In review of meta-analysis of MI studies, only stress and depression were identified as common factors in both acute onset disability and with long term acquired behaviours. Identifying the increase of CL in interviews as a specific goal of studies comparing it against alternative interventions or no treatment at all was also sparse.

7.2 Relevance of findings

This study indicated that CL can be increased by MI in interviews but that the increase may not necessarily predict a behaviour change. MI requires CL to be a product of motivation related to behaviours in order to assess whether the increase is a predictor of change. Identifying motivators is a key element of MI. The skill in MI is identifying and then promoting the intrinsic strengthening mechanisms to support and maintain the motivation. MI may not be sufficient to maintain a behaviour change if the level of commitment is not reinforced or if

there are stronger motivators influencing behaviour change. The collaboration with other therapies, such as CBT, warrants further investigation as a vehicle to promote the behaviour change identified in MI.

The importance of identifying the context of language construction to assist in the formation of reflections by interviewers is a necessary component of MI. The bi-phenomenal approach taken in the reflective listening process ensures that client perspective of their behaviour or condition is recognised alongside the clinical reasoning for changing that behaviour. This concept requires further clarification to be promoted in training for MI interviewers. It has been recognised in this study by using CA that there can be an identification of the client's normalisation of behaviour and the motivators that are in place to maintain the status quo. Following the turn by turn conversational relationship in the interviews, it is also identifiable how the course of response can be positioned by the interviewer to promote CL.

What the interviewer chooses to reflect on differentiates MI from other interviewing styles in that it does not follow a set agenda of questioning. The intent is to recognise the client's intrinsic motivators that may assist in promoting behavioural change. CL can, however, be increased by merely promoting and reflecting on the most agreeable pattern of response from the client, and thereby, perhaps, endorsing the status quo. Increasing CL in response to critical decision making processes can be identified in analysing interviews after the event but how is an appropriate reflection constructed within the interview itself? Clearly the practice of reflective listening and promotion of the micro-skills of MI are simple in concept but far more difficult in practice. Where many studies have failed in using MI as an intervention is in understanding the complexities of reflective listening and the formation of reflections. There appears to be an underestimation of the training and practice necessary to maintain the integrity of MI by some researchers.

7.3 Limitations

The recruitment and willingness to participate in this study by clients with SCI may be an indication of how difficult the acute phase of the onset of disability clients experience is. The identification with the stages of change model suggests that clients may be in a pre-contemplative stage and are either not willing or not able to consider involvement in any sort of intervention, study or otherwise. This is identified as a concern by Dewar (2000) who suggests that the most efficacious time for an intervention such as MI, are in the acute phase of treatment.

The three participants for this study were not indicative of the average client with acute SCI. The majority of clients with SCI are male and only one male participant entered this study. The primary cause of SCI is motor vehicle or sporting accident, again only the one participant fitted this profile. The other two participants were female and acquired their SCI from acute onset medical conditions although these two onsets were considered more life threatening than the male motor vehicle accident victim (National Spinal Cord Injury Statistical Centre, 2009, retrieved from www.spinalcord.uab.edu/show. 26/03/10).

The three participants who did complete the study and complied with the interventions had all been given advice that they were likely to regain at least some mobility with only one of the three being given a poor prognosis for recovery of ambulation without assistance. The low number of available participants severely restricted the type of study that could be conducted. To that end, the single case study design is considered appropriate for this type of research. The limitations, however, are that any findings are considered extremely subjective and cannot be considered within the general population of clients with SCI.

Another limitation recognised within this study and identified in other reviews by ten Have (2008) is the problem of transcribing conversation in sufficient detail to fully consider the contextual meaning of utterances and to, therefore, accurately record and code CL levels and intent. Utterances and the expression of non audible or discernable connections between

utterances also made the demarcation of where one utterance began and another started difficult to ascertain from transcriptions alone. Audio analysis in this study identified several utterances that had been coded as separate in the transcriptions as joining together to form one more meaningful utterance. In these cases, it was considered that the pause connecting the utterances actually consisted of hesitation, or sounds that had not been transcribed. Not only did this change the number and level of CL occurrences expressed but questioned the accuracy of transcriptions where the transcribers had perhaps either omitted some 'non-words' or had taken a 'best guess' at the expression. Although the study was limited in this regard, the use of CA notations across the audio recordings gave clarity to the study and identified the findings with greater scrutiny than by analysis of the un-notated transcriptions alone. The purpose of the study was to establish whether CL was identifiable and this study promoted a possible analysis method to identify CL and a way to measure it.

7.4 Recommendations for further research

The decision to retain the coding element of talk time may have serendipitously provided an interesting aspect for further investigation into identifying CL in MI conversation. There was an expectation that the baseline interviews would elicit minimal client dialogue. The selection of SBAQ's was intentional to eliminate any deliberate disparity in responses by giving the participants more opportunity to expand on responses than simple yes or no answers, yet still provide for any elaboration the participant wished to express. The analysis of talk time from baseline interviews was decidedly unexpected. The recognition of the participant's willingness to engage in conversation was evident in all three participants. Although this may be an indication of this particular group and certainly cannot be generalised, there is a suggestion that the interviewer themselves may be an intervention. The capability to recognise intrinsic motivators may be a latent skill, either due to the person's general persona or disposition inherently developed or from training in MI skills, despite the deliberate attempt not to apply those skills that are identified from training in MI.

The decision to strictly adhere to the MITI and the MISC across both baseline and intervention was important to ensure MI was not being inadvertently delivered in the baseline. The decision to add the robust application of CA provided an exciting prospect for further study. Although strongly limited by the low number of participants in this study, the diversity within the three may suggest that the outcomes were strongly identifiable as a distinct pattern of how MI works after CA was applied. The prospect for further study is how to recognise patterns within the interview itself that would be supported by analytical methods after the interview.

Identifying the optimum duration of an interview may be also worthy of investigation. If the proliferation of CL is established at a specific interval, is this an appropriate time to complete the interview and continue from that point in a subsequent interview? This study indicated that 45 minutes was identified as an active period in both baseline and the intervention of MI. The significance of time is an important focus from efficient use of resources and optimum gain perspectives. This may describe at what point extension of duration may become detrimental to any gains already made, and, conversely, the effect of duration that is too short. The question to consider is if there is an optimum time or is this subjective issue defined by each individual interaction?

In the analysis of audio transcripts using CA notations, the baseline interviews showed a numerically calculable number of utterances within all three levels of CL that remained without significant variance across the interview from that identified from the un-notated transcriptions alone. In the MI intervention, the numeracy rates were readily identifiable as more succinct with the application of CA than the initial count from the transcriptions. After CA, the level of high CL increased although the rates decreased as the interview progressed, while, again, the levels of medium and low CL decreased with the decline in rates of expression. The concept of utterance beginning and ending with the completion of one person's turn, and the separation of utterances by the next person's reflection or response is important. From transcripts alone, the strength and relationship to either CT or ST was significantly different from the CA analysis to that evident in the audio recordings. The importances of pauses

between components of an utterance were recognised as equally important to what was actually said. This type of analysis is virtually impossible from transcriptions alone. Although this suggests MI is responsible for increasing the level of CL, whether that level is indicative of a behavioural change is not measured; all that is established is merely the ability to increase the level of CL. What to do with the CL to predict a tangible commitment to behaviour change is the next logical step in progressing this research (Wagner& Ingersoll, 2008).

Poor results from rehabilitation interventions are often attributed to problems encountered with the client. What is often identified as a client problem may, in fact, be more attributable to problems with the relationships established between the client and their rehabilitation providers. Those relationships often include the system and method of provision of information and the delivery of services that are not designed to recognise the individual, rather they identify the condition. Further research around improving the collaborative nature of rehabilitation and recognising the client as an integral part of the rehabilitation team is suggested as this may help to identify areas of resistance before they become problematic; this approach may also improve the efficacy of otherwise appropriate rehabilitation interventions.

Miller (2000) describes the often unexpected findings in research projects. In this study, the expectation was that participants would respond minimally to the strength based questions in the baseline interviews; in fact, the opposite was recorded. Where research has identified significant outcomes from MI interventions is where MI increased CT identified as CL in client utterances. While attempting to increase CT and elevate the level of CL expressed, the interviewer is also attempting to move away from ST identified as the client's willingness to maintain the status quo by showing signs of resistance to any behavioural change.

By introducing SBAQ's as a comparison of best practice interviewing to MI in this study, it was expected that MI would increase CL. It was also expected that MI would increase the percentage of client language measured in talk time as identified in the MISC 2 (Moyers et al., 2003). The percentage of talk time from baseline interviews actually decreased in MI

interviews. Further research in this area is needed but several possible hypotheses may account for this. Firstly, the minimal number of participants for the study and the initial difficulty in accessing willing participants to take part in the research may indicate that the study participants are not indicative of the broader population of acute care clients with SCI. Secondly, the personalities of the three participants may indicate that they were naturally more receptive to engaging conversations and, therefore, more willing to talk. An additional explanation is that the interviewer's engagement style established good rapport with these participants in the baseline interviews which impacted upon talk time in the second interview, or that MI produced more focused discussion and therefore less talk time was required to explore issues.

Recording expressions of CL from transcriptions in the interviews identified a greater number of CL expressions in the intervention MI interviews than baseline ones, at a ratio of approximately 2 to 1 in this study. This suggests that clients may well be expressing CL in non MI interviews; the difference is that the interviewer does not respond to these cues. The frequency of CL in baseline interviews remained constant. On review of audio recordings of baseline interviews, it was possible to identify where MI would have expanded on clients responses that may have resulted in an increase in the level of CL expressed. Future research may focus on the identification of cues and how interviewers use cues to formulate their reflective responses.

Research has gone some way to exploring the mechanisms of MI other than merely observing the behaviour of the interviewer and their integrity to MI principles. While measurement of integrity is absolutely necessary to identify MI practice from a delivery model, a more robust explanation of the client responses that give an indication of the likelihood of a behaviour change is needed. CL meets with consensus amongst MI researchers as the predictor of change and the identification of CT over ST. The researcher in this study was not satisfied that CL was accurately identified by current assessment tools. The MITI, MISC 2.1 and its predecessors and the MI-SCOPE have concentrated specifically on interviewer

integrity and coding related to the spirit of MI (ACE), the principles of MI (REDS), micro skills (OARS) and latterly expression (DARN).

DARN and the development from that which includes CAT (Miller et al., 2008) are assisting in defining the concepts of MI and ensuring MI outcomes can be attributed to MI alone. The development of tools to assess client behaviours are now essential to show MI as not only an additive to other treatment modalities such as CBT, but a standalone efficacious treatment for behaviour change in a variety of therapeutic environments. If MI is to be considered on its own merit, research needs to concentrate on how CL is promoted specifically for behaviour change and whether MI assists in maintenance of that change over time.

The MI-SCOPE provides a promising turn in the evaluative processes of MI interviewer and client interaction. Moyers suggest that CL is epiphenomenal and this study agrees with that observation. In baseline interviews, it was clear that client CL was evident; however, the formatted process of SBAQ's does not provide for diversion from the primary phenomenon of listening for the answer to the specific questions (Moyers et al., 2003; Moyers et al., 2005; Moyers et al., 2007).

Alongside the participant's responses to specific questions, there was further explanation available should the interviewer have chosen to acknowledge it. A fundamental difference in MI is reflective listening where the focus is on all language expressed in a response, not merely that which is in direct reference to the line of questioning. In MI, where a possible parallel response could be given that may add to or decrease the intent with which the participants are willing to respond the interviewer may explore each possible response in turn. Future research may look at the relevance of exploring multiple responses as a means of further clarifying meaning and intent and how that affects the production of CL.

7.5 Conclusions

The simplicity of MI in concept has proven far more difficult to describe when explaining the intervention and its relationship to outcomes in research. Negative observations of current research include: the lack of clarity attributed to how MI was delivered; the level of training the interviewers had prior to commencement of the study; and how MI was measured. On the plus side, researchers are recognising the important contribution client language has made in understanding how MI works. Amrhein et al's. (2004) addition of recognising commitment in language expression shows how malleable MI is; however, the recognition of commitment alone is not sufficient to suggest that MI is responsible for behaviour change. Moyers et al. (2008) describe an epiphenomenal approach to language construction in utterances, and the significance of filler language in client speech. Everything in an utterance requires consideration as clients deliver thoughts, feelings and queries in their own language about things that have importance to them. MI recognises the importance of client language but cautions interviewers responding to CL that may be misleading in direction away from discussion about target behaviours.

MI focuses on target behaviours and addresses them through the clients committed domains of DARN. Recognising what these domains are is a fundamental skill in MI that cannot be learned simply by reading about it. MI requires consistency and practice to develop reflective listening skills that identify an individual and their intrinsic motivation to change behaviour or maintain the status quo. The evidence for identifying CL using CA in this study shows promise for further research in expanding on recognition of CL in analysis of utterances. The value of this would assist in training for MI interviewers to develop reflection skills more closely aligned with a client's intrinsic motivators as defined in DARN and, subsequently, CAT.

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Appendix A

Motivational Interviewing Treatment Integrity Code (MITI)

Adapted from the Motivational Interviewing Treatment Integrity (MITI) Code Version 2.0

Theresa B. Moyers, Tim Martin, Jennifer K. Manuel & William R. Miller

University of New Mexico, Centre on Alcoholism, Substance Abuse and Addictions (CASSA)

Coding Sheet Adaptations 1/27/2005-Revisions by Wilburn C "Dub" Wright

Tape Number	
Tape Counsellor	
Tape Client	
Tape coder	

GLOBAL RATINGS

Empathy/Understanding		Low	1	2	3	4	5	6	7	High
Spirit		Low	1	2	3	4	5	6	7	High
		TOTAL INFORMATION COUNTS								

BEHAVIOUR COUNTS

MI Adherent	Asking permission, affirm, emphasize control, support	
MI Non-adherent	Advising, confronting directing	
TOTAL MI RELATED COMMENTS		

	Closed Questions	
Questions	Open Questions	
TOTAL QUESTIONS		

	Simple reflections	
Reflections	Complex reflections	
TOTAL REFLECTIONS		

Affirmations		
TOTAL AFFIRMATIONS		
Summaries		
TOTAL SUMMARIES		

COMMENTS

Appendix B

List of MITI Codes

EMPATHY	Global rating of empathy
SPIRIT	Global rating of MI Spirit
GI	Giving information
MiA	MI adherent
MiNa	MI non-adherent
OQ	Open question
CQ	Closed question
Rs	Reflections simple
Rc	reflections complex

Appendix C

Behaviour categories related to the interviewers utterances (MISC)

AD	Advise	Requires subcategories with (ADP) or without permission(ADW)
AF	Affirm	
CO	Confront	
DI	Direct	
EC	Emphasise control	
FA	Facilitate	
FI	Filler	
GI	Giving information	Requires subcategories: with permission(GIP), without permission (GIW)
QU	Question	Requires subcategories: Closed (QUC), Open Question (QUO)
RC	Raise concern	Requires subcategories: With (RCP) or without permission (RCW)
RE	Reflect	Requires subcategories: Simple (RES) or Complex (REC).
RF	Reframe	
SU	Support	
ST	Structure	
WA	Warn	

From the: **Manuel for the Motivational Interviewing Skill Code (MISC)**

Miller, Moyers, Ernst & Amrhein (2008) Manual for the Motivational Interviewing Skill Code (MISC) Version 2.1.

Appendix D

Conversational Analysis Transcription Symbols:

(0.5)	The number in the bracket indicates a time gap in tenths of a second.
(.)	A dot enclosed indicates a pause less than 2/10s of a second
.hh	Dot before an 'h' indicates speaker in-breath. The more 'h"s the longer the breath
Hh	Indicates an out-breath.
(())	Indicates a non –verbal activity. E.g. Banging sound
-	A dash indicates the sharp cut off of the prior word or sound
:::	Colons indicate the speaker has stretched the preceding sound or letter the more colons the greater the extent of stretching.
()	Empty parenthesis / brackets indicate the presence of an unclear fragment on the tape.
(guess)	The word within the single bracket represents the transcribers' best guess at an unclear fragment.
.	A full stop indicates a stopping fall in tone. It does not necessarily indicate the end of a sentence
<u>Under</u>	Underlined fragments indicate speaker emphasis.
↑↓	Pointed arrows indicate a marked fall or rise in intonational shift; they are placed immediately before the onset of the shift.
CAPITALS	With the exception of proper nouns, capital letter indicates a section of speech noticeably louder than the surrounding talk.
°°	Degree signs are used to indicate that the talk they encompass is spoken noticeably quieter than the surrounding talk
Thaght	A 'gh' indicates that the word in which it is placed had a guttural pronunciation.
> <	More than and less than signs indicate that the talk they encompass was produced noticeably quicker than the surrounding talk.
=	The equal sign indicates continuous utterances
[]	Square brackets between adjacent lines of concurrent speech indicate the onset and end of a spate of overlapping talk

Appendix E

Strength Based Assessment Questions

Previous treatment experiences

- What did you find helpful about previous treatment /Therapy?
- What did the provider do that was helpful?
- How did that make a difference for you?
- What wasn't so helpful?
- (If previous medication) How was the medication helpful to you?
- What if anything did the medications allow you to do that you wouldn't have otherwise been able to do?
- What qualities do you possess such that you were able to work with the medication to improve things for yourself?

Employment

- How did you come to work at your current place of employment?
- How did you get this job?
- What do you think convinced your employer to hire you?
- What have you found to be most Challenging part of your job?
- How have you met those challenges?
- What keeps you there?
- What skills do you think your employer sees in you?
- What qualities do you think you possess that are assets on the job?

Family and Social relationships

- Who are you closest to?
- What do you appreciate most about...?
- What would they say are your best qualities?
- How is it helpful for you to know that?
- What does it feel like to know that?
- Which relationships have been most challenging for you?
How have you dealt with those challenges?
- Whom can you go to for help?
- Who has made a positive difference in your life...How so?
- What difference has that made for you?
- When are others more helpful to you?

Appendix F

Examples of commitment expressions

High	Medium	Low
I guarantee	I will try	I hope to
I promise	I intend to	I will risk
I will	I am ready to	I will but
I aim	I look forward to	I think I will
I shall	I consent to	I suppose I will
I give my word	I plan to	I imagine I will
I assure	I had to	I suspect I will
I want to	I probably could	I would
I look forward to	I expect to	I guess I will
I know	I favour	I wager
I am desperate to	I endorse	I will see (about)
I have to	I believe	I might
I agree to	I accept	I possibly will
I am prepared to	I probably will	I could
I should	I mean to	I have tried

Appendix G

Information Sheet

An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with spinal cord injury (SCI)

You are invited to take part in a study that is approved by the Christchurch District Health Board Ethics Committee and the Massey University Human Ethics Committee.

Introduction

My name is Michael Smith of Auckland and I am conducting this study as part of my Master of Philosophy in Rehabilitation qualification through Massey University in Palmerston North. The study will be conducted under supervision by Ann Flintoft and Dr Suzanne Phibbs from Massey University.

I am currently the rehabilitation advisor for the Accident Compensation Corporation and have been involved in rehabilitation programming and facilitation for 18 years. I have an interest in the intrinsic motivation in clients to overcome obstacles related to employment following injury and how that can be promoted to improve quality of life.

This research is for my own private study in conjunction with Massey University and is not available to the Accident Compensation Corporation or any members of their staff nor are your individual particulars divulged to anyone representing the Corporation for any evaluative purposes pertaining to any claims you may have lodged with them.

Motivational Interviewing is a psychotherapeutic and interviewing style that endorses the concept of rehabilitation being client centred acknowledging the client as the expert and the facilitators of rehabilitation interventions as assisting client's to achieve goals.

Research literature acknowledges Motivational Interviewing as being effective in rehabilitation related to drug and alcohol, smoking cessation and other behaviours requiring change, however, studies on the effectiveness of promoting vocational rehabilitation and work attitudes is extremely sparse. Moreover, research is light on what it is that Motivational Interviewing does or how we can define it.

My research attempts to identify whether commitment to rehabilitation can be identified through the language used in conversation during interviews. I believe that clients express the likelihood of entering into and maintaining rehabilitation programmes or not by the use of commitment language which can be measured and identified according to strength.

Selection Process

As someone who has been identified as a client with a spinal cord injury we are inviting you to participate in this study. That is you are also not constrained by any other medical or psychological issues that may prevent you from entering vocational rehabilitation and that you are within the working age group.

If you agree

You will be given one week to decide if you wish to participate in the study and you may contact me or Arron Perriam from Kaleidoscope at any stage to discuss any issues related to the study you may have. Arron will advise me of your intention to participate and you will then be forwarded a consent form which outlines the process for the collection, storage and handling of the data collected. A stamped addressed envelope will be provided for you to return the consent form to me within one week.

Once we have your consent the programme will follow a series of four (4) normal interviews between yourself and your vocational counsellor which they will record by audio recorder. The tapes of these interviews will be forwarded to me for transcription and analysis. Transcription consists of writing out what was said within the interviews and then coding the conversation for adherence to Motivational Interviewing style and format and coding the language used in the conversation using conversational analysis.

We will also ask that you complete a questionnaire on how you feel your interviewer managed aspects of the interview at the completion of the final interview. We will provide a further stamped addressed envelope for you to forward this questionnaire direct to me. The results of the interviewer questionnaire will be anonymous and the interviewer will not be able to identify you from the results. You are also not obliged to complete any or all of the questions if you do not feel you wish to.

What is Motivational Interviewing?

Basically Motivational Interviewing (MI) is a way of ensuring you and your needs are being heard and understood and that you as a client remain the central focus of rehabilitation interventions. It ensures that you fully understand the relevance of any interventions you may wish to include in, or leave out of your programme.

Will anyone know that it is me taking part?

Yes. The vocational consultant that is working with you will know who you are and I will know that you are taking part, however, there is no need to identify you within the written report on the study and the information recorded will be anonymous. Names of individuals will be replaced with numbers.

Your Rights

It is important that you are aware of your rights for this or for any future study. You have a right to not participate at all and this will not affect in any way your ongoing care and rehabilitation. If you do agree to participate in the study you may at any time withdraw without explanation and there will be no questions asked or recording of your non-participation. This study does ask you to provide permission to allow transcription and storage of audio tapes of your interviews. You are entitled to have access to these tapes, provide advice on how you wish the information to be stored and how the tapes and data is disseminated or destroyed at the end of the study.

What if I want to talk to somebody about the study?

Part of the study process is for the researcher to be available at reasonable request to discuss aspects of the study that you are not sure about. Queries should be directed to me in the first instance. My contact details are: Michael Smith 0800 101996; (0274) 723-280 or: Mick@acmc.co.nz

This project has been reviewed and approved by the Massey University Human Ethics Committee, **PN protocol (Pending)** If you have any concerns about the conduct of this project please contact Professor Sylvia Rumball, Chair, Massey University campus Human Ethics Committee: Palmerston North, Telephone (06) 350 5249; e-mail S.V.Rumball@massey.ac.nz.

The Health Consumer Service is available to all patients. Any participant in this study who has concerns about treatment can contact the Health Consumer Service. Free phone: 0800 223 238

Appendix H

An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with spinal cord injury (SCI)

PARTICIPANT CONSENT FORM – INDIVIDUAL

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being sound recorded.

I wish/do not wish to have my recordings returned to me.

I wish/do not wish to have data placed in an official archive.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

.....

Full Name - printed

.....

Appendix I

An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with spinal cord injury (SCI)

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS

I confirm that I have waived the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature:

Date:

.....

Full Name - printed

.....

An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with spinal cord injury (SCI)

Appendix J

An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with spinal cord injury (SCI)

CONFIDENTIALITY AGREEMENT

I _____ (Full Name - printed)
agree to keep confidential all information concerning the project: "An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with spinal cord injury (SCI)".

I will not retain or copy any information involving the project.

Signature:

Date:

.....

An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) among people who are conversant in English in interviews with clients with spinal cord injury (SCI) 18/08/2009

	08-Jun-09	15-Jun-09	22-Jun-09	29-Jun-09	06-Jul-09	13-Jul-09	20-Jul-09	27-Jul-09	03-Aug-09	10-Aug-09	17-Aug-09	24-Aug-09	31-Aug-09	07-Sep-09	14-Sep-09	21-Sep-09	28-Sep-09	05-Oct-09	12-Oct-09	19-Oct-09	26-Oct-09	02-Nov-09	09-Nov-09	16-Nov-09	23-Nov-09	30-Nov-09	07-Dec-09	14-Dec-09	21-Dec-09	28-Dec-09	15-Mar-10	19-Apr-10	26-Apr-10	20-Dec-10				
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	41	48	49	79	82			
Presentation to Ethics committee																																						
Forwarding Information sheets & Consent Forms (P= Proposed date, A= Actual date).																																						
Forwarding Confidentiality agreement																																						
Complete 2 day training for Kaleidoscope																																						
Complete MI skill role play transcripts																																						
Begin teleconference training																																						
1st Client																																						
2nd Client																																						
3rd Client																																						
Completion of study																																						
Presentation of results																																						
Thesis Submission																																						

Appendix K: Gantt Chart

Appendix L

Canterbury

District Health Board

Te Pōari Hauora o Waitaha

Research Office

29.07.09

Re: An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with Spinal Cord Injury (SCI)

Dear Michael

Many thanks for sending the appropriate documentation through for the above trial. Please find enclosed your Locality Assessment Form signed by the CDHB.

If you require any further help from the CDHB Research Office please do not hesitate to contact me.

Wishing you the very best of luck for your study.

Kindest Regards

Emily

Emily Oughton
Research Advisor.
Tel: +64 3 364 1513
Fax: +64 3 364 0525

CDHB Research Office
Room 501 • Christchurch School of Medicine Building • PO Box 4345 • Christchurch 8140 •
New Zealand

Tel: +64 3 364 0237 • Fax: +64 3 364 1490
www.cdhb.govt.nz

Appendix M

14 September 2009

Mr Michael Terrence Smith
516 Fordyce Road
Helensville
Auckland

Dear Mr Smith

Ethics Reference Number: URB/09/08/036

An evaluation of the efficacy of Motivational Interviewing (MI) in increasing commitment language (CL) in interviews with clients with spinal cord injury (SCI)

Investigator: Mr Michael Terrence Smith

Locality: Burwood Hospital

The above study has been given ethical approval by the **Upper South B Regional Ethics Committee**. However, the committee would like to pass on the following suggestion:

The committee feels that the validity of the research may be compromised without a control group. The committee therefore recommends that you take a group of patients at the same point to measure commitment language for comparison purposes before the baseline interviews. This control group could be composed of three patients within the same unit.

Approved Documents

Information sheet and Consent Form dated 18 August 2009

Accreditation

The Committee involved in the approval of this study is accredited by the Health Research Council and is constituted and operates in accordance with the Operational Standard for Ethics Committees, April 2006.

Progress Reports

The study is approved until **21 December 2010**. The Committee will review the approved application annually and notify the Principal Investigator if it withdraws approval. It is the Principal Investigator's responsibility to forward a progress report covering all sites prior to ethical review of the project in **September 2010**. The report form is available at <http://www.ethicscommittees.health.govt.nz>. Please note

that failure to provide a progress report may result in the withdrawal of ethical approval. A final report is also required at the conclusion of the study.

Amendments

It is also a condition of approval that the Committee is advised of any adverse events, if the study does not commence, or the study is altered in any way, including all documentation eg advertisements, letters to prospective participants.

Please quote the above ethics committee reference number in all correspondence.

It should be noted that Ethics Committee approval does not imply any resource commitment or administrative facilitation by any healthcare provider within whose facility the research is to be carried out. Where applicable, authority for this must be obtained separately from the appropriate manager within the organisation.

The committee would like to take this opportunity to wish you all the best with your research.

Yours sincerely

Diana Whipp

Mrs Diana Whipp
Upper South B Regional Ethics Committee Administrator
Email: diana_whipp@moh.govt.nz

Appendix N

Motivational Interviewing Knowledge and Attitudes Test (MIKAT)

Leffingwell, T. R. (2006).

The following statements are either factually true or false or consistent with (“true”) or inconsistent with (“false”) a motivational interviewing approach. Indicate your response by circling the appropriate item to the right.

		TRUE	FALSE
1	Substance users must accept their problem before they can get help.		
2	Denial is a characteristic of the disease of addiction.		
3	Therapists’ expectancies for their client’s abilities to change have no effect upon whether change occurs.		
4	Research has failed to find support the existence of an “addictive personality.”		
5	Substance users need to “hit bottom” before they can change.		
6	If clients are resistant to talk about changing substance use, direct confrontation and persuasion are required to help the person change.		
7	Resistance to talking about substance use is the direct result of denial, a symptom of the disease of addiction.		
8	Counsellors should emphasize personal choice over clients’ behaviours, including substance use.		
9	Substance abusers are generally incapable of making sound decisions in their current state of addiction.		
10	Resistance is best thought of as a product of the interpersonal context in which it is observed.		
11	Addicts and alcoholics are not capable of exerting control over their substance use behaviour.		
12	Readiness to make change is the client’s responsibility – no one can help them until they decide they are ready.		
13	The best way to motivate substance users is to help them resolve their ambivalence about change.		
14	External pressure and consequences is the only way to make substance abusers change.		

15 Which of the following are principles of a Motivational Interviewing approach to dealing with substance use? (select all that apply):

Breakdown denial	Develop discrepancies	Confront resistance
Express empathy	Acceptance of label ("alcoholic/addict") is required	Educate about risks
Maximize external pressure	Use subtle coercion	Support self-efficacy
Roll with resistance	Give direct advice	Give clear consequences
Require abstinence as only acceptable goal	Encourage submission to disease	Avoid argumentation