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Motivational Interviewing in Primary Care

Nurses' experiences and actual use of the method

ANN-SOFI ÖSTLUND



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Abstract

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Aim: The overall aim of the present thesis was to describe and examine primary care nurses' self-reports on training, use and performance as well as experiences and actual performance of MI.

Method: One qualitative and three quantitative studies were conducted among primary care nurses. A study-specific questionnaire was sent to 980 primary care nurses and 673 (69%) responded (Study I). Semi-structured interviews were conducted with 20 MI trained primary care nurses (Study II). MI sessions between 12 (Study III) respective 23 (Study IV) primary care nurses and patients (total 32 respective 50 sessions) were audio-recorded. Data were analyzed using qualitative content analysis, Motivational Interviewing Integrity Code, Motivational Interviewing Sequential Code for Observing Process Exchanges and statistical analysis.

Results: The findings showed that primary care nurses reported and experienced lack of training in MI and lack of prerequisites for using MI (Study I-II), while training, knowledge, prerequisites and time were associated with use of MI. They also reported and experienced that MI facilitated their work with patients (Study I-II) as well as elicited their own ability to motivate and be empathetic (Study II). About half of the primary care nurses reported that they used MI (Study I), and none of the nurses (Study III) achieved the approved skill levels in MI in their recorded sessions. They overestimated their performance on six of eight aspects of MI (Study III). The most frequently used nurse talk in the recorded sessions was neutral, which is not consistent with MI. Questions and reflections directed toward change were most likely to be followed by change talk among patients (Study IV).

Conclusions: Self-reported knowledge about MI and personal as well as workplace prerequisites for using it were associated with self-reported use of MI. Participating nurses' experienced that MI requires openness, practice, support, feedback and willingness. The participating primary care nurses did not achieve approved levels of MI skills in their recorded MI sessions. Patients' change talk is more likely to occur after open questions, complex reflections as well as after questions and reflections directed toward change.

Keywords: communication, experiences, health promotion, motivational interviewing, nurses, performance, primary care, talk, training, use

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*To my wonderful family,
Anders, Edvin & Olivia*

List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.

- I Östlund, A-S., Wadensten, B., Häggström, E. and Kristofferzon, M-L. (2014) District nurses' and registered nurses' training in and use of motivational interviewing in primary care settings. *Journal of Clinical Nursing*, 23: 2284-2294
- II Östlund, A-S., Wadensten, B., Kristofferzon, M-L. and Häggström, E. (2014) Motivational interviewing: Experiences of primary care nurses trained in the method. *Nurse Education in Practice*, 15: 111-118
- III Östlund, A-S., Kristofferzon, M-L., Häggström, E. and Wadensten, B. (2015) Primary care nurses' performance in motivational interviewing: a quantitative descriptive study. *BMC Family Practice*, 16:89. DOI: 10.1186/s12875-015-0304-z
- IV Östlund, A-S., Wadensten, B., Häggström, E., Lindqvist, H. and Kristofferzon, M-L. Primary care nurses' communication and its influence on patient talk during motivational interviewing. (Submitted)

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Contents

Introduction.....	11
Primary Care Nurses' Responsibility in Health Promotion	11
Primary Care – Organization and Health Policy	12
Lifestyle Changes and Health Promotion	14
Primary Care Nurses' Communication with Patients in Health Promotion	15
Motivational Interviewing	15
Courses in MI	17
Outcome Research in MI	18
MI Performance Evaluation.....	19
MI Process Research.....	20
Integrating MI into Health Care Practice	20
Nurses' Experiences of MI	22
Rationale for the Present Research Project	23
Aims	25
Study I	25
Study II.....	25
Study III	25
Study IV	26
Methods	27
Study I-IV.....	27
Design	27
Study I.....	28
Settings	28
Participants	28
Procedure and Data Collection	28
Data analysis.....	29
Study II.....	29
Settings	29
Participants	30
Procedure and Data Collection	30
Data analysis.....	31
Study III	31
Settings	31

Participants	31
Procedure and Data Collection	32
Data analysis.....	34
Study IV	36
Settings	36
Participants	36
Procedure and Data Collection	36
Data analysis.....	37
Ethical considerations	40
Results.....	41
Study I.....	41
Training in and use of MI among the primary care nurses	41
Prerequisites for using MI among the primary care nurses	41
Differences between users and non-users of MI.....	42
Variables associated with use of MI.....	42
Study II.....	43
Motivational interviews open doors when mutual interest exists	44
Study III	45
The participating nurses' training in and use of MI.....	45
Achieved proficiency/competency in MI	45
Self-ratings MI performance.....	45
Study IV	48
Characteristics	48
Observed frequencies.....	48
Transition probabilities.....	49
Results of predictions	49
Discussion.....	51
MI, a suitable method.....	51
Use of MI	52
Continuous Training in MI.....	53
Putting MI into practice.....	55
Methodological considerations.....	59
The Quantitative Studies.....	59
The Qualitative Study	61
Conclusions based on the present studies:	62
Clinical implications	63
Svensk sammanfattning (Swedish summary)	64
Acknowledgements.....	67
References.....	69
Appendix.....	79

Abbreviations

DOI	Diffusion of Innovations Model
DN	District nurse
DSF	The Association of Swedish District Nurses
MI	Motivational Interviewing
MINT	Motivational Interviewing Network of Trainers Incorporated
MITI	Motivational Interviewing Treatment Integrity Code
MI-SCOPE	Sequential Code for Observing Process Exchanges
RN	Registered nurse
SALAR	Swedish Association of Local Authorities and Regions
SBHW	The Swedish Board of Health and Welfare
SFS	Swedish Codes of Status
WHO	World Health Organization

Introduction

New demands are being placed on healthcare systems due to the shift from acute to chronic health problems (World Health Organization (WHO) Europe 2006). Many of the world's major chronic diseases, and premature mortality due them, would be preventable if their shared risk factors could be eliminated and/or reduced through more effective preventive healthcare (WHO 2013). It is therefore necessary to invest in health interventions of high quality and to ensure that these investments are made correctly and to the right numbers and categories of healthcare staff. Primary care nurses are one such category, because they play an important role in health promotion (WHO Europe 2006) and are many patients' first contact with the healthcare system.

One such health intervention is motivational interviewing (MI), a person-centered counseling style that has been shown to help patients change their lifestyle (Lundahl et al. 2013, Stanton & Grimshaw 2013, Purath et al. 2014, Barnes & Ivezaj 2015). Training in and use of the method are growing worldwide in many different healthcare settings (Madson et al. 2009), including primary care (Soderlund et al. 2011), because MI is one of the methods recommended in guidelines for disease prevention (WHO 2010, The Swedish Board of Health and Welfare (SBHW) 2011). It is therefore also necessary that any investment in such an intervention also ensure that staff are trained and maintain their competency and the quality of their services (WHO Europe 2006). Therefore, it was of great interest to describe and examine primary care nurses' experiences and actual use of MI.

Primary Care Nurses' Responsibility in Health Promotion

Nurses working in primary care (whom is called primary care nurses or just nurses here) consist primarily of district nurses (DNs) and registered nurses (RNs). DNs are RNs with advanced specialist nurse education in public health, preventive medicine and health promotion suited to primary care (The Association of Swedish District Nurses (DSF) 2008). Nurses in primary care may also have specialist education in diabetes or child health, but they are included in the groups mentioned in the present thesis.

Health promotion is a practical approach aimed at encouraging people to increase control over and improve their health. Health promotion is essential to achieving health and to health development (WHO Europe 2006, WHO 2009). Primary care (WHO 1978) and primary care nurses have an important role in health promotion (WHO Europe 2006), as they encounter many patients and as health promotion is an elementary part of primary care nurses' mission. They also meet many patients and therefore have an important role to play in identifying patients in risk groups for various illnesses (WHO 2010, SBHW 2011) and in motivating them to pursue a healthier lifestyle (Duran 2003, Gance-Cleveland 2007, Lambe & Collins 2010).

In Sweden, primary care nurses work at different specialized clinics and have different tasks at their respective healthcare centers. They may work with smoking cessation, health and lifestyle sessions, at heart failure, blood pressure, asthma, chronic lung diseases, diabetes or health clinics or with child healthcare, all of which involve conversations about the need for various lifestyle changes.

Primary Care – Organization and Health Policy

In Sweden, there are three government levels: the national government, the county councils/regions (n=20) and the municipalities (n=290). The state is responsible for the general healthcare policy and the Public Health Agency of Sweden is responsible for evaluation of national public health policies (Anell et al. 2012). Responsibility for the main health care services lies with the 20 county councils and regions (Swedish Association of Local Authorities and Regions (SALAR) 2015). Each county council and region must offer good health care to all inhabitants in the county council district (Swedish Codes of Status (SFS) SFS 1982:763). The population in each county council district/region is between about 57,000 and 2 million inhabitants (mean 424,000 inhabitants) (Statistics Sweden 2014).

Primary care is the foundation of the county council health and medical care system, to which inhabitants primary turn with their health problems (Glenngård et al. 2005, Starfield et al. 2005). Primary care is unconditionally responsible for meeting inhabitants' needs for basic medical treatment, care, prevention and rehabilitation that do not require advanced medical equipment at the hospital or other special competence/skills (SFS 1982:763). Four main functions distinguish primary care: first contact entrance for every new need, long-term person-focused care, comprehensive care and coordination of care (Starfield et al. 2005). In Sweden there are more than 1100 primary care units (healthcare centers), most of them publicly owned. About one-third of the primary care units are privately owned, but even these are mostly public funded. At the healthcare centers, districts physicians (normally general practitioners), RNs (mostly specialist DNs), midwives, physiotherapists

and psychologists provide advice, prevention and treatment. In 2011, there were approximately 93,600 visits each day to “other staff” (not including visits to physicians) in the primary care system in Sweden, predominantly to the nurses (SALAR 2015). According to WHO’s European strategy for the prevention and control of chronic diseases, primary care is the key to achieving global health policy goals (WHO Europe 2006).

Chronic diseases – such as cardiovascular diseases, diabetes and chronic lung diseases – cause 68% of all deaths worldwide and are one of the major health challenges of the 21st century. Cardiovascular diseases are the leading cause of the death, claiming 17.5 million lives in 2012. In 2014, 9% of the adult population had diabetes and 1.5 million deaths were directly caused by diabetes (in 2012). Diabetes also increases the risk of heart disease and stroke. Overweight and obesity are the fifth leading risk for global deaths and 1.9 billion adults were overweight or obese in 2012 (WHO 2015). In Sweden, cardiovascular diseases are also the most common cause of death (looking at the entire population) and 42% of men and about 29% of women are overweight (Public Health agency in Sweden 2014). Tobacco use is decreasing in Sweden, but still one in seven adult smokes and about 12,000 die yearly due to tobacco use (Public Health Agency in Sweden 2014).

Eighty percent of cases of heart disease, stroke and type 2 diabetes are lifestyle related and preventable by eliminating their shared risk factors, primarily: tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol (WHO 2008).

WHO’s Global Action Plan for Disease Prevention (WHO 2013) maintains nine targets – including – for achieving, by 2025, a 25% relative reduction in premature mortality from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases and a 10% relative reduction in prevalence of insufficient physical activity and in harmful use of alcohol. It also provides a list of policy options for taking actions at all levels in order to achieve these targets.

The Swedish national public health policy (The Swedish Government 2008) is based on 11 public health objective domains, covering the most important determinants of Swedish public health and by which all public authorities at all levels should be guided. Four of the goals concern healthy diet, increase in physical activity, decreased use of alcohol and tobacco and strengthening the health promotion and disease preventive perspective in the healthcare system. According to the government’s public health policy, there is great potential especially within primary care to act during the early stages and inform and talk to patient about the consequences of lifestyle for health as well as to provide support and counseling.

Lifestyle Changes and Health Promotion

Lifestyle change is a central part of the treatment of lifestyle-related diseases, such as heart diseases, stroke, diabetes and chronic lung diseases (WHO 2009). Lifestyle refers to people's way of living; it is the characteristic manner in which people choose to live (Oxford University Press 2015) based on their life situation (SBHW 2010). Lifestyle habits are established at a young age (Fasting et al. 2008), and changing ingrained habits is difficult to accomplish and even more difficult to maintain (Resnicow et al. 2002a, Lindhardt et al. 2015). Knowledge is necessary for making lifestyle changes, but it is not sufficient (Green et al. 2007, Jallinoja et al. 2007). Having the motivation to make a change is crucial (Miller & Rollnick 2013), and this motivation has to come from inside the individual (Kausman & Bruere 2006). Also crucial is a person's belief in his/her own ability to make a change; this belief is called self-efficacy (Arborelius 1993, Bandura 1997). According to Arborelius (1993), humans have an intrinsic need to make their own decisions and to feel that they can deal with life. When people can decide things on their own, their motivation comes from the inside and they can engage in activities that are important and/or interesting to them, and not because someone else has told them to (Arborelius 1993). Effective health promotion is therefore dependent on primary care nurses' ability to motivate others to make lifestyle changes (Duran 2003).

Both primary care nurses and general practitioners have stated that primary care nurses are most appropriate and have the greatest potential to work with health promotion (Geirsson et al. 2005, Wilhelmsson & Lindberg 2009, Carljford et al. 2011) and that their job is to act as health educators (Murchie et al. 2005). Nurses in primary care also express that health promotion is an important task that no one else is carrying out (Wilhelmsson & Lindberg 2009). Key factors for successful health promotion were that the workplace have long-term planning, documented goals, give support and that all personnel prioritizes the same things (Wilhelmsson & Lindberg 2009). Other facilitators are resources, continuous education and rewards, and an interest in and free choice regarding work with health promotion (Wilhelmsson & Lindberg 2009, Lambe & Collins 2010, Taylor et al. 2011). The main barriers to achieving success with health promotion and lifestyle counseling in primary care settings are: patient resistance, too many patients, no interest, lack of training, knowledge, time limitations, and funding for prevention as well as the fact that the main focus is on treatment (Jerden et al. 2006, Wilhelmsson & Lindberg 2009, Lambe & Collins 2010, Taylor et al. 2011, Hernandez & Anderson 2012).

Primary Care Nurses' Communication with Patients in Health Promotion

Communication means transmitting information, a mutual exchange, and it is of importance in healthcare if the patient and caregiver are to understand each other and if their meeting is to be effective (Fossum 2013). It is an important tool that has been shown to improve health outcomes for patients, when it is used effectively (Stewart 1995, Lindhardt et al. 2014). Outcomes following lifestyle change recommendations for patients have been poor (Magkos et al. 2009). Common communication in healthcare and in lifestyle counseling is supposed to focus on the patient and the problem as well as to provide expert advice and information. Such traditional expert advice-giving communication has been shown to be ineffective (Emmons & Rollnick 2001a, Fossum 2013), and patients are commonly resistant to a confrontational communication approach (Moyers & Martin 2006, Boardman et al. 2006). It has also been shown that primary care nurses feel powerless when patients do not follow their advice, and that the nurses themselves do not always understand patients' difficulties with making changes (Jansink et al. 2010).

During recent decades, there has been a shift to person-centered care and communication (Bensing et al. 2000, Fossum 2013), where the focus is on the whole person and not only on the problem/symptom (Fossum 2013), and this development involves collaboration and mutual understanding. One such person-centered communication style is Motivational Interviewing (MI). In Sweden, training in MI is recommended for healthcare personnel, as it is intended to facilitate their health promotion work and one of the methods recommended in the national guidelines for diseases prevention (SBHW 2011). In 2009, about two thirds of nurses, midwives and physicians in the Swedish primary care system had been trained in MI (The Swedish Institute of Public Health 2010).

Motivational Interviewing

MI was developed in the 1980s in the field of addiction treatment, by William Miller, professor of psychology and psychiatry at the University of New Mexico, USA, and Stephen Rollnick, professor of health care communication and psychologist at Cardiff University, Wales, UK. MI is a collaborative conversation style for strengthening a person's own motivation and commitment to change. MI is a method of communication rather than a battery of techniques. It is a way of being with people, not something that one does to people (Miller & Rollnick 2009). The interview is led by a counselor (e.g., therapist, nurse, or physician) who emphasizes the thoughts, feelings and behavior in a patient that may serve as the foundation for change. The

counselor tries to make it easier for the patient to reflect on him-/herself and his/her own behavior. The patient determines the problem and how the process will proceed, and a change is not considered possible before the patient is ready (Barth & Näsholm 2006). The heart of MI is to elicit the patient's own motivation for change, and important components of motivation for change are the patient's recognition and understanding of the importance of change and his/her confidence that it is possible to make change (Miller & Rollnick 2013).

The MI Approach

The fundamental approach, the so-called *spirit* of MI, is the underlying soul/empathy with which the counselor/provider of MI enters into the practice of MI. The *spirit* of MI involves four vital components: **Partnership** – concerns active collaboration between experts. Patients are the experts on themselves. **Acceptance** – involves four aspects of deeply accepting the person/patient and what he/she brings to the situation. It is about respecting humans' *absolute worth*, showing *appropriate empathy* to seek an understanding of the patient's perspective, *supporting autonomy* and *affirming* the patient's effort and strength. **Compassion** – means prioritizing the patient's needs and actively promoting his/her welfare. It involves having one's heart in the right place. **Evocation** – concerns eliciting patients' own motivation and resources.

Communication Skills in MI

To practice MI, five fundamental communication skills are used: *Asking open questions* – to strength collaboration, understand the patient, elicit motivation and find the direction. *Affirming* – to recognize and comment on the patient's efforts, strengths and abilities. *Reflective Listening* – to keep the patient talking, exploring and considering. *Summarize* – to consolidate what has been said, to promote understanding and to show the patient that the MI provider has listened. Providing *information and advice* with permission or at the request of the patient. The five skills are fundamental, but they alone do not constitute MI. It is the specific ways in which these skills are used that characterize MI.

Change Talk and Sustain Talk in MI

In MI, the intention is to shape the conversation so as to elicit and explore change talk. When a patient intends to make a change, it involves self-talk. Self-talk constitutes the thoughts or words/language one expresses by oneself, in this case the patient; it is the context of MI. Change talk is any kind of self-talk that contains an argument for change. People tend to become more obligated to do what they hear themselves say. This in MI, it is important for the provider to recognize change talk when it occurs and to know how to respond to it as well as how to elicit it, because this helps the patient

talk him-/herself into aiming toward change. Sustain talk, the opposite to change talk, is any kind of self-talk that argues against change. If it is repeated, the patient can talk him-/herself out of change as well. A mixture of change and sustain talk reflects ambivalence, which is a normal process that people pass through on their way toward change. It is not desirable for MI providers to elicit sustain talk, but it is important that they recognize and know how to respond to it (Miller & Rollnick 2013).

Courses in MI

In 2004, the Swedish Government commissioned the Swedish National Institute of Public Health to develop and spread education in MI for healthcare staff in primary, maternity, child and occupational healthcare in the context of the Risk Drinking Project (The Swedish Government/Ministry of Health and Social Affairs 2008, The Swedish Institute of Public Health 2010, Nilsen et al. 2011a, Nilsen et al. 2011b). This narrow mission expanded to school and specialist healthcare, the intention being to facilitate patient contact so as to increase patient motivation for behavioral change even in areas other than alcohol consumption (The Swedish Government 2008). In 2011, The National Guidelines for Disease Prevention were published (SBHW 2011), and training in MI was recommended for all categories of healthcare staff.

The MI training offered varies from short courses arranged by county councils or private educators to university courses that last several weeks. MI courses typically last for two to four days and include: method introduction/demonstration and guided practice in using the techniques (Madson et al. 2009, Soderlund et al. 2011, Motivational interviewing Network of Trainers Incorporated - MINT 2015, MINT-Nordic 2015). The trainers should be members of Motivational interviewing Network of Trainers Incorporated (MINT), meaning they should have completed a training workshop for new MI trainers that is either sponsored or endorsed by MINT (MINT 2015). Reviews (Walters et al. 2005, Madson et al. 2009, Soderlund et al. 2011) of MI training have shown that MI skills do improve after short courses among, i.a., health care staff, including nurses, and in the context of primary care (then among physicians). The training improves, e.g., skills, knowledge, confidence, attitudes and interest in learning more (Walters et al. 2005, Madson et al. 2009, Soderlund et al. 2011). Course participants receiving some kind of extended contact that included follow-up, feedback or supervision retained more skills (Walters et al. 2005, Madson et al. 2009). According to Miller and Rose (2009), it is important that MI training occur on more than one occasion (Miller & Rose 2009).

Outcome Research in MI

Research has shown that MI is an effective approach to helping patients change their lifestyle and behaviors regarding a wide variety of lifestyle problems (Burke et al. 2003, Hettema et al. 2005, Rubak et al. 2005, Martins & McNeil 2009). MI is also used by many different healthcare professionals (Lundahl & Burke 2009, Madson et al. 2009, Soderlund et al. 2011) and a great deal of research has been done in the field. More than 200 clinical trials (Lundahl & Burke 2009, Miller & Rose 2009) as well as several reviews and meta-analyses have been published (Dunn et al. 2001, Burke et al. 2003, Hettema et al. 2005, Rubak et al. 2005, Vasilaki et al. 2006, Lundahl & Burke 2009, Madson et al. 2009, Martins & McNeil 2009, Lundahl et al. 2010, Lundahl et al. 2013). A review from 2009 (Lundahl & Burke 2009) of four meta-analyses (Burke et al. 2003, Hettema et al. 2005, Vasilaki et al. 2006, Lundahl et al. 2010) – including studies of many behavior problems, from substance abuse to diet and exercise – shows that MI is significantly more effective than no treatment or “weak treatment” (e.g., written information, brief advice/standard care) and about equally effective compared with other treatments (e.g., cognitive-behavioral therapy, 12-step programs). MI was shown to take less time and have higher cost effectiveness than the alternative treatments (Lundahl & Burke 2009). According to Lundahl and Burke (2009), MI worked for clients regardless of problem, gender, age or severity and may be even better for ethnic minority patients (Lundahl & Burke 2009).

A meta-analysis by Rubak et al. (2005), including 72 randomized control trials, showed an effect of MI in 74% of the randomized control trials. The effect was shown in direct clinical measures, e.g. decreased blood pressure, body mass index and blood alcohol concentration (n=25 of 33), and/or in indirect measures, e.g. questionnaires (n=53 of 72). The effect of MI was not related to the counselor’s educational background, and MI used in short meetings showed an effect in 64% of the studies. No negative or harmful effects of MI were shown in any of the studies in the review (Rubak et al. 2005). Rubak et al. (2005) and a review by Knight et al. (2006) have also shown that MI is more effective than traditional advice giving (Rubak et al. 2005, Knight et al. 2006).

A review from 2009 (Martins & McNeil 2009) of 37 empirical studies focused on diabetes, diet and exercise as well as oral health supports the effectiveness of MI, both in combination with other treatments and alone (Martins & McNeil 2009). Behavior changes have also been shown to be maintained over a long period of time in many cases, up to at least one year, and more time spent in MI was associated with better outcomes (Lundahl & Burke 2009, Martins & McNeil 2009). In a meta-analysis from 2013 (Vanbuskirk & Wetherell 2013) of 12 randomized control trials and among the first to deal with primary care, MI was be found to effective in comparison to usual

care among different behavior outcomes. There are also a number of published trials finding no effect of MI (Miller & Rollnick 2013, Hollis et al. 2014).

Two recent systematic reviews (Barnes & Ivezaj 2015, Morton et al. 2015), also dealing with primary care, concluded that MI is a promising approach to helping primary care patients change behavior, but also that the efficacy is unclear given the inconsistency in descriptions of MI as well as uncertainty about the method's fidelity. In one of the reviews (Morton et al. 2015), approximately 50% of the included studies showed positive effects in relation to health behavior change. In the other review (Barnes & Ivezaj 2015), approximately 40% of the studies reported significant weight loss associated with MI compared to the control group.

MI Performance Evaluation

Instruments have been developed to give MI providers feedback that may improve their skills in and use of MI (Moyers et al. 2005, Madson & Campbell 2006, Vader et al. 2010, Pollak et al. 2014). Such instruments are also recommended to assess the fidelity of MI prior to further outcome research (Madson & Campbell 2006, Miller & Rollnick 2014). The Motivational Interviewing Treatment Integrity Code 3.1.1 (MITI) is one of the instruments developed to test providers' skills in MI (Moyers, T.B., Martin, T., Manuel, J.K., Miller, W.R. & Ernst, D. 2010). It has been used in different settings and professions (Forsberg et al. 2010, van Eijk-Hustings et al. 2011, Carpenter et al. 2012, Lindhardt et al. 2014, Hetteima et al. 2014, Ingersoll et al. 2015, Lee et al. 2015), including nursing (Britt & Blampied 2010, Maissi et al. 2011, van Eijk-Hustings et al. 2011, El-Mallakh et al. 2012), as well as in a few primary care settings (Naar-King et al. 2009, Cox et al. 2011, Bohman et al. 2012, Efraimsson et al. 2012, Gulbrandsen et al. 2012, Pollak et al. 2014), two of which included Swedish primary care nurses (Bohman et al. 2012, Efraimsson et al. 2012). The results have been varying, from achieved approved skill levels in all parts/measures of the MITI to lack of approved skill levels across the board.

The Swedish study by Bohman et al. (2012) was performed with nurses in the child health services and aimed at evaluating an enhanced MI training program. The other (Efraimsson et al. 2012) was performed with nurses at chronic obstructive pulmonary disease clinics and aimed at describing to what extent nurses used MI in smoking session after a few days of prior training in MI. None of the nurses in the two studies (Bohman et al. 2012, Efraimsson et al. 2012) achieved approved skill levels in MI. The participating nurses in the study by Efraimsson et al. (2012) most commonly delivered information and followed thus by making simple reflections and asking closed questions. They seldom asked open-ended questions, collaborated

with the patient and/or evocated motivation. One nurse achieved the approved skill level on one of the MITI variables.

MI Process Research

Research on the mechanisms underlying MI is also growing (Pirlott et al. 2012, Copeland et al. 2015), and research examining the relationship between change talk and outcomes shows that change talk does predict desired behavior change (Amrhein et al. 2003, Moyers et al. 2007, Daepfen et al. 2007, Gaume et al. 2008a, Moyers et al. 2009, Vader et al. 2010, Magill et al. 2014). Current research has also examined whether and how the counselor's talk influences patients' talk. Few studies (Moyers & Martin 2006, Moyers et al. 2007, Moyers et al. 2009, Carcone et al. 2013) have used the Sequential Code for Observing Process Exchanges (MI-SCOPE) Coders' Manual (Martin et al. 2005) to examine this. MI-SCOPE was developed to evaluate the influence of different kinds of counselor talk on subsequent client talk, and vice versa, as well as to examine language at different points in a session. This research supports the expected positive association between talk consistent with MI and patients' change talk as well as between talk inconsistent with MI and patients' sustain talk (Moyers et al. 2007, Gaume et al. 2008b, Moyers et al. 2009, Daepfen et al. 2010, Gaume et al. 2010, Carcone et al. 2013). To further investigate MI mechanisms that may allow the counselor to influence patients, recent studies (Moyers et al. 2009, Carcone et al. 2013, D'Amico et al. 2015) have separated questions and/or reflections from the other talk consistent with MI. These studies have shown that questions and reflections that favor change were most predictive of change talk. Use of MI-SCOPE is recommended when detailed information about the process in MI sessions is desired (Martin et al. 2005, Dobber et al. 2015).

Integrating MI into Health Care Practice

As shown above, a great deal of research has been done in the field of MI, and it has been integrated well into clinical practice in different settings, including general practice (Rubak et al. 2011). But there are also training studies showing no or little effect of MI (Miller et al. 2004, Carroll et al. 2006) and studies showing that adoption of MI skills is not maintained over time and that sustained practice change is not always achieved (Doherty et al. 2000, Bohman et al. 2012, Carpenter et al. 2012, Hall et al. 2015). According to Miller and Rollnick, (2009) MI is simple to understand, but not easy to learn. This is because it involves complex skills that are learned through extensive practice over time. Initial 2-day training provides a good start (Miller & Rollnick 2009), but research has shown (Walters et al. 2005,

Miller & Rose 2009, Forsberg et al. 2011, Hall et al. 2015) that extended contact – through follow-up, supervision, and/or feedback – is required for long-term adoption of skills.

In health care settings and primary care the challenge is not only to learn new skills, but also to relearn and refrain from using former approaches/behaviors, which are to direct, give advice and talk instead of listening (Resnicow et al. 2002a, Hall et al. 2015, Morton et al. 2015). Other challenges observed in primary care as regards integrating MI into practice are the short sessions (with the patients), and that the patients may not be aware of the risks associated with their current behavior and may not expect a health intervention at their visit (Carroll et al. 2006, Barnes & Ivezaj 2015, Morton et al. 2015) Another challenge is that many different health care problems may be addressed in one and the same session (Bohman et al. 2012).

Putting new knowledge into clinical practice, implementing it, and achieving change to improve quality in healthcare are difficult and complicated and may be influenced by many different factors (Grol et al. 2007). There are several theories describing the complexity of implementation and who may help explain the process and factors that influence whether change is possible (Grol et al. 2007). One of which is *Diffusion of Innovation Model* (DOI), which provides an understanding of the processes of social change.

Diffusion is the process through which an innovation is communicated among members of a social system through certain channels over time. It is a special type of communication, and the message is about something new and uncertain. The core of the diffusion process is information exchange. Everett Rogers, professor of sociology, developed DOI in 1962 and has revised it four times since then, most recently in 2003. The diffusion of new ideas involves four elements: *Innovation*, an idea that is considered new by a unit or individual; *Communication channels*, through which the message gets from one individual to another; *Time*, the notion that the diffusion is a process over time both in term of decisions and adoption; *A social system*, a set of connected members that are engaged in joint implementation of a common goal.

The characteristics of innovation that explain individuals' different rates of adoption are: *Relative advantage*, *Compatibility*, *Complexity*, *Trialability* and *Observability*. When individuals perceive that the innovation has greater relative advantage, compatibility, trialability, observability and less complexity, adoption will take place more rapidly.

The process through which an individual passes from attention to decision confirmation is called the Innovation-Decision Process and takes place in five steps: *Knowledge*, *Persuasion*, *Decision*, *Implementation* and *Confirmation*.

Innovativeness describes the degree to which an individual adopts. Classifications of members of a social system based on their innovation are:

1. *Innovators*, venturesome - the first 2.5% of the members of a social system to adopt.
2. *Early adopters*, respect - the next 13.5% to adopt. This class has the highest degree of opinion leadership. Potential adopters turn to early adopters for information and advice about an innovation.
3. *Early majority*, deliberate - the next 34% to adopt.
4. *Late majority*, skeptical - the next 34 % to adopt.
5. *Laggards*, traditional - the last 16% of individuals in a system to adopt. This group will only adopt a new idea when everyone else around them has adopted and is satisfied with it.

Opinion leadership refers to individuals who are able to influence others' attitudes. Opinion leaders are more likely to engage in all forms of external communication, have slightly higher social status and are more innovative. The informal leadership that the opinion leader holds is not a function. It is earned and maintained by the individual's technical competence, social availability and capacity to adjust to the system's norms. *Change agents* have the role of facilitating the flow of innovation from a change agency to a client system and are the communication link between them. A change agent also develops a need for change, diagnoses problems, translates intent into change and achieves a terminal relationship between the client and the innovation (Rogers 2003).

Nurses' Experiences of MI

A systematic review by Soderlund et al. (2011) examined outcomes of MI (competence and patient health) when it was used by general healthcare practitioners including nurses. In seven out of ten studies in the review, they also investigated different aspects of clinical use after MI training. They revealed that healthcare practitioners reported lack of time, patient resistance and difficulty learning new methods as barriers to clinical use of MI. They also reported that MI was relevant and more effective than traditional advice giving (Soderlund et al. 2011). In a recent study in obstetric healthcare (Lindhardt et al. 2015), MI providers experienced that MI was useful and increased their awareness of communication and the patient's own decision. It also made them more professional and better listeners. Further they reported it was difficult to find time for MI in daily practice and that an understanding of this was lacking on the part of management. They also felt less powerless when they had a method for handling difficult workloads.

Use of MI in Swedish primary care settings is relatively new, and studies describing primary care nurses' experiences of the method are few. One study examining this in a Swedish context, among nurses who use MI, is

Brobeck et al. (2011), who showed that MI places demands on nurses. The nurses in the study experienced that MI required experience and ongoing training. According to the nurses, it was also important to be genuinely interested in working with the method and in listening attentively as well as to allow the change to take time. Furthermore, the nurses considered the method to be enriching and useful. It also was described as a way to guide the care relationship (Brobeck et al. 2011).

Rationale for the Present Research Project

Because MI is one of the methods to be used in disease prevention, according to guideline recommendations (SBHW 2011), primary care nurses are trained in MI in their role as health promoters and their unique position as patients' first contact, which gives them the opportunity to detect at-risk patients (WHO 2010, SBHW 2011). Nevertheless, it has been disclosed that in primary care the challenge not only involves learning new skills, but also relearning and refraining from former approaches/behaviors. Studies have also shown that adoption of MI skills is not maintained over time and that sustained practice change is not always achieved (Doherty et al. 2000, Bohman et al. 2012, Carpenter et al. 2012, Hall et al. 2015). MI is not merely a set of techniques that are easy to learn. Knowledge of the technique is one step, but application requires more (Moyers et al. 2005, Miller & Rollnick 2009). If MI is to be used, it is of utmost importance to take this into account when MI is to be implemented. It is also crucial to examine how MI is actually practiced, thus enabling knowledge acquisition that can promote improvement of MI implementation and use.

Research has shown that MI is a useful approach in helping patients change their health behavior (Rubak et al. 2005, Knight et al. 2006, Stanton & Grimshaw 2013). Studies (Tod & Lacey 2004, Bennett et al. 2005, Channon et al. 2007, West et al. 2007) have also shown positive outcomes in primary care settings, and studies (Rubak et al. 2005) have been published that deal with nurses in primary care and their use of MI. Moreover, there is a small but growing body of research on the mechanisms underlying MI (Moyers et al. 2009, Vader et al. 2010, Magill et al. 2014), though previous research has mainly focused on substance abuse and examined MI sessions performed by providers trained specifically for the study. Studies describing primary care nurses' experiences of MI are few (Brobeck et al. 2011, Lindhardt et al. 2015) as are studies examining primary care nurses' actual performance (Efraimsson et al. 2012).

According to previous reviews (Rubak et al. 2005, Madson et al. 2009, Soderlund et al. 2011), more research examining how MI is and can be used in practice is required to identify best practice for training and implementa-

tion. There is also a call for examining the underlying mechanisms of MI in the area of health prevention (Pirlott et al. 2012, Copeland et al. 2015). To my knowledge, only one study (Carcone et al. 2013) has used MI-SCOPE to examine how counselor talk influences patient talk in contexts other than substance abuse. Similarly, no previous study has examined primary care nurses' communication and influence on patient talk during MI sessions using sequential analysis and "normal" MI providers' (i.e., not specially trained for the study) talk with patients in natural contexts. In Sweden, use of MI is relatively new, especially in primary care. To the best of my knowledge, only one previous study (Efrainsson et al. 2012) has examined use of MI among nurses in primary care in natural settings and following earlier training in MI.

Given the growing use of MI in primary care, the increasing costs of MI training and implementation and the fact that there is little research on primary care nurses' use of MI, it is crucial to examine, evaluate and describe primary care nurses' MI training, use, experiences and performance as well as their communication and influence during MI sessions. Such efforts would generate knowledge about their MI practice, skills and possible needs for improvement.

Aims

The overall aim of the present thesis was to describe and examine primary care nurses' self-reports on training, use and performance as well as experiences and actual performance of MI.

The specific aims of the manuscripts included in this thesis were:

Study I

The aim of the study was to examine whether primary care nurses have training in MI, whether and how they use MI and what prerequisites they have for using it, based on their own self-reports. The aim was also to examine whether there were any differences in background characteristics, training, use and prerequisites between DNs and RNs as well as between users and non-users of MI. Further, the aim was to examine possible relationships between use of MI and the variables MI training, supervision, feedback and prerequisites for using MI.

Study II

The aim of the study was to describe experiences of MI among primary care nurses trained in the method.

Study III

The aim of the study was to assess to what extent primary care nurses perform MI according to the Motivational Interviewing Treatment Integrity Code (MITI) as well as how primary care nurses rated their own MI performance.

Study IV

The aim of the study was to describe what verbal behaviors/kinds of talk occur during recorded MI sessions between primary care nurses and their patients. The aim was also to examine what kinds of nurse talk predict patient change talk, neutral talk and/or sustain talk.

Hypotheses study IV:

Primary care nurses' verbal behaviors/talks; *MI-consistent*, *open questions* and *reflections* (*complex* reflections more than *simple*) (Hypothesis 1) as well as *negative questions* and *positive reflections* (Hypothesis 3) are associated with increased probability of immediately subsequent patient *change talk* as opposed to sustain or neutral talk. Primary care nurses' verbal behavior/talk; *MI-inconsistent* (Hypothesis 2) as well as *positive questions* and *negative reflections* (Hypothesis 4) are associated with increased probability of immediately subsequent *sustain talk* from the patient compared to change or neutral talk.

Methods

Study I-IV

Design

An overview of the studies is presented in Table 1. Three of the studies had a quantitative approach and one a qualitative approach. All studies were cross-sectional.

Table 1. *Design, participants, data collection, and data analysis of the conducted studies*

Study	Design	Participants	Data collection	Data analysis
I	Correlational, comparative and descriptive survey, quantitative	District nurses and registered nurses/Primary care nurses (n=673)	A study-specific questionnaire	Statistical analyses and descriptive statistics.
II	Descriptive, qualitative	Primary care nurses (n=20)	Semi-structured audio-recorded interviews	Manifest and latent qualitative content analysis
III	Explorative and descriptive, quantitative	Primary care nurses (n=12)	Audio-recorded MI (32 sessions with 32 patients) and a questionnaire	Motivational Interviewing Treatment Integrity Code (MITI) 3.1.1 and descriptive statistics
IV	Explorative, predictive and descriptive, quantitative	Primary care nurses (n=23)	Audio-recorded MI (50 sessions with 50 patients)	Sequential Code for Observing Process Exchanges (MI-SCOPE), sequential analysis and descriptive statistics

Study I

Settings

The study was carried out in three county council districts in central Sweden, at 91 primary care centers run by the respective county councils. Three counties were used to obtain variation in the sample with regard to setting. In the included counties there was a large university town, several larger and smaller towns as well as rural areas with small communities.

Participants

The participants were DNs and RNs who were working with adults (including parents visiting child health clinics) in somatic primary care and who were currently employed. A total sample of 980 DNs and RNs was used. Sixty-nine percent (673 nurses) answered the questionnaire. Twenty answered that they did not wish to participate. Characteristics of the study sample are presented in Table 2. The DNs were significantly older than the RNs ($P = 0.006$), and the DNs had worked significantly more years than the RNs had ($P < 0.001$).

Table 2. *Characteristics of the primary care nurses*

	DN n=479(71%)	RN n=192(29%)
Age years ^{*,#}	51.3 ±8.5	48.9 ±10.5
Gender [†]		
Female	466 (97)	179 (93)
Male	13 (3)	13 (7)
Years as DN [#]	12.5 ±8.7	-
Years as RN ^{*,#}	23.7 ±10.8	18.8 ±11.9

*: Had 1-7 missing answers, #: Values are mean ±SD, †: Values are number of subjects (%), DN=district nurse, RN=registered nurse

Procedure and Data Collection

Data were collected using a study-specific, self-report questionnaire during the period September 2011 to January 2012. To obtain the names of all DNs and RNs fulfilling the inclusion criteria, the managers at each of the primary care units in the three counties were contacted by email and/or telephone. Information about the study, the questionnaire and a stamped return envelope were then sent by post to all DNs and RNs, at their respective workplaces. Two reminders were sent out at a two-week interval. The completed questionnaire was returned to the first author by post, in the stamped return envelope.

The questionnaire was based on expert advice from researchers in the area of MI and MI training, literature reviews (Resnicow et al. 2002b, Miller et al. 2004, Mitcheson et al. 2009, Forsberg et al. 2011) and the present author's own expertise based on observations in the field (Polit & Beck 2012). It was divided into three topics with a total of 27 questions. There were four questions on background characteristics, 16 questions on training in and use of MI and seven questions on prerequisites for using MI. The response alternatives that were used varied: dichotomous, four-, five- or six-graded scales, questions with different or multiple choices and two open-ended questions. The respondents were also given the opportunity to make comments. The questionnaires' validity was tested by asking seven primary care nurses (six DNs and one RN) whether they understood the instructions, questions and response alternatives. They were also asked to rate the relevance on a 5-point scale. All questions were understood. Three of the nurses experienced that all question were relevant. Four nurses experienced some difficulties with three to 10 questions due to problems with remembering the answers.

Data analysis

IBM SPSS Statistics Version 20 was used for all analyses, and p-values <0.05 (two-tailed) were considered statistically significant. All variables were calculated using descriptive statistics. Means and standard deviations were computed for continuous variables. For categorical variables, frequencies and percentages were computed. Ordinal variables were treated as categorical variables in the analysis. Independent two-tailed Student *t*-tests or Chi-square tests were used to test for differences between DNs and RNs. Fisher's exact test was used at expected values less than five. To identify the factor that was independently associated with use of MI, a logistic regression analysis was used. Variables with many missing values were omitted from the analysis. The regression model is presented in the results as odds ratio (OR), standard error of *B* (SE), p-value and with 95% confidence intervals (CIs) (Tabachnick & Fidell 2014). The free-text answers and comments for each question were analyzed by sorting the answers/comments based on similarities, and then counting them.

Study II

Settings

Study II-IV were carried out in Swedish primary care in two county council districts with primary care nurses. In the included counties, there were both larger towns and rural areas with small communities, and there were about 800 primary care nurses employed in primary care. In the context of their

various specialized tasks – such as the district nurse clinics, quit smoking sessions, telephone advice, child health, diabetes, asthma, and blood pressure care – the primary care nurses all met patients with lifestyle problems and had conversations about various behavior/lifestyle changes; these conversations could involve use of different conversational methods/approaches, such as MI. Moreover, the amount of time they spent on MI varied from once a week to full-time. This variation in work tasks and healthcare issues was also found among the participating nurses.

Participants

A purposive sample of primary care nurses trained in MI was used. To increase the likelihood of capturing different experiences and descriptions in the interviews, the nurses were selected to ensure variation in age, gender and work task/type of clinic as well as urban and rural locations (Petersen et al. 2009, Polit & Beck 2012). All 20 respondents agreed to participation. Half of the sample used MI in their work and half did not, according to self-reports. Four of the nurses who reported not using MI had used it immediately after training, but no longer did so. The participating nurses worked at 18 different primary care centers and had received training in MI anywhere from one to 12 years ago for 1.5 to 10 days and had worked with MI anywhere from zero to 10 years (mean 5.4 years). Eleven of the participants worked at urban locations and nine at rural locations. Sixteen were DNs and four were RNs. One was a man and the mean age was 51.0 years. More characteristics are presented in Table 3.

Table 3. *Characteristics of the primary care nurses*

	Mean \pm SD (n=20)	Range
Age in years	51.0 \pm 9.7	(27-65)
Years as RN	24.8 \pm 11.8	(2-42)
Years as DN*	10.4 \pm 9.2	(0.5-29)

*: n=16, RN=registered nurse, DN=district nurse

Procedure and Data Collection

Names of nurses who had undergone training in MI were obtained from the managers at each healthcare center. The trained nurses were contacted and informed about the study. Information about their work tasks was gathered

during that conversation, and the selection was made after all information had been gathered to ensure the variation in work tasks, location, gender, etc.

Semi-structured interviews were used to collect the data. The interviews were performed in the nurses' own workrooms and were digitally audio-recorded. A few open-ended questions guided the interviews (Kvale & Brinkmann 2009), e.g., "What is/was your experience of using MI?". For nurses who did not use MI, questions such as "Talk about why you do not use MI?" were also posed. Probes were used to elicit more information. The interviews lasted approximately 11-59 minutes (mean 33 minutes).

Data analysis

The transcribed interviews were analyzed using qualitative content analysis, as described by Graneheim and Lundman (2004). Content analysis is a technique for analyzing text by making inferences to context in a systematic manner (Krippendorff 2004). Manifest content analysis involves analyzing content close to the text and answering the "what" questions, whereas the latent analysis answers to the "how" questions and aims to interpret the underlying meaning in the text (Graneheim & Lundman 2004). All interviews were listened to and the transcribed text was read several times to get a sense and understanding of the content. Meaning units, i.e. words, sentences or paragraphs related to the same content, were identified, condensed and given a code. This was done to make the text easier to use without losing its essence. The codes were compared and sorted, according to similarities and differences, into 11 sub-categories and three categories after several regroupings. The underlying meaning in the text was identified and abstracted to form a theme. Discussions among co-authors carried out made throughout the entire analysis process until agreement was reached.

Study III

Settings

See Settings Study II.

Participants

The participants were recruited from primary care centers in two county council districts, the aim being to obtain a sufficient and varied sample from different settings. The inclusion criteria were: nurses working in somatic primary care with some kind of training in MI and who reported using MI in their conversations with patients. Twelve primary care nurses, all of them women, from ten different primary care centers ended up participating. The participating nurses were asked to audio-record three of their sessions with

patients. They contributed 32 sessions in total (four nurses were only able to make two recordings each). The nurses who chose to participate were also given written information about the study and written consent was obtained. Eleven of the participating nurses were DNs and one was an RN. Six of the participating nurses had also participated in Study II. Characteristics of the participating nurses and the patients partaking in the session are presented in Table 4. Figure 1 illustrates the selection process.

Table 4. *Characteristics of the participating nurses and the patients in the sessions*

Characteristics of the participating nurses	Study III (n=12)	Study IV (n=23)
Age years, range (mean)	43-62 (54.6)	37-62 (52.4)
Years as nurses, range (mean)	15-40 (28.1)	11-42 (26.7)
Characteristics of the patients in the sessions	(n=32)	(n=50)
Age years, range (mean)	23-76 (51.5)	23-76 (50.8)
Gender, n (%)		
Female	21 (65.6)	30 (60)
Male	11 (34.4)	20 (40)
Education, n (%)		
Compulsory school	10 (31.3)	15 (30.0)
High school degree	14 (43.8)	21 (42.0)
University degree	8 (25.1)	14 (28.0)
Occupation, n (%)		
Employed	21 (65.6)	41 (82.0)
Retired	9 (28.1)	7 (14.0)
Studying	1 (3.1)	1 (2.0)
Unemployed	1 (3.1)	1 (2.0)

Procedure and Data Collection

Nurse managers at the different primary care centers provided the names of nurses. The intention was to obtain the names of all primary care nurses who met the criteria, but some may have been missed because there were no current lists. The nurses were then contacted by telephone and asked about their training in and use of MI. Nurses who met the inclusion criteria were first verbally informed about the study and then invited to participate.

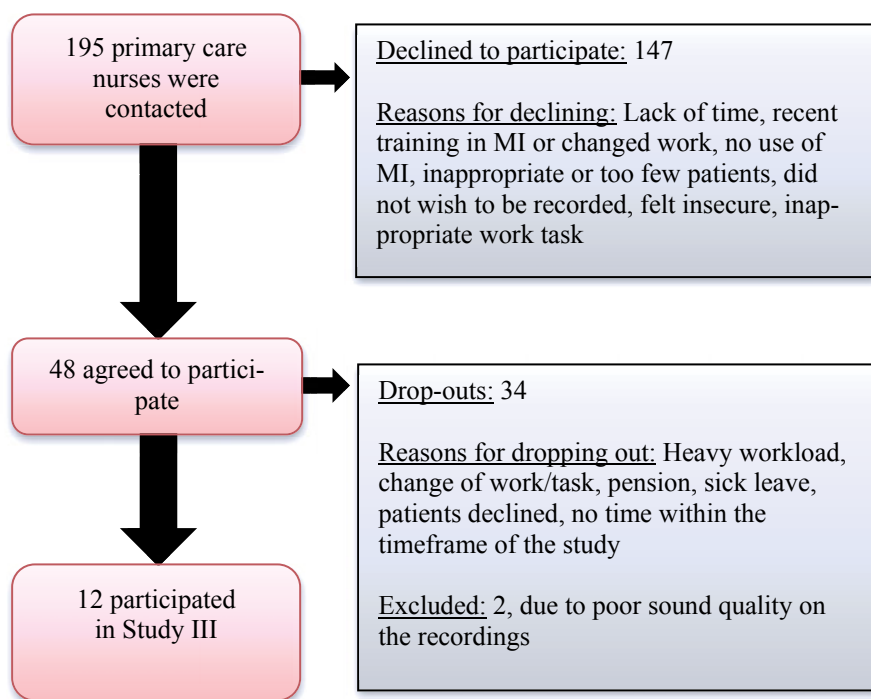


Figure 1. Sample process for Study III

Audio-recordings

The data were collected during 2011-2014 and consisted of audio-recorded MI sessions between a nurse and patient. The participating nurses were asked to audio-record sessions that concerned some change in a patient's lifestyle/behavior, using MI as they normally did. The nurses themselves selected the sessions from their normal, planned patient visits. The patients received oral and written information about the study during their visit with the nurse, and written consent was obtained from patients who chose to participate in the recording.

For Study III, the nurses were told that the sessions should last for at least ten minutes, preferably 20 minutes, and that at least one target behavior should be established for each session. Twenty-two sessions lasted for 20 minutes. Ten sessions lasted between 11 and 19 minutes (mean 15.5). The target behaviors in the sessions concerned, e.g., quitting smoking, gaining control over blood sugar, losing weight, improving diet and exercise, and establishing sleep routines. For one recorded session, the target behavior could not be established. Many of the sessions (n=20) contained more than one target behavior or behavior changes.

Questionnaire

After each session included in Study III, the nurses completed a questionnaire, in which they self-rated their own MI performance. The questionnaire was developed by the Motivational Interviewing Coding Laboratory (MIC lab) at Karolinska Institute in Stockholm, Sweden (<https://www.miclab.org/>) and contained two parts.

One of the parts contained five statements tied to the five global dimensions of the MITI (=the approach in MI): “In this session, I made an effort to explore the patient’s own thoughts about behavior change” (=evocation), “In this session, I showed my awareness that the patient possesses the knowledge needed to achieve change” (=collaboration), “In this session, I made an effort to promote the patient’s experience of having control and choice” (=autonomy/support), “In this session, I made an effort to focus on change” (=direction) and “In this session, I made an effort to understand the patient’s perspective and feelings” (=empathy). The participating nurses rated their performance on a 5-point Likert scale (1=to a small extent – 5=to a great extent).

The other part contained four questions regarding the behavior counts in the MITI (=the communication skills in MI). One of the questions was: “If you consider the statements you made in this session, what do you think the relative proportions of MI adherent and MI non-adherent statements were?” The response alternatives were: “more MI adherent than MI non-adherent,” “as many MI adherent as MI non-adherent,” and “more MI non-adherent than MI adherent.” The other three questions were worded likewise, but concerned the relative proportions of statements that were reflections vs. questions, open vs. closed questions and complex vs. simple reflections (in each pair, the first-mentioned type reflects better MI performance). The response alternatives for these three questions were based on those for MI adherent vs. MI non-adherent.

Data analysis

To analyze the recorded MI sessions, MITI, version 3.1.1 (Moyers et al. 2010) was used. The MITI has been tested for accepted validity and reliability (Forsberg et al. 2007, Forsberg et al. 2008). The MITI analysis was carried out by two coders at the MIC lab at Karolinska Institute. Because these coders were qualified to work with different coding systems for MI sessions, including MITI, good inter-rater reliability could be established. Intra-class correlations (ICCs) were used to estimate the inter-rater reliability of the MITI coding in Study III. A two-way mixed model with absolute agreement and single measures were employed in IBM SPSS Statistics, version 20, when calculating and interpreting ICCs. ICCs were based on 14 (44%) randomly selected recorded sessions (Polit & Beck 2012). ICCs for the *global*

scores ranged from 0.14 to 0.55 and for the *behavior counts* from 0.66 to 0.96. Two ICCs (*evocation* [0.14] and *autonomy/support* [0.34]) were below the range of guideline recommendations (<0.4 poor agreement, 0.41-0.59 fair, 0.6-0.74 good and 0.75-1 excellent agreement) (Cicchetti 1994). To become familiar with the MITI coding process, the first author observed 16 coding sessions. Interpretation of the coding results was carried out by the first author and discussed with the other authors.

Two different coding procedures are involved in the MITI: **Global score**, the overall estimation (of the approach in MI), which includes five dimensions: empathy, evocation, collaboration, autonomy/support and direction. The overall estimation reflects the coder's general impression of the degree to which the nurses meet the criteria for each dimension during the entire coded part of the session. It is rated on a 5-point Likert scale from 1 (low) to 5 (high).

During the second procedure, **behavior counts**, the coder counts specific verbal behaviors (communication skills in MI), as they occur during the coded part of the session. The specific verbal behaviors included in the counting are: giving information, MI adherent statements, MI non-adherent statements, questions (closed vs. open) and reflections (simple vs. complex). MI adherent statements involve affirming and supporting the patient, emphasizing the patient's control and asking for permission before giving information and advice. MI non-adherent statements involve giving orders, confronting the patient and giving advice and information without permission. Both coding procedures are performed at the same time, during a single review of the audio-recording.

The results from the two coding procedures are summed to form an index (summary score) that is considered to assess the MI provider's skills in MI. **Summary score**, calculation formulas are presented in parentheses, includes the global rating of MI spirit ($\text{evocation} + \text{collaboration} + \text{autonomy support} / 3$), percent complex reflections ($\text{complex reflections} / \text{all reflections}$), percent open questions ($\text{open questions} / \text{all questions}$), reflection-to-question ratio ($\text{all reflections} / \text{all questions}$) and percent MI adherent ($\text{MI adherent} / \text{MI adherent} + \text{MI non-adherent statements}$). Thresholds for two levels of approved skills – beginning proficiency and competency – are recommended for each index (Moyers et al. 2010).

The nurses' ratings of their own MI performance were analyzed to determine which MITI variables they rated themselves highest and lowest on. Their self-ratings were also compared with their coded scores and counts on the MITI to determine how well their self-ratings accorded with their actual MITI scores/counts. This analysis was carried out by counting the ratings on every question, both for the nurses as a group and for each nurse separately.

When comparing with their actual scores and counts, the steps between their own ratings and scores/counts of actual performance were also counted.

Descriptive statistics were computed for the nurses' and patients' background variables and are described using ranges and means for continuous variables and frequencies and percentages for categorical variables.

Study IV

Settings

See Settings, Study II.

Participants

The participants were recruited from primary care centers in two county council districts, the aim being to obtain a sufficient and varied sample from different settings. The inclusion criteria were: nurses who worked in somatic primary care with some kind of training in MI and who reported using MI in their conversations with patients. A total of twenty-three nurses, all of them women (the same 12 nurses from Study III as well as one of the excluded nurses and an additional 10) from 18 different primary care centers participated. They contributed 50 audio-recorded MI sessions. Eight of the nurses recorded one session each, six recorded two, another six recorded three sessions and three nurses recorded four sessions each. One of the participating nurses had also participated in Study II and six in Study II and III. Characteristics of the participating nurses and the patients partaking in the sessions are presented in Table 4. Figure 2 illustrates the selection process.

Procedure and Data Collection

See Procedure and Data Collection – Audio recording, Study III.

For Study IV, the additional 10 nurses (only participating in Study IV) were asked to audio-record at least one of their MI sessions (preferably more if they had the opportunity to do so during the data collection period). The length of the sessions had no significance. In Study IV, 50 recorded sessions were included in total. They contained between 71 and 606 transitions each (mean 260) and lasted between 7.36 and 60.12 minutes (mean 28.32). A transition is one communication transmission from a sender (e.g., nurse) to a receiver (e.g., patient).

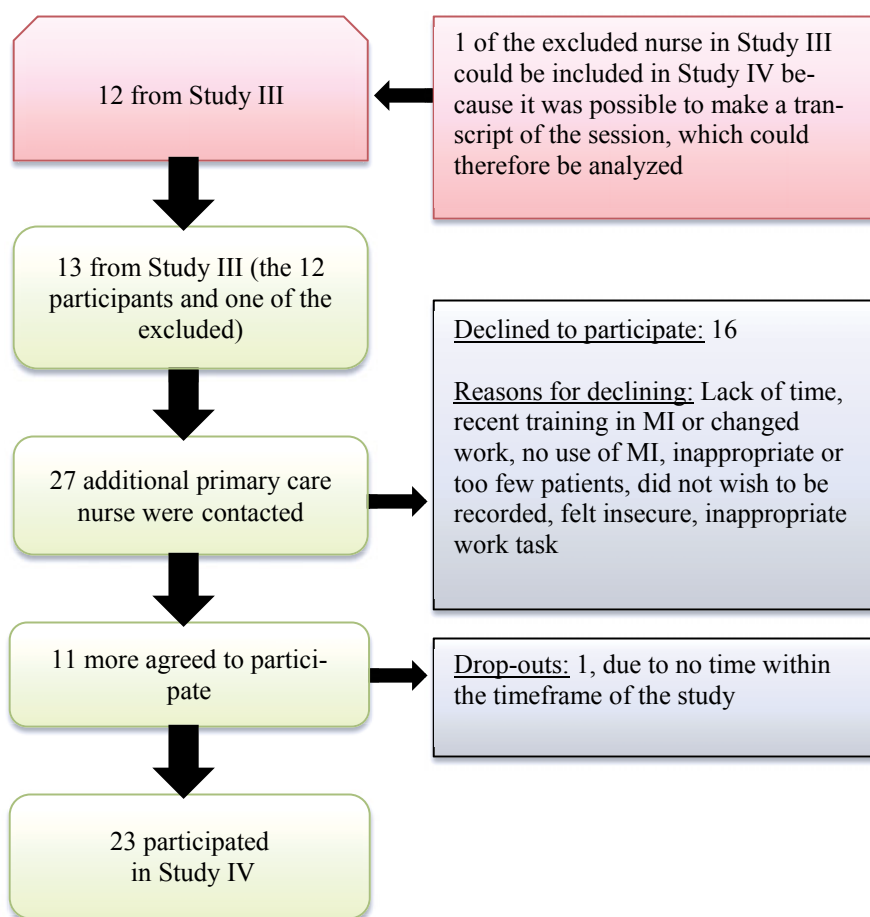


Figure 2. Sample process for Study IV

Data analysis

The MI-SCOPE (Martin et al. 2005, Forsberg et al. 2014) was used to analyze the recorded MI sessions. MI-SCOPE has been used, tested and found to have acceptable validity and reliability in previously studies (Moyers et al. 2007, Moyers et al. 2009, Martin et al. 2011). The MI-SCOPE analysis was carried out by three coders at the MIC lab, who also work with MI-SCOPE coding. The MIC lab was used for coding to establish good inter-rater reliability. One of the co-authors of Study IV works at MIC lab and was one of the coders. The author of the present thesis also observed the MI-SCOPE analysis of two sessions to become familiar with the method.

The audio-recorded MI sessions were transcribed verbatim before analysis, because the coders make coding marks directly in the transcript during analysis. Two different procedures are involved in the MI-SCOPE: In the first procedure, *parsing*, the coder breaks down the transcribed MI session text into utterances while listening to the recorded session. Each utterance represents a complete thought and is marked with parentheses (see, e.g., Table 5). During the second procedure, *coding*, each utterance is assigned a specific talk code/name (see Table 13 in Appendix), in accordance with the MI-SCOPE manual (Martin et al. 2005, Forsberg et al. 2014). The talk code is marked after each utterance in the transcript. There are specific codes both for the nurses'/counselors' talk and for the patients' talk (Martin et al. 2005).

The author of the present thesis carried out the statistically analyzed and interpretation of the coding results, which were discussed with all co-authors. Information about the specific talk codes is presented in Table 5 and Table 13 (in Appendix).

Table 5. *Example of parsing and the nurse code – reflections, in MI*

Nurse Codes	Utterances from the sessions
	<i>Patient</i> (- I have terrible pain in my joints.)
sr+/-	<i>Nurse</i> (- Un huh, joint pain, what, how?)
	<i>Patient</i> (- I'm calmer when I smoke.)
sr-	<i>Nurse</i> (- It makes you calmer.)
	<i>Patient</i> (- I go out almost every day.)
sr+	<i>Nurse</i> (- You mean you exercise every day?)
	<i>Patient</i> (- Yes.)
cr+	<i>Nurse</i> (- And you think even that makes you feel good?)
	<i>Patient</i> (- I think quitting smoking is hard. What else should I
cr-	do?)
	<i>Nurse</i> (- Do you feel smoking is a way to kill time?)
	<i>Patient</i> (- The female doctor I had was great.)
cr+/-	<i>Nurse</i> (- Wonderful! You ended up in the right hands.)

sr=simple reflection, cr=complex reflection,+ =Positive (reflecting commitment to change), - =Negative (reflecting commitment to maintain status quo), +/- =Neutral (commitment neutral reflection), parenthesis = a complete thought/utterance (example of the parsing procedure)

Cohen's Kappa was used to estimate the reliability of the *parsing* procedure in MI-SCOPE, based on 10 (20%) randomly selected recorded sessions, which were double parsed. ICCs and Cohen's Kappa were used to estimate the inter-rater reliability of the *coding* procedure in MI-SCOPE. They were based on another 10 (20%) randomly selected recorded sessions (Polit & Beck 2012), which were double coded. A two-way mixed model with abso-

lute agreement and single measures was employed in IBM SPSS Statistics, version 20, when calculating and interpreting ICCs.

On the *parsing* procedure, the coders achieved a kappa ranging from 0.82 to 0.92 (mean 0.89) and on the coding procedure, a kappa ranging from 0.65 to 0.88 (mean 0.77), which is within the range of guideline recommendations (0.40-0.75 intermediate to good agreement, > 0.75 excellent agreement) (Fleiss 1981). ICCs for the coding ranged from 0.19-0.98 (mean 0.8). ICCs for one code (positive questions) were 0.19 and below the range of guideline recommendations 0.40 (Cicchetti 1994), owing to low event frequencies. The other ICCs showed good to excellent agreement (0.57-0.98).

The software Generalized Sequential Quierier 5 (GSEQ) by Bakeman and Quera (2011) was used to compute the observed frequency of specific kinds of talk and to conduct the statistical analysis, sequential analysis. The sequential analysis was used to predict patient talk from nurse talk. In this analysis, the transition probability was computed and examined to describe and predict the sequential pattern of the nurse-patient interaction at Lag 1. A transition probability at Lag 1 means the probability that a given kind of patient talk would occur immediately after any given kind of nurse talk. The choice of examining Lag 1 was made because most patient talk was at Lag 1. All sessions were pooled in the analysis.

To determine the statistical significance of the transition probabilities, odds ratios (ORs) were used. Talk consistent with MI was compared with similar talk that was not or was less consistent with MI (opposites). ORs ≥ 1.25 and ≤ 0.8 were considered statistically significant (Bakeman & Quera 2011).

The minimum expected cell frequency should be at least 3, preferably 5 to compute reliable transition probabilities. At least 6348 transitions must be observed for all codes, the full MI-SCOPE, to meet the minimum expected frequency of 3 events per cell in all cells (Martin et al. 2005). A total of 12,980 transitions were observed across the 50 sessions. The expected frequencies were less than 5 for positive questions to change talk and negative reflections to sustain talk and less than 3 for positive questions to sustain talk.

IBM SPSS Statistics Version 20 (IBM Corp., Armonk, NY, USA) was used to compute descriptive statistics on the nurses' and patients' background variables.

Ethical considerations

Study II-IV was approved by the Regional Ethical Review Board at the Uppsala University (registration no. 2010/153). For Study I, ethical approval was neither applied nor required according to the Swedish law (SFS 2003:460) on ethical review of research involving humans, as no sensitive personal data were collected.

Supported by the principle of beneficence, the patients were informed that their continued treatment would not be affected if they chose not to participate in the recording. The patients were informed by the nurses, which was considered to involve the least risk for patients feeling pressured to participate, given that the nurses were neutral, thus did not benefit from patient participation.

The principles of beneficence entail the duty to minimize harm and maximize benefits. The participants were nurses, who were not considered vulnerable in the situation. The burden of participation may have been the time required to complete the questionnaire and to record the sessions as well as possible psychological distress in connection with someone listening to their recorded conversations. The maximum time for answering the questionnaire was estimated to be 15 minutes and for recording a session 10 minutes. The participating nurses were also informed that the person listening to the recordings would not know who they were and would not be judging them. Thus, the burden of participation was regarded as relatively limited. The benefit of participating was that they could, if they wished, receive feedback on their performance, which is crucial to development in use of the method. From a broader perspective, participating may lead to improvement in the studied area.

Supported by the principle of justice, the participants were guaranteed confidentiality. All data have been safely stored and the results contain no information that can reveal the participants' identity.

Supported by the principle of respect for human dignity, written information about the study was given to all participating nurses and patients in all four studies. Oral information was given to all participants in Study II-IV as well. All participants were informed that the study was voluntary and that they could withdraw at any time without giving a reason. The participants in Study I participated and gave their consent by completing the questionnaire (Polit & Beck 2012).

The principles of research ethics stipulated in the Helsinki Declaration (The World Medical Association (WMA 2013) and Swedish Codes of Statutes (SFS 2003:460) have been followed.

Results

Study I

Training in and use of MI among the primary care nurses

More than half of the nurses who completed the questionnaire had training in MI and about half of the nurses used it. About 15% of those who used MI did not have any training in it. Significantly more DNs than RNs had training in ($P<0.001$) and used MI ($P<0.001$). No differences were found in follow-up, supervision or feedback when comparing DNs and RNs. A description of training in and use of MI among the primary care nurses is presented in Table 6.

Table 6. Description of DNs' and RNs' training in and use of MI

	Total* DN n=479		Total* RN n=192	
Training in MI [#]	478	329 (69)	190	67 (35)
Years since training [†]	281	4.0 ±3.4	57	4.0 ±4.5
Received follow-up [#]	324	85 (26)	66	19 (29)
Received supervision [#]	284	47 (17)	78	8 (10)
Received feedback [#]	289	71 (25)	77	25 (33)
Used MI [#]	472	297 (63)	190	83 (44)

*: Total number who have answered each question, #: Values are number of subjects (%),

†: Values are mean ±SD.

Prerequisites for using MI among the primary care nurses

Here, prerequisites refer to personal factors such as confidence and opinions as well as workplace prerequisites that obstruct or facilitate use of MI. The DNs (69%) and RNs (64%) rated lack of time as the most common obstacle to use of MI, and lack of knowledge (44/61%) as the second most common obstacle. Most nurses rated their workplace prerequisites for use of MI as “good-very good” (59/56%), and they rated their confidence in MI as “high-very high” (76/71%) (The response alternatives were: very poor/low, poor/low, neither good/high nor bad/low, good/high, very good/high). Comparing DNs and RNs, no other significant differences in their prerequisites for using MI were found, other than the fact that fewer DNs than RNs expe-

rienced lack of knowledge ($P<0.001$). In the free-text answers and comments, the foremost expressed opinion about MI was that MI gets patients involved, that it is the patients who make the decisions and who have the solutions with regard to lifestyle change. Other opinions about MI were that it is a necessary, good tool that promotes communication and puts nurses and patients on the same level. A few respondents had negative opinions about MI: It is difficult to use, it does not suite everyone, it feels artificial and it takes time.

Differences between users and non-users of MI

Users of MI had significantly more training in MI ($P<0.001$) and had received more follow-up on their MI training than had non-users. Significantly more users of MI also rated better conditions for using MI ($P<0.001$) and higher confidence in MI ($P<0.001$). Compared to non-users, significantly more users experienced lack of time to use MI ($P<0.001$) and felt they had too many patients ($P = 0.005$). Additional differences between users and non-users of MI are presented in Table 7.

Table 7. *Differences between users and non-users of MI*

	Total*	Users n=382	Total*	Non-users n=282	P-value
Age in years [#]	382	51.4 ±8.6	280	49.4 ±9.9	0.007
Years as DN [#]	297	13.7 ±8.7	175	10.4 ±8.3	<0.001
Years as RN [#]	373	23.0 ±11.0	282	21.0 ±11.6	0.024
Days of Training [#]	281	3.2 ±2.2	61	2.3 ±1.4	<0.001
Received follow- up in MI [†]	316	97 (31)	74	6 (8)	<0.001

*: Total number who have answered each question, #: Values are mean ±SD, †: Values are number of subjects (%)

Variables associated with use of MI

Training in and knowledge of MI, prerequisites for using MI, time and absence of “other” obstacles (e.g., resistance on the part of patients, that they did not meet patients with those kinds of needs, feeling insecure in their performance or sometimes forgetting to use MI) were the independent self-reported factors associated with use of MI, as indicated by the results of the logistic regression; see Table 8. The independent variables in the model accounted for between 40.8-55.0% of the variance in use of MI.

Table 8. *Logistic regression analysis of variables associated with use of MI*

	Odds ratio	Standard error	df	P-value	95% CI
Training in MI	11.23	0.24	1	0.000	6.97-18.08
Prerequisites for use of MI	1.81	0.13	1	0.000	1.40-2.34
Lack of time	0.32	0.27	1	0.000	0.19-0.54
Lack of knowledge	4.29	0.26	1	0.000	2.60-7.07
Other obstacles	2.22	0.38	1	0.034	1.06-4.64

$n = 568$, Percent correctly classified = 81.0%. Full model likelihood ratio chi-square = 297.65, $df = 5$, $p = 0.000$.

Study II

The analysis resulted in a theme, three categories and 11 sub-categories; see Figure 3.

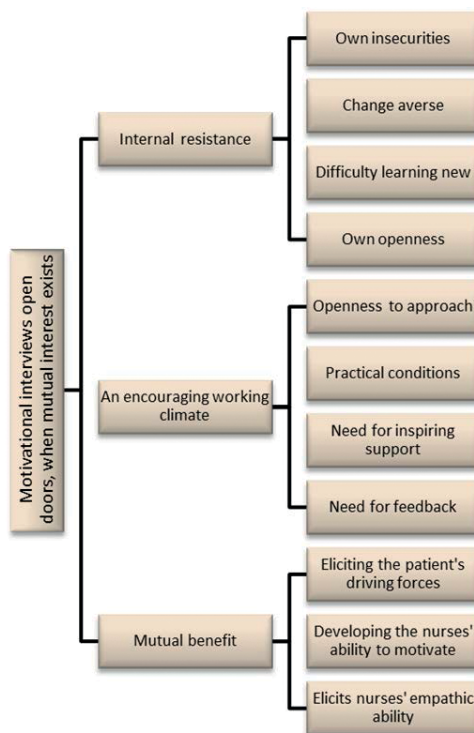


Figure 3. Theme, categories and sub-categories

Motivational interviews open doors when mutual interest exists

The theme that emerged in the analysis shows that MI opened the door to possibilities for the patients as well as for the nurses to develop motivation and abilities. Achieving this requires interest on the part of the organization, the nurses themselves and the patients.

Internal resistance

The nurses' experiences of their own obstacles in relation to adoption of MI are described in this category. The nurses described their *own insecurities*, being afraid of doing something wrong, getting mental blocks and feelings of uncertainty. The nurses who did not use MI also described being *change averse*, not being interested in or not liking the method or just being lazy. Another obstacle all the nurses experienced was having *difficulties learning new techniques* and difficulties refraining from previously ingrained habits. The nurses also reported that, in order to adopt the method, they needed to have their *own openness* as well as be interested and willing.

An encouraging working climate

The content of this category describes the nurses' experiences of the prerequisites required at the workplace for implementing and using MI. To succeed with implementation of MI, the nurses felt there had to be *openness to the approach* at the workplace among colleagues and management, meaning that the method is discussed, as well as consensus concerning how the method should be used. To use MI properly, the nurses believed it was desirable to have certain *practical conditions*, such as more opportunities to use MI, more time with patients and more training in the method. Further, the nurses described wanting someone at the workplace to provide *inspiring support* for MI and the *need for* (some form of continuous) *feedback*.

Mutual benefit

This category includes the nurses' experiences of opportunities for mutual benefit, for both the nurse and the patient, associated with their use of MI. The nurses reported that MI *elicits the patient's driving forces* by not putting blame on the patient and by using the patient's knowledge and prerequisites to promote possible future change. The category also describes how MI *develops nurses' ability to motivate* patients to change their lifestyle through the use of reflective listening and open-ended questions. The nurses also described how MI's inherently respectful approach serves to *elicit nurses' empathic ability*. The nurses also felt that MI elicits their empathic ability by putting them on the same level as the patient and by making them listen to the patient.

Study III

The participating nurses' training in and use of MI

The participating nurses had used MI for 2-11 years (mean 5.6 years). Five of the nurses reported using MI ≥ 100 times a week and five reported using it 2-6 times a week. Two of the nurses were unsure and did not give any answer. For more information on the nurses' training, see Table 9.

Table 9. *Participating nurses' training in MI*

Nurse	1	2	3	4	5	6	7	8	9	10	11	12
Years since MI training	8	5	2	6	*	4	7	12	5	12	10	9
Days of MI training	10 [#]	3	2 [#]	3	2 [#]	7 [#]	2	7 [#]	3	2.5	10	3
Supervision and Feedback	yes [†]	yes	yes	no	no	yes	no	yes	yes	yes	no	no

*: no answer given, #: additional MI training other than from the county council, e.g. university education/course in Asthma/COPD and Disease Preventive methods and short course in MI, †: reported receiving only supervision

Achieved proficiency/competency in MI

As shown in Table 10, none of the nurses achieved approved skill levels, according to the thresholds stipulated by MITI, during any of their sessions. *Percent complex reflection* was the *summary score* index on which most nurses achieved approved skill levels, followed by *empathy*. *Percent open questions* and *MI spirit rating* was the *summary score* index on which the fewest achieved approved skill levels. The best-performing nurse achieved the threshold for competency on four indexes and for beginning proficiency on six, across all her sessions. Two nurses did not achieve approved skill levels on any of the *summary score* indexes. The thresholds for the two approved levels beginning proficiency (marked light pink/red) and competency (marked darker pink/red) are presented at the bottom of Table 10.

Self-ratings MI performance

The self-rating results are presented as sums in Table 11 and show that the nurses' self-rated high on all five dimensions in the MITI *global scores*. Compared with their actual *global scores* (the global scores are summed in Table 11), they overestimated their own performance on four dimensions. The least accurate self-ratings of own performance were found among the nurses with the lowest MITI scores, and those with the highest MITI scores had the most accurate self-ratings.

The nurses' self-rated using more *open questions* (7 nurses in 11 sessions) than *closed* (5 nurses in 5 sessions), more *simple reflection* than *complex* and more *MI adherent* than *MI non-adherent* statements than was indicated by

Table 10. The nurses' MI summary scores

Nurse	Summary scores*																	
	Reflections-to-questions ratio			Percent open question			Percent complex reflections			Percent MI adherent			Empathy			MI spirit rating [#]		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Session																		
1	0.9	1.5	1.3	44	58	46	38	39	43	100	0	83	4	4	4	3	3.7	3.7
2	0.8	0.4	0.5	36	29	37	32	45	56	100	100	100	4	4	3	3	3	3.3
3	1.3	1.5	†	20	18	†	68	60	†	54	33	†	4	4	†	2.3	2.7	†
4	0.9	1.0	0.6	36	32	53	60	55	73	50	30	14	3	3	4	2.7	2	2
5	1.1	0.3	0.5	35	45	44	60	46	38	67	56	14	4	3	2	3.3	2.3	1.3
6	0.6	0.7	†	2	53	†	23	18	†	25	100	†	3	4	†	2	3.7	†
7	0.5	0.3	0.7	29	36	15	85	67	78	33	11	0	3	2	3	1.3	2	1.7
8	0.7	0.4	0.6	18	11	13	42	48	71	50	56	29	3	3	3	2.7	2.7	2.3
9	0.6	0.2	0.4	43	41	13	67	50	11	73	83	42	3	3	2	2.7	3.3	1.7
10	0.9	0.7	0.6	47	14	23	38	28	53	10	25	17	2	2	3	1	1.3	2
11	0.3	0.3	†	26	12	†	22	14	†	0	29	†	1	2	†	1	1.3	†
12	0.1	0.1	†	33	16	†	0	0	†	60	36	†	2	2	†	2	1.3	†

Thresholds:

<i>Beginning proficiency</i>	≥ 1	≥ 50%	≥ 40%	≥ 90%	≥ 3.5	≥ 3.5
<i>Competency</i>	≥ 2	≥ 70%	≥ 50%	≥ 100%	≥ 4	≥ 4

*: Summary scores on the nurses' MI sessions according to the Motivational Interviewing Treatment Integrity Code (MITI 3.1.1). #: The score of Evocation+Collaboration+Autonomy Support/3, †: Missing sessions

their *summary scores* (the summary scores are presented in Table 10). Compared with their actual scores, they underestimated themselves most on use of *complex reflections* and they overestimated themselves most on use of *open questions*.

Table 11. *Summary of the nurses' global scores and self-rating of own performance in MI*

Global scores*			Self-rating#		Self-rating compared with scores†	
Number of Sessions/Number of Nurses						
	High (4-5)	Low (1-2)	High (4-5)	Low (1-2)	Over	Under
Evocation	2/2	19/10	21/11	0	15/13	0
Collaboration	4/3	20/10	25/10	1/1	16/13	0
Autonomy/Support	4/4	15/9	23/11	0	13/9	0
Direction	23/10	4/4	20/10	2/1	2/1	4/3
Empathy	10/6	9/6	25/11	1/1	8/7	0
			Self-rating#		Self-rating compared with counts†	
Number of Sessions/Number of Nurses						
	As many			Over	Under	
	More	many	Less			
MiA than MiNa	9/6	13/9	6/5	14/9	7/6	
oq than cq	11/7	13/9	5/5	21/11	0	
cr than sr	2/2	11/6	16/10	5/3	10/7	

MiA= MI adherent statements, MiNa=MI non-adherent statements, oq=open questions, cq=closed questions, cr=complex reflections, sr=simple reflections, *: Global scores on the nurses' MI sessions according to Motivational Interviewing Treatment Integrity Code (MITI 3.1.1) Likert scale 1 (=low rate) – 5 (=high rate), #: The participating nurses' self-rating of their own MI performance: Global scores on a Likert scale 1 (=to a small extent) – 5 (=to a great extent) and Counts were rated More MiA/oq/cr than MiNa/cq/sr, As many MiA/oq/cr as MiNa/cq/sr or Less MiA/oq/cr than MiNa/cq/sr, †: Self-ratings compared with scores and counts, number of Overestimates (rates +2-4 steps over counts) and number of Underestimates (rates -2-4 steps under counts).

Study IV

Characteristics

The participating nurses, all of them women, had worked as nurses for 11-42 years, as shown in Table 4. Two had received their MI training at a university and the rest had received their training from the county council ($n=21$). The time since they completed their MI training was 2-15 years (mean 7.2). Eight of the nurses had received supervision during and/or after MI training as well as feedback on their MI performance. Four of the nurses had only received feedback and two only supervision. The rest of the nurses had not received any supervision or feedback.

Observed frequencies

Table 12 presents the observed frequency (occurrence of talk), which shows the number of respective kinds of patient talk that actually occurred immediately after (Lag 1) the respective kinds of nurse talk. As nurses' communication during MI is the study focus, nurses' talk is the antecedent event (given) and patients' talk the subsequent event (target) – the response.

Neutral questions and *reflections* as well as *closed questions* were the most common kinds of nurse talk. *Neutral talk* was the most frequently observed kind of patient talk at Lag 1. *Neutral talk* was also the most frequently observed patient talk to follow all nurse talk except for *positive* and *negative questions* as well as *positive* and *negative reflections*. The most frequently observed *change talk* was in response to *positive reflections* and the most frequently observed *sustain talk* was in response to *neutral questions*. (For descriptions about the different kinds of talk, see Table 5 and Table 13 in Appendix).

Table 12. *Observed frequencies, Transition Probabilities and Significance of nurse and patient talk at Lag 1 in MI sessions*

Target: Patient Talk						
Given: Nurse Talk	Observed Frequencies			Transition Probabilities (proportions)		
	Change talk	Sustain talk	Neutral talk	Change talk	Sustain talk	Neutral talk
MI-Consistent	45	8	173	0.20 [†]	0.04 ^{††}	0.77 [*]
MI-Inconsistent	70	23	223	0.22	0.07 ^{**}	0.71 [†]
Questions						
Closed	153	41	1185	0.11 ^{††}	0.03 [†]	0.86 ^{**}
Open	128	22	353	0.25 ^{**}	0.04 [*]	0.70 ^{††}
Neutral	157	44	1491	0.09	0.03 ^{†††}	0.88 ^{***}
Positive	4	16	6	0.15	0.62 ^{***}	0.23 ^{†††}
Negative	120	3	41	0.73 ^{***}	0.02 [†]	0.25 ^{†††}
Reflection						
Simple	101	32	510	0.16 [†]	0.05	0.79 [*]
Complex	147	37	541	0.20 [*]	0.05	0.75 [†]
Neutral	37	22	930	0.04	0.02 ^{†††}	0.94 ^{***}
Negative	5	39	20	0.08 ^{††}	0.61 ^{***}	0.31 ^{†††}
Positive	206	8	101	0.65 ^{***}	0.03 ^{††}	0.32 ^{†††}

*: More probable than expected by chance, †: Less probable than expected by chance ***/††† Strong relationship (>3.0 / <0.33), **/†† Moderate relationship (2.0-3.0 / 0.33-0.5), */† Weak relationship (1.25-2.0 / 0.5-0.8). Nurse talk types in the same shade of grey above/under are compared with each other in the predictions. **Hypothesis 1 and 2** = bold number, ***Hypothesis 3 and 4*** = bold and italic number

Transition probabilities

The probability of *change talk*, compared with neutral and sustain talk, was greatest following after the nurse talk types *negative questions* (73%) and *positive reflections* (65%). The probability of *sustain talk*, compared with neutral and change talk, was greatest following the nurse talk types *positive questions* (62%) and *negative reflections* (61%). Table 12 shows the results of the sequential analysis and presents the transition probabilities.

Results of predictions

The significance test is presented by marks in Table 12; it confirms Hypothesis 2-4 and partly confirms Hypothesis 1.

Hypothesis 1 was supported in that *open questions* compared with closed, as well as *complex reflections* compared with simple, were significantly more likely to be followed by *change talk* than by neutral or sustain talk. Contrary to Hypothesis 1, *MI-consistent* talk compared with *MI-inconsistent* and *simple reflections* compared with complex were significantly less likely to be followed by *change talk*.

Hypothesis 2 was confirmed in that *MI-inconsistent* talk compared with *MI-consistent* was significantly more likely to be followed by *sustain talk* and not to be followed by *change* or *neutral* talk.

Hypothesis 3 was also confirmed in that *negative questions* compared with *neutral* and *positive*, and *positive reflections* compared with *neutral* and *negative*, were significantly more likely to be followed by *change talk*.

Hypothesis 4 was supported in that *positive questions* compared with *neutral* and *negative*, and *negative reflections* compared with *neutral* and *positive*, were significantly more likely to be followed by *sustain talk*.

Discussion

The overall aim of the present thesis was to describe and examine primary care nurses' self-reports on training, use and performance as well as experiences and actual performance of MI. The main result revealed lack of knowledge about MI among the nurses (Study I-IV). The findings also showed that nurses reported and experienced lack of training in MI and lack of prerequisites for using MI (Study I-II), while training, knowledge, conditions and time were associated with use of MI (Study I). Despite the fact that the nurses experienced obstacles associated with use of MI, they also reported having confidence in the method (Study I). Moreover, they reported and experienced that MI facilitated their work with patients, involved the patient (Study I-II) as well as elicited their own ability to motivate and be empathetic (Study II). Additional results were that about half of the responding nurses reported having used MI (Study I) and that none of the nurses who reported using MI achieved approved skill levels in MI in their recorded sessions. Comparing their actual performance with their self-ratings of their own performance in the MI sessions, they overestimated their performance in all parts except for in the MITI measures direction and complex reflections (Study III). The results also showed that the most frequently used kind of nurse talk in the recorded session was neutral, which is not consistent with MI (Study IV). Another finding was that questions and reflection directed toward change were most likely to be followed by change talk (Study IV).

MI, a suitable method

Consistent with previous studies (Rollnick et al. 1997, Sargeant et al. 2008, Lindhardt et al. 2015), the present results show that the nurses found MI to be respectful, non-judgmental, (Study II) and to position nurses and patients on the same level (Study I). The nurses also found that MI helped them improve their ability to motivate patients (Study II). This is also in line with previous results describing MI as suitable and more effective than traditional advice giving (Rubak et al. 2005, Brobeck et al. 2011). Earlier studies have also shown that MI users experience increased self-confidence (Walters et al. 2005, Sargeant et al. 2008, Brobeck et al. 2011) and comfort in their interaction with patients (Sargeant et al. 2008). Also in line with previous descriptions (Rollnick et al. 1997, Casey 2007, Brobeck et al. 2011) is the feeling,

expressed by nurses, that MI elicits patients' own driving forces and that it, at the very least, gives rise to thoughts about change or, at best, real motivation for change (Study II).

Use of MI

One surprising finding in the present thesis is the relatively high number of nurses who reported having training in MI who also reported not using the method (Study I). Lack of time and knowledge (Study I and II) and a feeling of insecurity in carrying out the method were some of the mentioned reasons for not using MI (Study II). Other studies have also shown that this is a challenge, especially in healthcare settings (Doherty et al. 2000, Velasquez et al. 2000, Emmons & Rollnick 2001a, Resnicow et al. 2002b, Sargeant et al. 2008). Another challenge (Study I and II) is having to relearn one's role, that is, having to transition from one's former expert advice role to the MI spirit, which is collaborative (Resnicow et al. 2002b, Sargeant et al. 2008). Previously, nurses have also described how difficult it is to learn new methods such as MI and that it is easy to return to old communication techniques when they have a heavy workload or are tired (van Eijk-Hustings et al. 2011). Without proper guidance, medically trained personnel may assume an approach that is authoritarian, forceful or guilt-inducing. There is evidence suggesting that such attitudes not only limit progress, but also correlate with negative behavioral and clinical outcomes, such as resistance to change (Moyers & Martin 2006). The fact that MI is the opposite of the former confrontational, advice-giving communication approach may also explain why the nurses achieved approved levels of MI competence in so few aspects of their MI sessions and that so many showed so much variation in MI behavior across their own sessions (Study III).

According to Resnicow et al. (2002a), it is even more challenging for healthcare professionals to learn MI because they have to learn the method "from scratch" given that they have no background in psychology or counseling (Resnicow et al. 2002a). Also the fact that some patients expect advice and information, which not is entirely in line with MI, was something the nurses described as difficult (Study I and II). The nurses also scored low on MI spirit in their recorded sessions (Study III). One explanation for this may be that a common challenge in many conversations in primary care is the need to simultaneously focus on many different goals (e.g., quit smoking, increase physical activity, change diet) and to motivate the patient to maintain certain behaviors while changing others, as well as the need to provide the information required by various recommendation/guidelines (Bohman et al. 2012).

Another surprising finding was that none of the nurses achieved approved levels of competence in their MI sessions (Study III). The nurses also displayed low proportions of open questions and reflections, and they gave a great deal of information/advice without permission (Study III). According to the developers of MI (Miller & Rollnick 2013), open questions play a key role in eliciting motivation and supporting collaboration. Reflective listening is an essential skill in MI and is used to keep the patient exploring and considering his/her options. Asking for permission before giving advice and information is also important in supporting autonomy and avoiding the confronting expert role, which may create resistance to change.

Another interesting finding indicates that the direction (i.e., positive, negative or neutral) of MI providers' questions and reflections may be more important than whether the question is open or closed or the reflection complex or simple (confirmed by Hypothesis 1, 3 and 4). Moreover, the findings showed that most nurse talk and patient talk is neutral (Study IV). Previous studies (Moyers & Martin 2006, Moyers et al. 2007, Gaume et al. 2008b) have shown that MI-consistent nurse talk leads to change talk in patients (also partly confirmed by Hypothesis 1, Study IV) as well as that change talk leads to more change talk (Moyers & Martin 2006, Gaume et al. 2010, D'Amico et al. 2015) and even that change talk leads to actual changes (Moyers et al. 2007, Moyers et al. 2009, Vader et al. 2010, D'Amico et al. 2015).

The fact that none of the nurses actually achieved approved levels in any session (Study III) and used so much natural talk (Study IV) may be an indication that they have received too little training, feedback, supervision and/or support. Taken together, the above findings further indicate that primary care nurses need to increase their use of and skills in MI as well as decrease their neutral talk during MI sessions.

Continuous Training in MI

Previous research has shown that MI is learned more effectively when there is continuous supervision, feedback and training (Miller et al. 2004, Mitcheson et al. 2009, Forsberg et al. 2011). With this in mind, it is remarkable that only about 26% of the nurses who reported use of MI also reported having received follow-up and feedback, and that only 15% reported having received supervision (Study I). The nurses also experienced a need for support, ongoing training and feedback if they were to continue using MI after training (Study II). MI can be learned with only a few days of training (Miller et al. 2004, Walters et al. 2005). But without some degree of ongoing training, feedback and support at the workplace after the initial training, there will be reduced development and learning of MI skills as well as use of MI (Emmons & Rollnick 2001b, Miller et al. 2004, Madson et al. 2009,

Forsberg et al. 2011). The nurses' reports on their MI training (Study III) also indicate that those with extensive MI training and/or who have received feedback are also those with higher MITI scores, with one exception (Nurse 4 who had not received any supervision or feedback but was in the 4th place among the nurses with the highest skill levels). This may to some extent be explained by the fact that Nurse 4 worked with a colleague who used MI and got feedback from another colleague who was an MI instructor; another explanation is that individuals learn MI differently. Learning new skills and implementation of MI are processes that take time (Velasquez et al. 2000, Rubak et al. 2005, Casey 2007). Although learning about, adopting, using and implementing MI is difficult in some respects, it is learned and used by people practicing many different professions (Resnicow et al. 2002b, Doran et al. 2011) and possible to learn and use in similar settings (Madson & Campbell 2006, Martins & McNeil 2009).

The nurses overestimated their own performance in all parts of MI except two (Study III). They also self-rated being poor at reflection, especially at complex reflection, and they self-rated being good at open questions. However, their summary scores show that only three nurses (in one session each) achieved approved MI skills in asking open questions. It was also shown in a study of nurses in diabetes care (van Eijk-Hustings et al. 2011) that they estimated they used more open than closed question. Such beliefs may further obstruct nurses' development of MI skills, because they think they are better at some aspects of the method than they actually are. In another study by Morgan Wain et al. (2015), the relation between self-reports and objective assessment of MI skills was investigated, and it was concluded that self-reports were not a good indicator of objectively measured skills. This suggests that recurrent evaluation using assessment tools such as the MITI is important to promoting continuing development of MI skills (Forsberg et al. 2010, Bohman et al. 2012) as MI providers need to be aware of their performance if they are to progress and be able to help patients become motivated to change as well as to evaluate their own MI skills before research studies on outcomes of MI are conducted.

The fact that the direction (positive, negative or neutral) of questions and reflections may be more important than whether the question is open or closed or the reflection complex or simple is relevant to MI instructors/training programs, in that it indicates they should focus more on the direction than the type (open or closed/complex or simple) of questions or reflections used (Moyers et al. 2009, D'Amico et al. 2015).

Putting MI into practice

The nurses indicated that they needed to talk about MI at the workplace (Study II). According to DOI (Rogers 2003), diffusion is a social process by which users share and spread their experiences about the “new” method/idea. Exchange of information about the innovation is the heart of the diffusion process. Also, it is during the persuasion step in the Innovation-Decision Process in DOI that individuals form a favorable or unfavorable attitude toward the innovation. An individual who is unsure about the new idea seeks evaluation information and reinforcement from his/her peers/colleagues. In deciding whether or not to adopt an innovation, individuals depend mainly on the communicated experiences of others who are very like themselves and who have already adopted the new idea (Rogers 2003). This suggests that resources should be allocated to establishing networks for nurses to talk about their experiences with MI, as this would give adoption in practice the meaning it needs.

The findings showed that more DNs compared with RNs had training in and used MI; they were also older, had worked more years and rated their conditions for using MI as higher, according to their self-ratings. As DNs have specialist nurse training in public health, preventive medicine and health promotion (DSF 2008), one explanation may be that their education gives them more opportunities to get training in MI and perhaps also better prerequisites for understanding the importance of using motivation in health promotion, which may in turn give them advantages in terms of adopting MI. As suggested in Rogers’ DOI (Rogers 2003), individuals require different amounts of time to adopt new ideas. MI training over a period of two to four days can be seen as a first exposure, but experience is required before the method can diffuse in the organization (Rogers 2003).

Further the nurses felt that working with MI requires that nurses be open, willing and interested in learning the method, as well as that there be an interest in supporting the method at the workplace (Study II). According to the nurses’ descriptions, there is even reason to believe that insufficient implementation is also a matter of trust in one’s own ability and personal attitudes (Study II). Self-efficacy is, according to Bandura (1997), the most important factor for behavior change. If a person is not confident in his/her ability to make a change, it is less likely that he/she will engage in the process (Bandura 1997), which may explain the resistance described among the nurses who were afraid of doing things wrong and who experienced feelings of uncertainty. Among the nurses who did not use MI, aversion to change due to, e.g., lack of interest in the method, not liking the method or just being lazy were reported (Study I and II). There is reason to believe that it is easier to adopt new skills when a person has an interest in learning new skills (Rogers 2003, Miller et al. 2004). Employers may therefore consider finding

new ways of implementing MI. For instance, instead of training everyone at the workplace, the employer could begin by training those who are interested in learning new counseling skills for health prevention and let them inspire others at the workplace. It is explained in DOI that *early adopters* of an innovation can become opinion leaders, who can influence others' attitudes in a desired way. The so-called *laggards*, who are the last to adopt a new idea, in the model (Rogers 2003) may also explain some of the aversion to change observed in our findings. According to Rogers (2003), it is not the *laggards'* fault that they are late to adopt, but instead the blame lies with the *laggards'* situation, which is built into the system. The different adopter categories in DOI are based on their innovativeness. Earlier adopters differ from later adopters in various characteristics. Earlier adopters have more years of formal education, are more likely to be literate, have higher social status, have a greater ability to cope with uncertainty and risk, have a more favorable attitude toward science, have greater exposure to mass media and interpersonal communication channels, are more engaged in information seeking and have greater knowledge about innovations (Rogers 2003). This may also be an explanation for the finding that more DNs than RNs used MI (Study I). To manage resistance among *laggards* and late adopters, it is more important to have interpersonal communication channels (through which a message gets from a source to a receiver) (Rogers 2003).

At each stage of the innovation-decision process, there is a potential risk for rejection. At the knowledge stage, the amount of how-to knowledge is much greater in a complex innovation (Rogers 2003), which is what MI is, according to Miller and Rollnick (Miller & Rollnick 2013). When there is not an adequate level of knowledge prior to the innovation, the result is more likely to be rejection (Rogers 2003), which could be the case for the reported non-users of MI (Study I and II). During the persuasion stage, attitudes for or against the innovation are formed (Rogers 2003). Most nurses (Study I) reported having good or very good confidence in MI, which could be perceived as a favorable attitude toward the method, but not as many nurses reported using it. According to Rogers (2003), a discrepancy between attitudes and action is common, particular in preventive health innovations.

The perceived attributes, by which an innovation can be described and which predict the rate of adoption, are especially important at the persuasion stage. One of the attributes of DOI is *relative advantage*, thus to what degree the intervention is perceived as entailing an improvement. This is more difficult when advantage is a future event, as in the case with preventive innovations where the relative advantage is a delayed reward. The other attributes that can be used to describe and innovation are: *compatibility*, *complexity*, *trialability* and *observability* (Rogers 2003). An obstacle that all of the nurses experienced (Study II) was having difficulties learning new techniques and difficulties refraining from previously ingrained habits. MI may not be

perceived as compatible, as its approach is the opposite of the nurses' former expert advice role (Resnicow et al. 2002a), and as mentioned earlier, MI is a complex skill (Miller & Rollnick 2009). Furthermore, MI is not supposed to be altered (trialability) by providers, because the intended effects/outcomes may fail to appear (Miller & Rollnick 2013) and the result/outcome (observability) of MI may not be observed at first, as health promotion interventions seldom have effects in the short term (Guldbrandsson & Statens folkhälsoinstitut 2008). This may be a further explanation for why many primary care nurses do not adopt MI.

At the persuasion stage and at the next (decision) stage, the individuals seek evaluation information and agreement from others in order to make a decision to adopt or reject. Most individuals do not adopt an innovation without trying it (Rogers 2003), as in the case of the non-users of MI, whereof four of ten had tried using MI but then rejected it (Study II). At the implementation stage, the new idea is put into practice, and at the confirmation stage, the individual seeks reinforcement in making the innovation decision. Also at the implementation and confirmation stages, the decision to adopt may be reversed and rejected. Discontinuance at these stages is an indication that the innovation has not been fully routinized into the ongoing practices of the adopter. This may be a result of dissatisfaction with the innovation; the innovation may be inappropriate for the individual or may fail to result in any perceived relative advantage. Discontinuance may also result from misuse of the innovation and is common among later adopters (Rogers 2003). According to some of the nurses' reports and experiences (Study I), they did not feel MI suited everyone and they found it difficult to use, thought it felt artificial and took too much time; moreover, they were not interested in or did not like the method (Study II).

Half of the nurses (Study I) reported that they used MI and most of the nurses reported that MI is a necessary, good tool that promotes communication. This suggests that individuals do not all adopt at the same time or perceive new ideas in the same way, just as described in DOI (Rogers 2003). Therefore, as suggested by Rogers (2003), it is important to understand how potential adopters perceive new ideas and the adopter categories in determining the nature of the diffusion process in relation to implementing a new idea, such as MI. Research has shown that the advantages and usability of the new method are of primary importance to implementation, but with health promotion intervention this is not enough, because it does not give quick results but instead requires effective implementation (Guldbrandsson & Statens folkhälsoinstitut 2008).

Effective implementation requires a combination of education, practice, coaching, feedback, support at the workplace (Guldbrandsson & Statens folkhälsoinstitut 2008, Miller & Rollnick 2013, Farbring & Rollnick 2015), appropriate communication networks and channels, change agents, opinion leaders (Rogers 2003), selection of possible users, peer support/feedback,

monitoring (Miller & Rollnick 2013, Farbring & Rollnick 2015) and evaluation (Rogers 2003, Guldbbrandsson & Statens folkhälsoinstitut 2008, Farbring & Rollnick 2015). Another factor for implementation success is the amount of effort change agents put into communication activities. An important function for the change agent is to frequently measure degree of success in terms of rate of adoption. This is because the main objective is to secure adoption on the part of their clients (Rogers 2003). Evaluation of the intervention requires distinguishing between the intervention and the implementation process (Guldbbrandsson & Statens folkhälsoinstitut 2008). Data on individuals'/adopters' MI skills have to be the basis for evaluation of the implementation (Farbring & Rollnick 2015). Moreover, according to Miller and Rollnick (2013), skills evaluation is not an isolated phenomenon, but has to be continuous. Without nurses'/MI providers' personal development and maintained skills, patient benefit is not likely to occur (Miller & Rollnick 2013). According to Farbring and Rollnick (2015), it is a type III error if only the outcomes of the method are evaluated and rejected, when in fact it was flaws in the implementation that caused the failure.

According to Miller and Rollnick (2013), MI should be integrated into a client-centered service and not forced on anyone. Thus, in the very spirit of MI, implementation is best done with and for people, not to them. This notion is important for managers to take into account when sending their staff to MI courses. Miller and Rollnick (2013) also suggest training selected staff in MI and training several staff together, so that they can work together to enable continuing improvement. One Swedish study in the prison service (Forsberg et al. 2011) showed that groups working with feedback delivered in peer groups learned significantly more about MI than the control groups did.

With all this in mind as well as the need for effective disease prevention methods and the considerable resources invested in MI training thus far, it is suggested that efforts be made to ensure effective implementation. To do this, it is suggested that nurse managers select the most appropriate staff for MI training. It is also suggested that nurses receive ongoing support from managers (through change agents) at the workplace, based on identified individual prerequisites and in relation to where they are in the decision stage, as well as time and resources for ongoing training, supervision, feedback and practice. Managers may also need to identify inspiring "opinion leaders" and create networks at the workplace, to give the nurses the opportunity to exchange information and provide each other with feedback and support. It is also suggested that managers may need to establish evaluation systems for the implementation process, but especially for skills evaluation.

Methodological considerations

Because the intention of the present thesis was to describe primary care nurses' MI use, experiences, performance, communication as well as the effects of MI – and not to intervene by manipulating the independent variable – this design was considered to be the most suitable. All research should be evaluated in relation to the methods used to generate the findings; it should also be as trustworthy as possible choice (Kazdin 2010, Wood & Kerr 2011, Polit & Beck 2012).

The Quantitative Studies

Sample and participants

Study I was carried out in three county council districts covering both urban and rural areas. This variation and the large number of respondents allowed us to generalize the results to this part of Sweden (Polit & Beck 2012). Choosing to carry out Study III-IV in only two county council districts was considered sufficient for obtaining variation in the sample and a sample that represented conditions in Sweden, at the time, provided the intended number of participants was finally included in the sample. It is of course possible that inclusion of more counties could have generated more knowledge. As it turned out, many nurses declined to participate in and dropped out of Study III and IV and, thus, the results cannot be generalized.

One reason that participants declined to participate in Study III and IV was uneasiness/resistance to recording their sessions for performance assessment. The majority declined due to time pressure.

The nurses who participated in Study III and IV varied in terms of the MI training and supervision they had received, which does reflect the actual situation for primary care nurses and was therefore not considered as a limitation. Their MI performance, communication during MI session and influence on patients is described irrespective of their previous training and supervision (Study III). The nurses' fidelity to MI (Study IV) was not measured because the aim was to examine the nurse-patient interaction, communication and influence during the session in relation to MI; this was therefore not considered a limitation. This would have been an issue if the aim had been to examine the outcome of MI in terms of patients' health behaviors.

One potential limitation though, in relation to Study III, is that the sessions were self-selected by the nurses and may therefore provide a biased view of the MI skill level of nurses in primary care. It is also possible that the participating nurses (Study III) were those most interested in using MI and in improving their MI performance. The participating nurses may also have been those who used MI more often and were more comfortable with the method.

Even though the number of participants in Study III was small, the purpose of the study was to describe performance and self-ratings of performance as it naturally occurs, and the 32 sessions studied provided a wide range of interesting information about patterns within and between the nurses and their sessions. Despite its limitations, the present study contributes to our knowledge of MI sessions in primary care nurses' real work settings and of their real prerequisites with regard to training and use.

Data Collection and Analysis

The questionnaire was study specific and the results based on self-reports. For instance, all results concerning whether or not the respondents/nurses use MI are based solely on the participating nurses' own answers and ratings. Another limitation was that the questionnaire was not tested (Polit & Beck 2012). Conducting a standard psychometric evaluation was not possible because the questionnaire was developed to address the aim of Study I and not as a standardized instrument. At that time, it was not possible to carry out a pilot test of the questionnaire prior to use in data collection. Six DNs and one RN were asked whether they understood the questions, response alternatives and instructions. Each question was also rated by the same nurses on a 5-point scale of relevance (Polit & Beck 2012). The questions that four of the nurses found difficult to remember the answers to were questions about MI training (e.g., when, how, how much, follow-up/supervision/feedback or not). It was relevant to pose these questions even though not everyone was able to answer them. No reliability test or further validity test has been conducted.

When data interpretation is carried out a correction of the p-value may be made because multiple testing increases the likelihood of a type I error (Polit 2010). A p-value < 0.001 would have been considered significant with (conservative) Bonferroni correction.

Both MITI and MI-SCOPE have been tested and shown acceptable validity and reliability (Forsberg et al. 2007, Forsberg et al. 2008). The analysis was carried out by qualified coders to establish good inter-rater reliability (Study III and IV). ICCs were used to estimate the inter-rater reliability of the MITI coding in Study III. All ICCs were within the range found in the guideline recommendations (Cicchetti 1994), except for two ICCs (evocation and autonomy/support), which were below the recommended range, meaning that these variables have low reliability. The implication of this limitation has been and must be considered when interpreting these findings, and conclusions should be made with caution. This ICC result can be explained by the small sample of sessions or/and the complex setting of primary care in which the conversations took place, as discussed above. Other possible explanations are the fact that the sessions may involve many target behaviors for the

nurses to focus on, sometimes in a very short time, and the fact that nurses do not always intend to motivate for change but only for maintenance, which MI is not intended to address in the first place (Bohman et al. 2012, Miller & Rollnick 2013). Further, an entire session is rarely devoted to motivation and the need for change only, but may also contain various examinations. These elements may have made it unclear as to whether the nurses were, for example, evoking as well as made it difficult for the coders to carry out their ratings. Moreover, the coders are used to rating conversations that focus on one target, such as quitting smoking or drinking, which may have made the coding more difficult. This is also confirmed in a previous study on Swedish child health services in primary care (Bohman et al. 2012).

Cohen's Kappa was used to estimate the reliability of both procedures in MI-SCOPE (Study IV). ICCs were also used to estimate the inter-rater reliability of the coding procedure. The coders achieved a kappa for both procedures within the range of guideline recommendations (Fleiss 1981). ICCs for the coding ranged from 0.57-0.98, except for one code (positive questions), which was below the range of guideline recommendations (Cicchetti 1994), owing to low event frequencies. The other ICCs had good-to-excellent agreement.

The expected cell frequencies for positive questions to sustain talk were less than 3, which makes this relationship weak and indicates they should be interpreted with caution (Study IV).

The Qualitative Study

Trustworthiness in qualitative research can be described using the concepts: credibility, dependability and transferability.

Credibility refers to certainty regarding the truth of the data and how well the analysis process addresses the study aim (Graneheim & Lundman 2004, Polit & Beck 2012). A sample of nurses who varied in characteristics and experiences was selected to increase the possibility of illuminating the aim using a variety of descriptions; this can be seen as a strength (Graneheim & Lundman 2004). In qualitative research, there are no rules for sample size, which should be determined and grounded on the information needs. A guiding principle is to sampling to the point where no more variation in the data emerges (Polit & Beck 2012), as was the case in Study II. According to Schneider et al. (2007), the typical sample in qualitative research is between eight and fifteen participants, but this may vary (Schneider et al. 2007). To further strengthen the credibility of Study II, the research team collaborated on the analysis and sought and reached agreement among other researchers experienced in the method. The first author is a primary care nurse and is trained in MI, but had not gone through training or used MI while working as a primary care nurse and no longer works as a primary care nurse. The author's knowledge in the area may have enriched the data by allowing the

use of appropriate probes and questions. One concern in qualitative research is that the investigator's perspective is likely to influence interpretation of the data (Patton 2002, Kazdin 2010). By collaborating on the analysis, the potential risk of researcher bias affecting data interpretation has been reduced, and the fact that the first author has not worked with MI may also reduce the risk of preconceptions. Providing quotations in the results has also increased the credibility.

Dependability refers to the stability of the data over time. The data were collected during a narrow time frame, which strengthens the dependability because it is unlikely changes were made in the procedure. Dependability was also strengthened by maintaining an open dialog between members of the research team during the whole process, the aim being to achieve consistency in content over time. Dependability was also strengthened by using an interview guide and by providing as thick descriptions of the entire process as possible (Graneheim & Lundman 2004).

Transferability refers to the generalizability of the data. By describing the method in as detailed a manner as possible, transferability to a similar context has also been increased. Nonetheless, it is up to the reader to determine whether or not transferability is possible (Lincoln & Guba 1985).

Strength of this thesis is that a new and complex territory is highlighted with different approaches and designs.

Conclusions based on the present studies:

- Self-reported knowledge about MI and personal as well as workplace prerequisites for using it are associated with self-reported use of MI (Study I).
- According to the participating nurses' self-reports, there is a lack of professional follow-up and supervision of MI (Study I).
- The participating nurses reported that the primary obstacles keeping them from using MI are lack of time and knowledge (Study I).
- Participating nurses' experiences of MI differ. Although MI seems to facilitate work with patients in need of lifestyle change, the participating nurses found it difficult to give up from previously learned techniques and habits and learn to use new ones (Study II).
- Participating nurses' experienced that MI requires openness, practice, support, feedback, the appropriate prerequisites and willingness (Study II).
- The participating primary care nurses did not achieve the approved levels of MI skills in any of their recorded MI sessions (Study III).
- There are indications that more training and structural use of MI in clinical practice are needed to promote improvements in MI (Study III).

- Patients' talk in favor of change is more likely to occur after: open questions, complex reflections as well as after questions and reflections directed toward change (Study IV).

Clinical implications

- All registered nurses need to understand that MI is not reserved for special interaction. They must assume responsibility for gaining experience of MI use as well as ensure they use MI correctly in their sessions with patients.
- Primary care nurses and other nurses who see patients with lifestyle problems need to be aware of the possibilities and obstacles associated with MI.
- Managers in primary care need to provide the support and prerequisites necessary for nurses to use MI. They must give their personnel continuous training, more time for practice, more time with the patient and continuous supervision as well as a peer support network/forum at the workplace that allows personnel to maintain and update their MI knowledge and skills. Managers must also promote nurses' confidence in using MI.
- There are also indications that it is more advantageous to motivate, encourage and begin by training nurses who express an interest in MI and health promotion.
- Those who experience obstacles or are not comfortable with the method must be offered adequate support.
- It is clearly in the interest of management to ensure that MI be used after training. It is of the utmost importance that management follow up on use of MI. To do so, they need not only to measure the number of users, but also to continuously evaluate and measure the nurses' MI skills.
- Those responsible for MI training also need to reevaluate the structure of the program, to ensure that feedback, supervision, monitoring, and post-training follow-up are built into it. MI instructors/training programs should also focus on the importance of the direction of nurses' questions and reflections.

Svensk sammanfattning (Swedish summary)

Motiverande samtal (MI) är en samarbetsinriktad samtalsstil som har visat sig hjälpa personer bli motiverade till att göra livsstilsförändringar. MI är en av de metoder som rekommenderas i de nationella riktlinjerna för att förebygga levnadsvanerrelaterade sjukdomar så som hjärt- kärlsjukdomar och diabetes. Utbildning i och användning av MI ökar världen över inom många olika sjukvårdsområden, däribland primärvården. Primärvårdssköterskor har en viktig funktion i den hälsofrämjande vården genom sin specialistutbildning inom området men också som den som först träffar patienterna när de söker sig till vården och för att hon/han träffar många patienter och har möjligheten att göra riskbedömningar. Det är därför nödvändigt att vid införande av en ny metod som MI, också försäkra sig om att personalen har fått nödvändig utbildning och att de kan tillgodogöra sig den nya kompetensen samt att kvalitén på vården bevaras eller förbättras. Därför var det av stort intresse att beskriva och undersöka primärvårdssköterskors erfarenheter och faktiskt användande av MI.

Det övergripande syftet med föreliggande avhandling var att beskriva och undersöka primärvårdssköterskors självrapporterade utbildning, användning och utförande samt upplevelser och verkligt utförande i/av MI.

Delstudie I syftade till att via självrapportering undersöka om primärvårdssköterskor har utbildning i MI, om och hur de använder metoden samt vilka förutsättningar de har för att använda den. Syftet var också att undersöka skillnader mellan distriktssköterskor och legitimerade sjuksköterskor vad det gäller bakgrundsdata, utbildning, användning och förutsättningar samt skillnader mellan användare och icke användare av MI. Vidare var syftet att undersöka möjliga samband mellan användning av MI och variablerna utbildning, handledning, och återkoppling i MI samt förutsättningar för att använda MI. Ett studie-specifikt frågeformulär skickades ut till samtliga primärvårdssköterskor i tre län/landsting som besvarades av 673 primärvårdssköterskor. Data bearbetades med beskrivande statistik och statistiska analyser. Resultatet visade att enligt de självrapporterade svaren hade 59 % av de svarande, utbildning i MI och 57 % använde metoden men ca.15 % av de som rapporterade att de använde MI hade ingen utbildning i metoden. Fler distriktssköterskor än legitimerade sjuksköterskor rapporterade att de hade utbildning i och använde MI. Att ha utbildning i och kunskap om MI samt tid och förutsättningar för att kunna använda MI visade sig ha samband

med att MI användes. Även att inte ha några hinder som, motstånd från patienten, osäkerhet i utförandet av MI och att den glöms bort att användas, visade sig också ha samband med att MI användes.

Delstudie II syftade till att beskriva MI utbildade primärvårdssköterskors upplevelser av metoden. Tjugo MI utbildade primärvårdssköterskor från två län/landsting intervjuades. Hälften av dem uppgav att de använde metoden och den andra hälften uppgav att de inte använde den. Data analyserades med kvalitativ innehållsanalys. I resultatet framkom att primärvårdssköterskorna upplevde att det behövdes en öppenhet för metoden och ett stödjande arbetsklimat för att komma över det egna motståndet och öka användandet av MI. De upplevde också ett ömsesidigt utbyte, i användandet av MI, att MI framkallar förmågor både hos dem själva och hos patienten. MI uppfattades underlätta deras arbete med patienter i behov av livsstilsförändring. Brist på utbildning, stöd och intresse samt att inte ha arbetsuppgifter eller patienter som är i behov av användande av MI och/eller livstils samtal, beskrevs som anledningar för att inte använda MI.

Delstudie III syftade till att undersöka i vilken omfattning primärvårdssköterskor utför MI enligt Motivational Interviewing Treatment Integrity Code 3.1.1 (MITI) samt hur primärvårdssköterskor skattar sitt eget utförande i MI. Studien baserades på 12 primärvårdssköterskors ljudinspelade MI samtal med patienter (totalt 32 samtal). Efter varje samtal fick de också besvara ett frågeformulär om sina upplevelser av sitt eget MI utförande i samtalet. Samtalen analyserades med MITI, som är ett system för kodning av beteenden hos behandlaren för att kunna bedöma i vilken utsträckning behandlare tillämpar MI. Resultatet visade att ingen av de deltagande primärvårdssköterskorna uppnådde tillräckligt kompetens nivåer i sina utföranden på de inspelade MI samtalen. Det beteende som flest uppnådde tillräcklig kompetens i var att göra fler komplexa än enkla reflektioner. Att ställa fler öppna än slutna frågor var det beteende som flest primärvårdssköterskor inte uppnådde tillräcklig kompetens i.

Delstudie IV syftade till att beskriva vilka typer av yttranden som förekommer under inspelade MI samtal mellan primärvårdssköterska och deras patienter. Syftet var även att undersöka vilket yttrande från behandlaren (primärvårdssköterskorna) som förutsäger yttranden mot en förändring respektive yttranden mot att bibehålla det osunda beteendet, från patienten. Femtio ljudinspelade MI samtal mellan 23 primärvårdssköterskor och deras patienter analyserades med Motivational Interviewing Sequential Code for Observing Process Exchanges (MI-SCOPE). MI-SCOPE är ett system för kodning av MI samtal mellan behandlare och patient med särskilt fokus på den sekventiella informationen (del av ett samtal – t.ex. ett meningsutbyte - med ett yttrande från en sändare och ett svar från en mottagare) i det som finns i

interaktionen mellan parterna, i syfte att undersöka relationen mellan teoretiska begrepp som är viktiga i MI. Förekomst av olika typer av yttranden och sekventiell analys, för att förutsäga vilket yttrande från patienten som följde efter yttrande från behandlaren, beräknades med dataprogrammet Generalized Sequential Quierier 5 (GSEQ). Resultatet visade att det vanligast förekommande yttrandet från behandlaren var neutrala slutna frågor och det vanligast förekommande yttrandet från patienten var neutralt. Öppna och negativa frågor samt komplexa och positiva reflektioner var signifikant mer troliga att följas av yttranden mot en förändring från patienten. MI-förenligt prat, positiva frågor och negativa reflektioner var signifikant mer troliga att följas av bibehållande prat från patienten.

Sammanfattningsvis visar studierna i avhandlingen att primärvårdssköterskor rapporterade och upplevde brist på utbildning i MI samt brist på förutsättningar för att använda MI. De upplevde att MI underlättade deras arbete med patienter och involverade patienten men att det var svårt att lära om - från tidigare rådgivningsstil till det person centrerade. Ingen av primärvårdssköterskorna som deltog i delstudie III uppnådde tillräcklig kompetens i MI förmåga på sina MI samtal. Vid jämförelser av deras faktiska förmåga mot deras egna upplevelser av samtalet överskattade de sin förmåga i sex av åtta MITI variabler. Primärvårdssköterskornas vanligaste yttrande under MI samtalen var neutral, vilket inte är avsikten i MI eftersom neutrala yttranden inte leder till någon förändring. Det önskvärda yttrandet från patienten är yttranden mot en förändring, som i andra studier har visats ha samband med att man faktisk gör en förändring. Resultatet visade också att frågor och reflektioner som riktas mot förändring var de som mest troligt efterföljdes av yttranden mot förändring från patienten.

Slutsatsen är, enligt deltagande primärvårdssköterskors självrapporteringar, att de upplever brist på; tid, kunskap, utbildning, uppföljning, stöd, möjlighet till träning, handledning och feedback i MI. Ytterligare slutsatser är att primärvårdssköterskorna inte uppnådde tillräcklig kompetens i MI förmåga i sina inspelade MI samtal och att yttranden från patient som talar i riktning mot en förändring mest troligt förekommer efter: öppna frågor, komplexa reflektioner samt frågor och reflektioner riktade mot en förändring. Allt detta sammantaget indikerar för att det behövs mer utbildning i MI samt rutin och kontinuitet i användande av MI i klinisk praktik för att främja framsteg och utvecklingen i MI

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References

- Amrhein P.C., Miller W.R., Yahne C.E., Palmer M. & Fulcher L. (2003) Client commitment language during motivational interviewing predicts drug use outcomes. *Journal of Consulting and Clinical Psychology* **71**(5), 862-878.
- Anell A., Glenngård A.H., Merkur S. & European Observatory on Health Systems and Policies (2012) *Sweden: health system review*. European Observatory on Health Systems and Policies, Copenhagen.
- Arborelius E. (1993) *Varför gör dom inte som vi säger??: teori och praktik om att påverka människors levnadsvanor*. Allmänmedicinskt utvecklingscentrum, Stockholm.
- Bakeman R. & Quera V. (2011) *Sequential Analysis and Observational Methods for the Behavioral Sciences*. Cambridge University Press, New York.
- Bandura A. (1997) *Self-efficacy: The exercise of control*. Freeman, New York.
- Barnes R.D. & Ivezaj V. (2015) A systematic review of motivational interviewing for weight loss among adults in primary care. *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity* **16**(4), 304-318.
- Barth T. & Näsholm C. (2006) *Motiverande samtal-MI: att hjälpa en människa till förändring på hennes egna villkor*. Studentlitteratur, Lund.
- Bennett J., Perrin N., Hanson G., Bennett D., Gaynor W., Flaherty-Robb M., Joseph C., Butterworth S. & Potempa K. (2005) Healthy aging demonstration project: Nurse coaching for behavior change in older adults. *Research in Nursing & Health* **28**(3), 187-197.
- Bensing J.M., Verhaak P.F., van Dulmen A.M. & Visser A.P. (2000) Communication: the royal pathway to patient-centered medicine. *Patient Education and Counseling* **39**(1), 1-3.
- Boardman T., Catley D., Grobe J.E., Little T.D. & Ahluwalia J.S. (2006) Using motivational interviewing with smokers: do therapist behaviors relate to engagement and therapeutic alliance? *Journal of Substance Abuse Treatment* **31**(4), 329-339.
- Bohman B., Forsberg L., Ghaderi A. & Rasmussen F. (2012) An Evaluation of Training in Motivational Interviewing for Nurses in Child Health Services. *Behavioural and Cognitive Psychotherapy*, **41**, 329-343.
- Britt E. & Blampied N.M. (2010) Motivational interviewing training: a pilot study of the effects on practitioner and patient behaviour. *Behavioural and Cognitive Psychotherapy* **38**(2), 239-244.
- Brobeck E., Bergh H., Odencrants S. & Hildingh C. (2011) Primary healthcare nurses' experiences with motivational interviewing in health promotion practice. *Journal of Clinical Nursing* **20**, 3322-3330
- Burke B.L., Arkowitz H. & Menchola M. (2003) The efficacy of motivational interviewing: a meta-analysis of controlled clinical trials. *Journal of Consulting and Clinical Psychology* **71**(5), 843-861.

- Carcone A.I., Naar-King S., Brogan K.E., Albrecht T., Barton E., Foster T., Martin T. & Marshall S. (2013) Provider communication behaviors that predict motivation to change in black adolescents with obesity. *Journal of Developmental and Behavioral Pediatrics* **34**(8), 599-608.
- Carlford S., Andersson A. & Lindberg M. (2011) Experiences of the implementation of a tool for lifestyle intervention in primary health care: a qualitative study among managers and professional groups. *BMC Health Services Research* **11**:195.
- Carpenter K.M., Cheng W.Y., Smith J.L., Brooks A.C., Amrhein P.C., Wain R.M. & Nunes E.V. (2012) "Old dogs" and new skills: how clinician characteristics relate to motivational interviewing skills before, during, and after training. *Journal of Consulting and Clinical Psychology* **80**(4), 560-573.
- Carroll K.M., Ball S.A., Nich C., Martino S., Frankforter T.L., Farentinos C., Kunkel L.E., Mikulich-Gilbertson S.K., Morgenstern J., Obert J.L., Polcin D., Snead N., Woody G.E. & National Institute on Drug Abuse Clinical Trials Network (2006) Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: a multisite effectiveness study. *Drug and Alcohol Dependence* **81**(3), 301-312.
- Casey D. (2007) Using action research to change health-promoting practice. *Nursing & Health Sciences* **9**(1), 5-13.
- Channon S.J., Huws-Thomas M.V., Rollnick S., Hood K., Cannings-John R.L., Rogers C. & Gregory J.W. (2007) A multicenter randomized controlled trial of motivational interviewing in teenagers with diabetes. *Diabetes Care* **30**(6), 1390-1395.
- Cicchetti D.V. (1994) Guidelines, Criteria, and Rules of Thumb for Evaluating Normed and Standardized Assessment Instruments in Psychology. *Psychological Assessment* **6**, 284-290.
- Copeland L., McNamara R., Kelson M. & Simpson S. (2015) Mechanisms of change within motivational interviewing in relation to health behaviors outcomes: a systematic review. *Patient Education and Counseling* **98**(4), 401-411.
- Cox M.E., Yancy W.S.Jr., Coffman C.J., Ostbye T., Tulskey J.A., Alexander S.C., Brouwer R.J.N., Dolor R.J. & Pollak K.I. (2011) Effects of counseling techniques on patients' weight-related attitudes and behaviors in a primary care clinic. *Patient Education and Counseling* **85**(3), 363-368.
- Daepfen J.B., Bertholet N., Gmel G. & Gaume J. (2007) Communication during brief intervention, intention to change, and outcome. *Substance Abuse* **28**(3), 43-51.
- Daepfen J.B., Bertholet N. & Gaume J. (2010) What process research tells us about brief intervention efficacy. *Drug and Alcohol Review* **29**(6), 612-616.
- D'Amico E.J., Houck J.M., Hunter S.B., Miles J.N., Osilla K.C. & Ewing B.A. (2015) Group motivational interviewing for adolescents: change talk and alcohol and marijuana outcomes. *Journal of Consulting and Clinical Psychology* **83**(1), 68-80.
- Dobber J., van Meijel B., Barkhof E., Scholte op Reimer W., Latour C., Peters R. & Linszen D. (2015) Selecting an optimal instrument to identify active ingredients of the motivational interviewing-process. *Journal of Psychosomatic Research* **78**(3), 268-276.
- Doherty Y., Hall D., James P.T., Roberts S.H. & Simpson J. (2000) Change counseling in diabetes: the development of a training programme for the diabetes team. *Patient Education and Counseling* **40**(3), 263-278.

- Doran N., Hohman M. & Koutsenok I. (2011) Linking basic and advanced motivational interviewing training outcomes for juvenile correctional staff in California. *Journal of Psychoactive Drugs* 7, 19-26.
- Dunn C., Deroo L. & Rivara F.P. (2001) The use of brief interventions adapted from motivational interviewing across behavioral domains: a systematic review. *Addiction* 96(12), 1725-1742.
- Duran L.S. (2003) Motivating health: strategies for the nurse practitioner. *Journal of the American Academy of Nurse Practitioners* 15(5), 200-205.
- Efrainsson E.O., Fossum B., Ehrenberg A., Larsson K. & Klang B. (2012) Use of motivational interviewing in smoking cessation at nurse-led chronic obstructive pulmonary disease clinics. *Journal of Advanced Nursing* 68(4), 767-782.
- El-Mallakh P., Chlebowy D.O., Wall M.P., Myers J.A. & Cloud R.N. (2012) Promoting nurse interventionist fidelity to motivational interviewing in a diabetes self-care intervention. *Research in Nursing & Health* 35(3), 289-300.
- Emmons K.M. & Rollnick S. (2001a) Motivational interviewing in health care settings. Opportunities and limitations. *American Journal of Preventive Medicine* 20(1), 68-74.
- Emmons K.M. & Rollnick S. (2001b) Motivational interviewing in health care settings. Opportunities and limitations. *American Journal of Preventive Medicine* 20(1), 68-74.
- Farbring C.Å. & Rollnick S. (2015) *MI för praktiker: stöd och vägledning för motiverande samtal*. Natur & kultur, Stockholm.
- Fasting M.H., Nilsen T.I., Holmen T.L. & Vik T. (2008) Life style related to blood pressure and body weight in adolescence: cross sectional data from the Young-HUNT study, Norway. *BMC Public Health* 8:111 DOI:10.1186/1471-2458-8-111
- Fleiss J.L. (1981) *The Measurement of Interrater Agreement, Statistical Methods for Rates and Proportions*. John Wiley & Sons Inc., New York.
- Forsberg L., Kallmen H., Hermansson U., Berman A.H. & Helgason A.R. (2007) Coding counsellor behaviour in motivational interviewing sessions: inter-rater reliability for the Swedish Motivational Interviewing Treatment Integrity Code (MITI). *Cognitive Behaviour Therapy* 36(3), 162-169.
- Forsberg L., Berman A.H., Kallmen H., Hermansson U. & Helgason A.R. (2008) A test of the validity of the motivational interviewing treatment integrity code. *Cognitive Behaviour Therapy* 37(3), 183-191.
- Forsberg L., Forsberg L.G., Lindqvist H. & Helgason A.R. (2010) Clinician acquisition and retention of Motivational Interviewing skills: a two-and-a-half-year exploratory study. *Substance Abuse Treatment, Prevention, and Policy* 5:8.
- Forsberg L., Ernst D. & Farbring C.A. (2011) Learning motivational interviewing in a real-life setting: a randomised controlled trial in the Swedish Prison Service. *Criminal Behaviour and Mental Health* 21(3), 177-188.
- Forsberg L., Lindqvist H., Lindroos N., Hellberg C. & Forsberg L. (2014) *Kodningsmanual för sekventiell kodning av motiverande samtal för att observera processuella utbyten av yttranden*. MICLab, Stockholm.
- Fossum B. (2013) *Kommunikation: samtal och bemötande i vården*. Studentlitteratur, Lund.
- Gance-Cleveland B. (2007) Motivational interviewing: improving patient education. *Journal of pediatric health care: official publication of National Association of Pediatric Nurse Associates & Practitioners* 21(2), 81-88.
- Gaume J., Gmel G. & Daepfen J.B. (2008a) Brief alcohol interventions: do counselors' and patients' communication characteristics predict change? *Alcohol and Alcoholism* 43(1), 62-69.

- Gaume J., Gmel G., Faouzi M. & Daeppen J.B. (2008b) Counsellor behaviours and patient language during brief motivational interventions: a sequential analysis of speech. *Addiction* **103**(11), 1793-1800.
- Gaume J., Bertholet N., Faouzi M., Gmel G. & Daeppen J.B. (2010) Counselor motivational interviewing skills and young adult change talk articulation during brief motivational interventions. *Journal of Substance Abuse Treatment* **39**(3), 272-281.
- Geirsson M., Bendtsen P. & Spak F. (2005) Attitudes of Swedish general practitioners and nurses to working with lifestyle change, with special reference to alcohol consumption. *Alcohol & Alcoholism* **40**(5), 388-393.
- Glenngård A., Hjalte F., Svensson M., Anell A. & Bankauskaite V. (2005) *Health Systems in Transition: Sweden*. WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, Copenhagen.
- Graneheim U.H. & Lundman B. (2004) Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today* **24**(2), 105-112.
- Green A.J., Bazata D.D., Fox K.M., Grandy S. & SHIELD Study Group (2007) Health-related behaviours of people with diabetes and those with cardiometabolic risk factors: results from SHIELD. *International Journal of Clinical Practice* **61**(11), 1791-1797.
- Grol R.P., Bosch M.C., Hulscher M.E., Eccles M.P. & Wensing M. (2007) Planning and studying improvement in patient care: the use of theoretical perspectives. *The Milbank quarterly* **85**(1), 93-138.
- Gulbrandsen P.å, Østbye T., Lyna P., Dolor R.J., Tulsy J.A., Alexander S.C. & Pollak K.I. (2012) The influence of physician communication style on overweight patients' perceptions of length of encounter and physician being rushed. *Family Medicine* **44**(3), 183-188.
- Guldbrandsson K. & Statens folkhälsoinstitut (2008) *From news to everyday use: the difficult art of implementation: a literature review*. Statens folkhälsoinstitut, Östersund.
- Hall K., Staiger P.K., Simpson A., Best D. & Lubman D.I. (2015) After 30 years of dissemination, have we achieved sustained practice change in motivational interviewing? *Addiction*, DOI:10.1111/add.13014
- Hernandez J. & Anderson S. (2012) Storied experiences of nurse practitioners managing prehypertension in primary care. *Journal of the American Academy of Nurse Practitioners* **24**(2), 89-96.
- Hettema J., Steele J. & Miller W.R. (2005) Motivational interviewing. *Annual Review of Clinical Psychology* **1**, 91-111.
- Hettema J.E., Ernst D., Williams J.R. & Miller K.J. (2014) Parallel processes: using motivational interviewing as an implementation coaching strategy. *The Journal of Behavioral Health Services & Research* **41**(3), 324-336.
- Hollis J.L., Williams L.T., Collins C.E. & Morgan P.J. (2014) Does motivational interviewing align with international scope of practice, professional competency standards, and best practice guidelines in dietetics practice? *Journal of the Academy of Nutrition and Dietetics* **114**(5), 676-687.
- Ingersoll K.S., Banton T., Gorlin E., Vajda K., Singh H., Peterson N., Gonder-Frederick L. & Cox D.J. (2015) Motivational Interviewing Support for a Behavioral Health Internet Intervention for Drivers with Type 1 Diabetes. *Internet Interventions: The Application of Information Technology in Mental and Behavioral Health* **2**(2), 103-109.

- Jallinoja P., Absetz P., Kuronen R., Nissinen A., Talja M., Uutela A. & Patja K. (2007) The dilemma of patient responsibility for lifestyle change: perceptions among primary care physicians and nurses. *Scandinavian Journal of Primary Health Care* **25**(4), 244-249.
- Jansink R., Braspenning J., van der Weijden T., Elwyn G. & Grol R. (2010) Primary care nurses struggle with lifestyle counseling in diabetes care: a qualitative analysis. *BMC Family Practice* **11**:41.
- Jerden L., Hillervik C., Hansson A.C., Flacking R. & Weinehall L. (2006) Experiences of Swedish community health nurses working with health promotion and a patient-held health record. *Scandinavian Journal of Caring Sciences* **20**(4), 448-454.
- Kausman R. & Bruere T. (2006) If not dieting, now what? *Australian Family Physician* **35**(8), 572-575.
- Kazdin A.E. (2010) *Research design in Clinical Psychology*. Pearson new international edition, Harlow.
- Knight K.M., McGowan L., Dickens C. & Bundy C. (2006) A systematic review of motivational interviewing in physical health care settings. *British Journal of Health Psychology* **11**(2), 319-332.
- Krippendorff K. (2004) *Content analysis: an introduction to its methodology*. Sage, Thousand Oaks.
- Kvale S. & Brinkmann S. (2009) *Den kvalitativa forskningsintervjun*. Studentlitteratur, Lund.
- Lambe B. & Collins C. (2010) A qualitative study of lifestyle counselling in general practice in Ireland. *Family Practice* **27**(2), 219-223.
- Lee C.S., Tavares T., Popat-Jain A. & Naab P. (2015) Assessing treatment fidelity in a cultural adaptation of motivational interviewing. *Journal of Ethnicity in Substance Abuse* **14**(2), 208-219.
- Lincoln Y.S. & Guba E.G. (1985) *Naturalistic inquiry*. Sage, Beverly Hills.
- Lindhardt C.L., Rubak S., Mogensen O., Hansen H.P., Lamont R.F. & Jorgensen J.S. (2014) Training in motivational interviewing in obstetrics: a quantitative analytical tool. *Acta Obstetrica et Gynecologica Scandinavica* **93**(7), 698-704.
- Lindhardt C.L., Rubak S., Mogensen O., Hansen H.P., Goldstein H., Lamont R.F. & Joergensen J.S. (2015) Healthcare professionals experience with motivational interviewing in their encounter with obese pregnant women. *Midwifery* **31**(7), 678-684.
- Lundahl B. & Burke B.L. (2009) The effectiveness and applicability of motivational interviewing: a practice-friendly review of four meta-analyses. *Journal of Clinical Psychology* **65**(11), 1232-1245.
- Lundahl B., Moleni T., Burke B.L., Butters R., Tollefson D., Butler C. & Rollnick S. (2013) Motivational interviewing in medical care settings: A systematic review and meta-analysis of randomized controlled trials. *Patient Education and Counseling* **93**(2), 157-168.
- Lundahl B.W., Kunz C., Brownell C., Tollefson D. & Burke B.L. (2010) A meta-analysis of motivational interviewing: Twenty-five years of empirical studies. *Research on Social Work Practice* **20**(2), 137-160.
- Madson M.B. & Campbell T.C. (2006) Measures of fidelity in motivational enhancement: a systematic review. *Journal of Substance Abuse Treatment* **31**(1), 67-73.
- Madson M.B., Loignon A.C. & Lane C. (2009) Training in motivational interviewing: a systematic review. *Journal of Substance Abuse Treatment* **36**(1), 101-109.

- Magill M., Gaume J., Apodaca T.R., Walthers J., Mastroleo N.R., Borsari B. & Longabaugh R. (2014) The technical hypothesis of motivational interviewing: a meta-analysis of MI's key causal model. *Journal of Consulting and Clinical Psychology* **82**(6), 973-983.
- Magkos F., Yannakoulia M., Chan J.L. & Mantzoros C.S. (2009) Management of the metabolic syndrome and type 2 diabetes through lifestyle modification. *Annual Review of Nutrition* **29**, 223-256.
- Maissi E., Ridge K., Treasure J., Chalder T., Roche S., Bartlett J., Schmidt U., Thomas S. & Ismail K. (2011) Nurse-led psychological interventions to improve diabetes control: assessing competencies. *Patient Education and Counseling* **84**(2), 37-43.
- Martin T., Moyers T.B., Houck J., Christopher P. & Miller W.R. (2005) *Motivational Interviewing Sequential Code for Observing Process Exchanges (MI-SCOPE) Coder's Manual*. University of New Mexico, Center on Alcoholism, Substance Abuse, and Addictions (CASAA), New Mexico.
- Martin T., Christopher P.J., Houck J.M. & Moyers T.B. (2011) The structure of client language and drinking outcomes in project match. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors* **25**(3), 439-445.
- Martins R.K. & McNeil D.W. (2009) Review of Motivational Interviewing in promoting health behaviors. *Clinical Psychology Review* **29**(4), 283-293.
- Miller W.R. & Rose G.S. (2009) Toward a theory of motivational interviewing. *The American Psychologist* **64**(6), 527-537.
- Miller W.R., Yahne C.E., Moyers T.B., Martinez J. & Pirritano M. (2004) A Randomized Trial of Methods to Help Clinicians Learn Motivational Interviewing. *Journal of Consulting and Clinical Psychology* **72**(6), 1050-1062.
- Miller W.R. & Rollnick S. (2009) Ten things that motivational interviewing is not. *Behavioural and Cognitive Psychotherapy* **37**(2), 129-140.
- Miller W.R. & Rollnick S. (2013) *Motivational interviewing: helping people change*. Guilford Press, New York.
- Miller W.R. & Rollnick S. (2014) The effectiveness and ineffectiveness of complex behavioral interventions: impact of treatment fidelity. *Contemporary Clinical Trials* **37**(2), 234-241.
- MINT-Nordic (2015) *Recommendation concerning the content of MI training sessions of different length and group size*. Available at: <http://www.motiverandesamtal.org/node/1893> (accessed 2015/09/20).
- Mitcheson L., Bhavsar K. & McCambridge J. (2009) Randomized trial of training and supervision in motivational interviewing with adolescent drug treatment practitioners. *Journal of Substance Abuse Treatment* **37**(1), 73-78.
- Morton K., Beauchamp M., Prothero A., Joyce L., Saunders L., Spencer-Bowdage S., Dancy B. & Pedlar C. (2015) The effectiveness of motivational interviewing for health behaviour change in primary care settings: a systematic review. *Health Psychology Review* **9**(2), 205-223.
- Motivational Interviewing Network of Trainers Incorporated - MINT (2015) *Training expectations*. Available at: <http://www.motivationalinterviewing.org/training-expectations> (accessed 2015/09/16).
- Moyers T.B., Martin T., Manuel J.K., Hendrickson S.M. & Miller W.R. (2005) Assessing competence in the use of motivational interviewing. *Journal of Substance Abuse Treatment* **28**(1), 19-26.

- Moyers T.B., Martin T., Christopher P.J., Houck J.M., Tonigan J.S. & Amrhein P.C. (2007) Client language as a mediator of motivational interviewing efficacy: where is the evidence? *Alcoholism, Clinical and Experimental Research* **31**(10), 40-47.
- Moyers, T.B., Martin, T., Manuel, J.K., Miller, W.R. & Ernst, D. (2010) *Revised Global Scales: Motivational Interviewing Treatment Integrity 3.1.1 (MITI 3.1.1)*. University of New Mexico, Center on Alcoholism, Substance Abuse and Addictions (CASAA), New Mexico.
- Moyers T.B. & Martin T. (2006) Therapist influence on client language during motivational interviewing sessions. *Journal of Substance Abuse Treatment* **30**(3), 245-251.
- Moyers T.B., Martin T., Houck J.M., Christopher P.J. & Tonigan J.S. (2009) From in-session behaviors to drinking outcomes: a causal chain for motivational interviewing. *Journal of Consulting and Clinical Psychology* **77**(6), 1113-1124.
- Murchie P., Campbell N.C., Ritchie L.D. & Thain J. (2005) Running nurse-led secondary prevention clinics for coronary heart disease in primary care: qualitative study of health professionals' perspectives. *The British Journal of General Practice: The Journal of the Royal College of General Practitioners* **55**(516), 522-528.
- Naar-King S., Outlaw A., Green-Jones M., Wright K. & Parsons J.T. (2009) Motivational interviewing by peer outreach workers: a pilot randomized clinical trial to retain adolescents and young adults in HIV care. *AIDS Care* **21**(7), 868-873.
- Nilsen P., Holmqvist M. & Hermansson U. (2011a) Alcohol prevention in Swedish occupational health care. *Occupational Medicine* **61**(7), 472-479.
- Nilsen P., Wahlin S. & Heather N. (2011b) Implementing brief interventions in health care: lessons learned from the Swedish risk drinking project. *International Journal of Environmental Research and Public Health* **8**(9), 3609-3627.
- Oxford University Press (2015) *OED - Oxford English Dictionary*. Available at: <http://www.oed.com.webproxy.student.hig.se:2048/> (accessed 2015/10/07).
- Patton M. (2002) *Qualitative research & evaluation methods. 3 ed.* SAGE, London.
- Petersen Z., Nilsson M., Everett K. & Emmelin M. (2009) Possibilities for transparency and trust in the communication between midwives and pregnant women: the case of smoking. *Midwifery* **25**(4), 382-391.
- Pirlott A.G., Kisbu-Sakarya Y., Defrancesco C.A., Elliot D.L. & Mackinnon D.P. (2012) Mechanisms of motivational interviewing in health promotion: a Bayesian mediation analysis. *The International Journal of Behavioral Nutrition and Physical Activity* **9**(1), 69-5868-9-69.
- Polit D. (2010) *Statistics and Data Analysis for Nursing Research*. Pearson Education Inc., Boston.
- Polit D.F. & Beck C.T. (2012) *Nursing research: generating and assessing evidence for nursing practice*. Wolters Kluwer Health/Lippincott Williams & Wilkins, Philadelphia.
- Pollak K.I., Coffman C.J., Alexander S.C., Østbye T., Lyna P., Tulsy J.A., Bilheimer A., Dolor R.J., Lin P., Bodner M.E. & Bravender T. (2014) Weight's up? Predictors of weight-related communication during primary care visits with overweight adolescents. *Patient Education and Counseling* **96**(3), 327-332.
- Public Health agency in Sweden (2014) *More people are overweight and has obesity*. Available at: <http://www.folkhalsomyndigheten.se/nyheter-och-press/nyhetsarkiv/2014/februari/fler-har-fetma-och-overvikt/> (accessed 2015/09/20).
- Public Health Agency in Sweden (2014) *Public Health in Sweden - Annual report 2014*. Public Health Agency in Sweden, Stockholm.

- Purath J., Keck A. & Fitzgerald C.E. (2014) Motivational interviewing for older adults in primary care: a systematic review. *Geriatric Nursing* **35**(3), 219-224.
- Resnicow K., DiIorio C., Soet J.E., Borrelli B., Ernst D., Hecht J. & Thevos A.K. (2002a) Motivational Interviewing in Medical and Public Health Settings. In *Motivational Interviewing: preparing people for change* (Miller W.R. & Rollnick S., eds.), Guilford Press, New York, pp. 251-269.
- Resnicow K., DiIorio C., Soet J.E., Ernst D., Borrelli B. & Hecht J. (2002b) Motivational interviewing in health promotion: it sounds like something is changing. *Health psychology: Official Journal of the Division of Health Psychology, American Psychological Association* **21**(5), 444-451.
- Rogers E. (2003) *Diffusion of Innovation*. Free press, New York.
- Rollnick S., Butler C.C. & Stott N. (1997) Helping smokers make decisions: the enhancement of brief intervention for general medical practice. *Patient Education and Counseling* **31**(3), 191-203.
- Rubak S., Sandbaek A., Lauritzen T. & Christensen B. (2005) Motivational interviewing: a systematic review and meta-analysis. *The British Journal of General Practice: The Journal of the Royal College of General Practitioners* **55**(513), 305-312.
- Rubak S., Sandbaek A., Lauritzen T., Borch-Johnsen K. & Christensen B. (2011) Effect of "motivational interviewing" on quality of care measures in screen detected type 2 diabetes patients: a one-year follow-up of an RCT, ADDITION Denmark. *Scandinavian Journal of Primary Health Care* **29**(2), 92-98.
- Sargeant J., Valli M., Ferrier S. & MacLeod H. (2008) Lifestyle counseling in primary care: opportunities and challenges for changing practice. *Medical Teacher* **30**(2), 185-191.
- Schneider Z., Whitehead D., Elliott D., Lobindo-Wood G. & Haber J (2007) *Nursing & Midwifery Research: Methods and Appraisal for Evidence Based Practice*. 3rd ed. Libby Houston, Chatswood, Australia.
- Soderlund L.L., Madson M.B., Rubak S. & Nilsen P. (2011) A systematic review of motivational interviewing training for general health care practitioners. *Patient Education and Counseling* **84**(1), 16-26.
- Stanton A. & Grimshaw G. (2013) Tobacco cessation interventions for young people. *The Cochrane Database of Systematic Reviews* **8**, CD003289.
- Starfield B., Shi L. & Macinko J. (2005) Contribution of primary care to health systems and health. *The Milbank Quarterly* **83**(3), 457-502.
- Statistics Sweden (SCB) (2014) *Population statistics*. Available at: http://www.scb.se/en/_/Finding-statistics/Statistics-by-subject-area/Population/Population-composition/Population-statistics/Aktuell-Pong/25795/Yearly-statistics--Municipalities-Counties-and-the-whole-country/385423/ (accessed 2015/09/03).
- Stewart M.A. (1995) Effective physician-patient communication and health outcomes: a review. *Canadian Medical Association Journal* **152**(9), 1423-1433.
- Swedish Association of Local Authorities and Regions (SALAR) (2015) Available at: <http://www.skl.se/> (accessed 2015/09/03).
- Swedish Codes of Status (SFS) (1982) *Law (SFS 1982:763) Health and medical care*. Ministry of Health and Social Affairs, Stockholm, Sweden.
- Swedish Codes of Statues (SFS) (2003) *Law (2003:460) on ethics regarding research referring to human-beings*. Ministry of Education and Research, Stockholm.
- Tabachnick B.G. & Fidell L.S. (2014) *Using multivariate statistics*. Pearson, Harlow.

- Taylor C.A., Shaw R.L., Dale J. & French D.P. (2011) Enhancing delivery of health behaviour change interventions in primary care: a meta-synthesis of views and experiences of primary care nurses. *Patient Education and Counseling* **85**(2), 315-322.
- The Association of Swedish District Nurses (DSF) (2008) *Competence description – registered nurse with a specialist nursing degree as a district nurse*. The Association of Swedish District Nurses; Swedish Society of Nursing, Stockholm.
- The Swedish Board of Health and Welfare (SBHW) (2010) *Health care report 2009*. The Swedish Board of Health and Welfare, Stockholm.
- The Swedish Board of Health and Welfare (SBHW) (2011) *National guidelines for disease preventive methods 2011– support for steering and management*. The Swedish Board of Health and Welfare, Stockholm.
- The Swedish Government/Ministry of Health and Social Affairs (2008) *Government Bill 2007/08:110. Renewed public health policy*. The Swedish Government/Ministry of Health and Social Affairs, Stockholm.
- The Swedish Institute of Public Health (2010) *Motivational interviewing in primary care – mapping educational efforts and perspectives*. The Swedish Institute of Public Health, Stockholm.
- The World Medical Association (WMA) (2013) Declaration of Helsinki- Ethical principles for Medical Research Involving Human Subjects. Available at: [http://www.wma.net/en/30publications/10policies/b3/index.html.pdf?print-media-type&footer-right=\[page\]/\[toPage\]](http://www.wma.net/en/30publications/10policies/b3/index.html.pdf?print-media-type&footer-right=[page]/[toPage]) (accessed 2015/10/07).
- Tod A.M. & Lacey A. (2004) Overweight and obesity: helping clients to take action. *British Journal of Community Nursing* **9**(2), 59-66.
- Vader A.M., Walters S.T., Prabhu G.C., Houck J.M. & Field C.A. (2010) The language of motivational interviewing and feedback: counselor language, client language, and client drinking outcomes. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors* **24**(2), 190-197.
- van Eijk-Hustings Y.J., Daemen L., Schaper N.C. & Vrijhoef H.J. (2011) Implementation of Motivational Interviewing in a diabetes care management initiative in The Netherlands. *Patient Education and Counseling* **84**(1), 10-15.
- Vanbuskirk K.A. & Wetherell J.L. (2013) Motivational interviewing with primary care populations: a systematic review and meta-analysis. *Journal of Behavioral Medicine* DOI 10.1007/s10865-013-9527-4
- Vasilaki E.I., Hosier S.G. & Cox W.M. (2006) The efficacy of motivational interviewing as a brief intervention for excessive drinking: a meta-analytic review. *Alcohol and Alcoholism* **41**(3), 328-335.
- Velasquez M.M., Hecht J., Quinn V.P., Emmons K.M., DiClemente C.C. & Dolan-Mullen P. (2000) Application of motivational interviewing to prenatal smoking cessation: training and implementation issues. *Tobacco Control* **9**(3), 36-40.
- Wain R.M., Kutner B.A., Smith J.L., Carpenter K.M., Hu M.C., Amrhein P.C. & Nunes E.V. (2015) Self-Report After Randomly Assigned Supervision Does not Predict Ability to Practice Motivational Interviewing. *Journal of Substance Abuse Treatment* **57**, 96-101.
- Walters S.T., Matson S.A., Baer J.S. & Ziedonis D.M. (2005) Effectiveness of workshop training for psychosocial addiction treatments: a systematic review. *Journal of Substance Abuse Treatment* **29**(4), 283-293.
- West D.S., DiLillo V., Bursac Z., Gore S.A. & Greene P.G. (2007) Motivational interviewing improves weight loss in women with type 2 diabetes. *Diabetes Care* **30**(5), 1081-1087.

- Wilhelmsson S. & Lindberg M. (2009) Health promotion: facilitators and barriers perceived by district nurses. *International Journal of Nursing Practice* **15**(3), 156-163.
- Wood M.J. & Kerr J.C. (2011) *Basic steps in planning nursing research: from question to proposal*. Jones and Bartlett, Sudbury, Mass., pp. 511.
- World Health Organization (WHO) (1978) *Primary Health Care: Alma-Alfa 1978*. World Health Organization, Geneva.
- World Health Organization (WHO) (2008) *2008-2013 Action Plan for the Global Strategy for the Prevention and Control of NonCommunicable Diseases*. WHO, Geneva.
- World Health Organization (WHO) (2009) *Milestones in Health Promotion. Statements from Global Conferences*. WHO, Geneva.
- World Health Organization (WHO) (2010) *Brief Intervention. The ASSIST-linked brief intervention for hazardous and harmful substance use. Manual for use in primary care*. WHO, Geneva.
- World Health Organization (WHO) (2013) *Global Action Plan - for Prevention and Control of Noncommunicable 2013-2020*. WHO, Geneva.
- World Health Organization (WHO) (2015) *Health topics*. Available at: <http://www.who.int/topics/en/> (accessed 2015/09/03).
- World Health Organization (WHO) Europe (2006) *Gaining health: The European Strategy for the Prevention and Control of Noncommunicable Diseases*. The Regional Office for Europe of the WHO, Copenhagen.

Appendix

Table 13. *Descriptions of Verbal Behavior/Talk in MI sessions according to MI-SCOPE**

Verbal Behavior/Talk	Descriptions*
Nurse (Counselor) Talk	
MI-consistent +	
Affirm	The counselor says something positive or complimentary to the client.
Emphasize Control	The counselor directly acknowledges the client's freedom of autonomy, choice, ability to decide, personal responsibility.
Support	Generally supportive and understanding comments.
Permission seeking	The counselor requests permission from the client to speak.
MI-inconsistent -	
Advice	The counselor gives advice, suggests or offers a solution.
Confront	The counselor directly disagrees, argues, corrects, blames, judges, moralizes the client's honesty.
Direct	The counselor gives an order, command, and direction.
Opinion	The counselor provides information in a subjective way.
Warn	The counselor provides a warning or threat, implying negative consequences.
Questions	
Closed questions -	
Neutral +/-	The question implies a short answer: yes, no, a specific fact. Target behavior neutral, closed question. E.g., How many cigarettes do you smoke in a day?
Positive -	Questioning the positive side of target behavior. E.g., Is it something that prevents you from quitting smoking?
Negative +	Questioning the negative side of target behavior. E.g., Have you thought about any date when you will quit smoking?

Open questions +	Questions that leave room for response.
Neutral +/-	Target behavior neutral, open question. E.g., How do you want to proceed with this?
Positive -	Questioning the positive side of target behavior. E.g., What do you like about smoking?
Negative +	Questioning the negative side of target behavior. E.g., What is negative about smoking?
Reflections	The counselor makes a statement that reflects back on content or meanings previously offered by the client.
Simple reflections +	The reflection adds little meaning to what the client is saying.
Neutral +/-	Commitment neutral, simple reflection. (For an example, see Table 5)
Negative -	Reflecting commitment to maintain the status quo. (For an example, see Table 5)
Positive +	Reflecting commitment to change. (For an example, see Table 5)
Complex reflections+	The reflection adds significant meaning to what the client has said
Neutral +/-	Commitment neutral, complex reflection. (For an example, see Table 5)
Negative -	Reflecting commitment to maintain the status quo. (For an example, see Table 5)
Positive +	Reflecting commitment to change. (For an example, see Table 5)
Patient Talk	
Neutral talk +/-	The patient's response neither moves toward nor away from the direction of changing the target behavior.
Change talk +	Patient statement that deals with changing the target behavior.
Sustain talk -	Patient statement that deals with maintaining the target behavior.

+ Positive behavior according to MI, - Negative behavior according to MI, +/- Neutral behavior according to MI. *:According to Motivational Interviewing Sequential Code for Observing Process Exchanges (MI-SCOPE) Coder's Manual (Martin et al. 2005).

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