

Staff attitudes towards opioid maintenance treatment (OMT) and the associations with treatment

Dissertation (PhD)

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Oslo 2011

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UiO : University of Oslo

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*Series of dissertations submitted to the
Faculty of Medicine, University of Oslo
No. 1132*

ISBN 978-82-8264-030-5

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Cover: Inger Sandved Anfinsen.
Printed in Norway: AIT Oslo AS.

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Abstract

Background

This thesis comprises three different studies; a prison health staff study from New South Wales (NSW); Australia, a Norwegian staff study and an assessment of the Norwegian opioid maintenance treatment (OMT) programme. The background for the prison health staff study was that some prison health staff in NSW, Australia had discouraged inmates from entering or remaining in OMT (1). Thus it was decided to investigate staff attitudes among prison health staff. In Norway there were some indications that there were differences between regional OMT centres in terms of key staff members attitudes (2). Norwegian staff attitudes were therefore assessed using the same instrument as in the prison health staff study. The original instrument was cross-culturally adapted from Australian-English to Norwegian. Since 2004 annual assessments of the Norwegian OMT programme had identified treatment differences between the 14 regional OMT centres (2-5). However possible patterns between treatment organisation, practices and outcomes had not been assessed and described. An assessment of the OMT programme in regards to associations between treatment characteristics, practices and outcomes was therefore performed. In addition a study from 2007 had identified an association between key Norwegian OMT staff members' attitudes towards OMT and prescription of benzodiazepines (6). It was therefore decided to investigate if there was an association between OMT staff attitudes in the Norwegian OMT programme and variations in treatment organisation and practices.

Study aims

The overall aims of this thesis were to investigate staff attitudes towards and knowledge of OMT among treatment providers in different settings in a culturally appropriate manner. It

also aimed to cross-culturally adapt an attitudinal instrument from Australian-English to Norwegian. It further aimed to explore differences in treatment organisation, clinical practices and outcomes within the Norwegian OMT programme and to assess OMT staff attitudes and its possible associations with treatment organisation, practices and outcomes.

Material and method

The three studies had cross-sectional designs. The prison health staff study was conducted in 2003 in NSW, Australia; all health staff employed by Justice Health NSW were invited to participate (n=396). The Norwegian attitudinal staff study was undertaken in 2007 among 140 OMT staff and 180 harm reduction staff in Oslo. The two attitudinal studies used an instrument that measured attitudes towards and knowledge of methadone. The instrument was cross-culturally adapted in the Norwegian population according to suggested guidelines (7-10). The assessment of the Norwegian OMT programme used data from the annual OMT assessment November 2007 and 2008. This assessment comprised all OMT centres (n=14) and aggregated patient information from all centres. Patient information was based upon results from a 53-items questionnaire completed for each patient as part of the annual assessment of the Norwegian OMT programme.

Results

51% of the prison health staff from NSW, Australia participated. Participating staff were more likely to support the principles of abstinence-orientation in methadone treatment compared to previously surveyed OMT staff. Staff with more experience in and knowledge of methadone were less likely to support abstinence-orientation in methadone treatment.

All invited Norwegian OMT staff participated and 72% of the invited Norwegian harm reduction staff participated in the Norwegian attitudinal study. The cross-cultural adaptation process revealed that Norwegian staff were unfamiliar with the principles of abstinence-

orientation. Instead a new attitudinal scale was identified. Those that were more likely to support disciplinary discharge from treatment due to in-treatment drug use and limitations on intake criteria were labelled “rehabilitation-oriented”. Norwegian OMT staff were more “rehabilitation-oriented” compared to the harm-reduction staff. There was no association between measured attitudes and level of knowledge of methadone or experience in the addiction field in Norway.

The assessment of the Norwegian OMT programme found marked variations between centres in caseload, choice of agonists, prescribing doctor, as well as in the use of drug screening and supervised dispensation. Centres in which patients had more drug use had less social rehabilitation in terms of long-term living arrangements, unemployment, and social security benefits as main income. These differences were associated with each centres’ attitudes towards OMT. “Rehabilitation-oriented” centres had smaller caseloads, more frequent urine drug screening and increased case management. In addition they had less drug use and more social rehabilitation among their patients.

Discussion

The cross-cultural adaptation process highlighted the dangers in taking an instrument into use in a new setting without adjustments. The attitudes measured among Australian prison health staff were not valid among Norwegian staff. Instead an attitudinal scale that measured attitudes towards disciplinary discharge due to drug use and limitations on intake criteria was identified. The assessment of the Norwegian OMT programme identified variations in treatment organisation, practices and outcomes between the regional OMT centres. These variations were associated with Norwegian OMT staff attitudes towards OMT. These findings suggest that there exist different organisational cultures between the

regional OMT centres which include staff attitudes and treatment practices that are likely to influence treatment outcomes.

Conclusion

This thesis provide baseline information for future follow up studies to measure changes in staff attitudes and the associations with treatment organisation, practices and outcomes after the introduction of new guidelines and regulations. Additionally the findings from this thesis suggest that future OMT programme assessments should include measures of staff attitudes towards OMT as it appear to be an important factor in this type of treatment.

Norwegian summary

Bakgrunn

Denne avhandlingen inneholder tre ulike undersøkelser; 1) en holdningsundersøkelse fra fengselsvesenet i New South Wales (NSW), Australia, 2) en norsk holdningsundersøkelse og 3) en undersøkelse av det norske LAR-programmet. Bakgrunnen for den australske holdningsundersøkelsen var at helsepersonell i fengslene i NSW, Australia advarte innsatte fra å begynne eller fortsette med vedlikeholdsbehandling med metadon (1). I Norge hadde en evaluering av LAR-programmet i 2004 avdekket behandlingsforskjeller mellom de ulike regionale LAR-sentrene. Det var indikasjoner for at ansattes holdninger kunne være en medvirkende faktor i disse behandlingsforskjellene (2;6). LAR-ansattes holdninger ble undersøkt med samme spørreskjema som ble brukt i den australske holdningsundersøkelsen. Mulige mønstre i behandlingsforskjellene mellom LAR-sentrene og samvariasjon mellom behandlingspraksis og behandlingsutfall var aldri blitt undersøkt og beskrevet. En slik undersøkelse ble derfor gjennomført.

Formål

Det overordnede formålet med denne avhandlingen var å undersøke holdninger til og kunnskap om LAR blant ansatte i fengselsvesenet i NSW, Australia og LAR-ansatte og skadereduksjonsansatte i Norge. Det var også et formål å krysskulturelt tilpasse et holdningsskjema fra australsk-engelsk til norsk. I tillegg var det et formål å undersøke om det var noen mønstre og samvariasjon mellom ulike typer behandlingspraksis og behandlingsutfall mellom de ulike LAR-sentrene og hvorvidt ansattes holdninger samvarierte med slike behandlingsforskjeller.

Material og metode

De tre inkluderte studiene var tverrsnittundersøkelser. Den australske holdningsstudien ble gjennomført i 2003 blant helsepersonell (n=396) i fengselsvesenet (Justice Health) i NSW, Australia. Den norske holdningsundersøkelsen ble gjennomført høsten 2007 blant LAR-ansatte (n=140) og ansatte i skadereduksjonstiltak i Oslo (n=180). De to holdningsundersøkelsene brukte et instrument som målte holdninger til LAR, samt kunnskap om risiko og fordeler ved bruk av metadon. Instrumentet ble krysskulturelt tilpasset for bruk i Norge basert på retningslinjer for slike krysskulturelle tilpasninger (7-10). Undersøkelsen av LAR-programmet inkluderte alle de regionale sentrene (n=14) og aggregerte pasientdata fra samtlige sentre. Undersøkelsen brukte data fra den årlige statusundersøkelsen høsten 2007 og 2008.

Resultater

Halvparten (51%) av alt helsepersonell i fengselsvesenet i NSW, Australia deltok i undersøkelsen. De som var mer tilbøyelige til å støtte prinsippet om at metadonbehandling kun skulle gis med det hovedformål at pasientene skulle bli rusfrie, uten substitusjonsmedisin hadde mindre kunnskap om og mindre tidligere erfaring med metadonbehandling.

I den norske holdningsundersøkelsen deltok alle inviterte LAR-ansatte og 72% av de inviterte skadereduksjonsansatte. Gjennom den krysskulturelle tilpasningen fant man at den australske holdningsskalaen ikke kunne brukes i Norge. I stedet ble det identifisert en ny holdningsskala som målte holdninger til utskrivelse fra LAR på grunn av rusbruk og begrensninger i inntakskriteriene. De som var mer tilbøyelige til å støtte utskrivning fra LAR på grunn av rusbruk og begrensninger i inntakskriteriene til LAR fikk merkelappen ”rehabiliteringsorienterte”. Norske LAR-ansatte var mer ”rehabiliteringsorienterte” sammenliknet med de i ansatte i skadereduksjonstiltakene. Det var ingen samvariasjon

mellom holdninger og kunnskap, eller erfaring med metadon og/eller rusbehandling, i den norske undersøkelsen.

Undersøkelsen av LAR viste store forskjeller mellom de ulike regionale LAR sentrene i antall pasienter per behandler, bruk av ansvarsgrupper, medikamentvalg (metadon eller buprenorfin), om forskrivende lege var fastlege eller LAR-lege, hyppighet av urinprøver og overvåket medikamentutlevering. De sentrene som hadde mer ikke-opioid rusbruk blant sine pasienter hadde mindre sosial rehabilitering (manglet egen bolig, uten arbeid, sosialhjelp som viktigste inntekt) blant sine pasienter. Disse forskjellene samvarierte med sentrenes holdninger til LAR. Det vil si at de ”rehabiliteringsorienterte” sentre hadde færre pasienter per behandler, mer hyppige urinprøver og flere ansvarsgrupper, samt bedre behandlingsresultater i form av mindre rusbruk og mer sosial rehabilitering sammenliknet med de andre sentrene.

Diskusjon

Den krysskulturelle tilpasningen av holdningsspørreskjemaet fra australsk-engelsk til norsk fremhevet farene ved å ta i bruk et spørreskjema i nye omgivelser uten en tilpasning til de nye omgivelsene. Holdningene funnet blant helsepersonell i fengselsvesenet i NSW var ikke gyldige i den norske undersøkelsen, i stedet fant man holdninger til utskrivelse fra LAR på grunn av rusbruk og begrensninger i inntakskriterier. I Norge var det ingen samvariasjon mellom målte holdninger og kunnskap og erfaring. Undersøkelsen av LAR viste variasjon i behandlingspraksis og behandlingsutfall mellom sentrene. Disse variasjonene samvarierte med de ansattes holdninger ved hvert regionale senter. Funnene fra denne avhandlingen indikerer at det eksisterer ulike behandlingskulturer som inkluderer holdninger og behandlingspraksis som kan påvirke behandlingsutfall.

Konklusjon

Denne avhandlingen danner grunnlaget for fremtidige oppfølgingsstudier der endringer i ansattes holdninger til LAR og samvariasjonen med behandlingspraksis og behandlingsutfall kan måles. Samtidig indikerer funnene fra denne avhandlingen at fremtidig LAR forskning og evaluering bør måle ansattes holdninger til behandlingen fordi det ser ut til at dette er en viktig faktor som samvarierer med ansattes behandlingspraksis.

Preface

The background for my interest in research and in particular staff attitudes towards opioid maintenance treatment began only three weeks into my Master of Public Health studies at the University of NSW in Sydney Australia in 2003. I visited the research centre “Centre for Health Research in Criminal Justice” at Justice Health located at Long Bay Jail in Sydney, NSW, Australia (picture below) as part of the course “Research Methods”. During my visit I was asked if I wanted to participate in the assessment of prison health staff attitudes towards and knowledge of methadone. I was unfamiliar with the field of drug dependence, methadone treatment, staff attitudes and a novice in research methods. However it was a great privilege to get the opportunity to learn and I therefore accepted the offer.



Long Bay Jail in Sydney, NSW, Australia

I was employed as a research assistant at the Centre for Health Research in Criminal Justice and Associate Professor Tony Butler, became my supervisor. I used the results from the assessment in the completion of my Master thesis. After the completion of the Master thesis and degree we began the work of writing up a paper. In 2007 the paper was published in Drug and Alcohol Review as the first paper published for this thesis. The same year I was employed as a PhD-candidate at Seraf- the National Centre for Addiction Research to

conduct a staff attitudinal study among Norwegian staff and this thesis is the result of that work.

Acknowledgements

I would like to acknowledge all of those who have supported me during the work on this thesis.

Firstly I want to acknowledge and thank all those **staff** that participated in the attitudinal study both in Australia and Norway.

I also want to thank to Justice Health, NSW, Australia and my supervisor Associate Professor **Tony Butler** who employed me as a research assistant and gave me my first research experience. I am grateful that **Tony Butler** convinced me to write the first paper for this thesis.

I am also grateful to **John Caplehorn** who have supported me and given invaluable advice in the work on the staff attitudinal studies.

Thanks to my former employer Professor **May Arna Risberg** director at The Norwegian Research Center for Active Rehabilitation (NAR) who gave me the contact details of the manager of the Nursing Research Department and Associate Professor **Nina Aarhus Smeby** at Ullevål University Hospital, when I told her I wanted to do a PhD. Nina Aarhus Smedby deserves a great acknowledgement for her invaluable support and encouragement when I asked for advice in regards to the possibilities of conducting a Norwegian staff attitudinal study. Without her I am not certain the Norwegian staff study would have been conducted.

I am grateful to Professor **Helge Waal** who believed in me and gave me the opportunity to begin my PhD at Seraf. To have Helge Waal as one of my supervisors has been a great honour. He has not only been a source for continuous support and inspiration, but I do not

believe there is another person in Norway that knows the Norwegian OMT programme and addiction field better.

My main supervisor Professor **Thomas Clausen** deserves a large acknowledgement for being the most patient and supportive supervisor ever. He supported me when I needed support, but also encouraged me and sometimes pushed me forward when I was stuck in the PhD wilderness. We have had many heated discussions, which have challenged me, but also thought me that I am not always right, but I am not always wrong either.

Additionally I want to thank one of my co-authors Professor **Michael Gossop** who has a wealth of knowledge in the addiction field. I am grateful that you took the time to give advice and support.

Also I want to acknowledge **Jo Røslien** who with his enthusiasm for numbers and data analysis made the investigations of patterns in treatment and outcomes between regional OMT centres a fun and most of all fascinating learning experience.

I also want to thank all **other colleagues** at the National Centre for Addiction Research. To Professor **Edle Ravndal** for being a wise role model for us young female researchers. Our Research Director Professor **Jørgen Bramness** who runs our Research Centre in the right direction and who has high expectancies for all his PhD students. To my **fellow PhD students** who has given support and encouragement and made the time as a PhD student a fun, memorable and great learning experience. In addition I want to acknowledge the administrative staff at Seraf **Pernille Karlsen**, **Arild Andreas Olsen** and **Pål Lillevoid** who has solved large and small problems!

Furthermore I want to thank Professor **Kenneth Rothman** for teaching me the dangers in using p-values as the only measure of important and non-important findings in research. I also want to thank Professor **Knut Hagtvet** at the Faculty of Psychology for setting aside time to advise me on the use of structural equation modelling even though I was not a student at his faculty.

I also want to acknowledge my friend **Lise Ulvestrand** who helped me in the first linguistic translations of the attitudinal questionnaire and has been of invaluable support in the times I thought my PhD would never finish!

Finally I want to thank my **parents** and **friends** for the support through all these years. I also want to encourage my brother **Arne Fredrik Hansen Lyshol** to follow in my PhD footsteps!

Lastly, but not least I want to thank my partner **Jørn Damslora** who patiently supported me in this final year of my PhD. I sincerely hope to have more time to participate in our life together now that my PhD is finalised.

Abbreviations and Definitions

Addiction- “Impaired control over a reward-seeking (usually drug-taking) behaviour from which harm ensues. It is not all-or-none, but a matter of degree. Its severity can be assessed, amongst other things, by the severity of subjective urges or cravings, a frequency or intensity of behaviour that is causing harm and failure or serious attempts to limit or cease the activity” p 3 (11).

Dependence syndrome-“ A cluster of physiological, behavioural, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value. A central descriptive characteristic of the dependence syndrome is the desire (often strong, sometimes overpowering) to take psychoactive drugs (which may or may not have been medically prescribed), alcohol, or tobacco. There may be evidence that return to substance use after a period of abstinence leads to a more rapid reappearance of other features of the syndrome than occurs with nondependent individuals” p 4 (12).

Abstinence-oriented methadone treatment- The main aim of treatment is abstinence from all drugs including treatment medications. Treatment may last from months to three to four years (13). Also known as **methadone reduction treatment** or **time limited methadone treatment**.

Opioid maintenance treatment (OMT) – Opioids, most commonly methadone or buprenorphine are given in treatment of opioid dependence. Other opioids such as slow release morphine, LAAM (levo-alpha-acetyl methadol or levomethadyl acetate) or heroin

may be prescribed. Also known as **opioid replacement treatment (ORT)** or **medication assisted treatment (MAT)**.

Methadone maintenance treatment (MMT) - The same as opioid maintenance treatment, except that only methadone is prescribed.

Rehabilitation in methadone treatment- Rehabilitation in methadone treatment was defined by Dole in 1966 as when a patient is living a responsible life, self-supporting in a steady job, and requiring little or no social help (14).

Attitudes- There exist many formal definitions of attitudes (15). In this thesis attitudes are defined as” a psychological tendency to evaluate an object, person, institution or event positively or negatively” (15). Attitudes are internal to the person and can either be covert or overt and are generally expressed through cognitive, affective and behavioural responses (16).

List of papers

Gjersing LR, Butler T, Caplehorn JR, Belcher JM, Matthews R. **Attitudes and beliefs towards methadone maintenance treatment among Australian prison health staff.**

Drug & Alcohol Review 2007, 26:501-508.

Gjersing LR, Caplehorn RM, Clausen T. **Cross-cultural adaptation of research instruments: language, setting, time and statistical considerations.** BMC Medical

Research Methodology 2010, 10:13 (10 February 2010)

Gjersing LR, Waal H, Røslie J, Gossop M, Clausen T. **Differences in treatment practices and outcomes within a national opioid maintenance treatment programme.** Submitted

Gjersing LR, Waal H, Caplehorn JRM, Gossop M, Clausen T. **Staff attitudes and the associations with treatment organisation, clinical practices and outcomes in opioid maintenance treatment.** BMC Health Services Research 2010, 10:194 (6 July 2010)

1. Introduction

In this thesis staff attitudes towards opioid maintenance treatment (OMT) among prison health staff in NSW, Australia and Norwegian OMT and harm reduction staff were investigated. An attitudinal instrument from Australian-English to Norwegian was cross-culturally adapted. In addition variations between the 14 regional OMT centres within the Norwegian OMT programme were assessed. These variations and the associations with staff attitudes were also investigated.

1.1 Opioid maintenance treatment (OMT)

There are approximately 1.4 million (1.2–1.5 million) problem opioid users in the European Union (EU) and Norway (17). The majority of drug users that seek treatment in the EU are opioid users and most use heroin (17). There exists many theories and views on substance use and opioid dependence (11;18). Opioid dependence may be viewed as a medical problem that should be treated by the medical profession, as a criminal problem that should be controlled by sanctions and/or a social problem that should be treated mainly by social welfare services (13;19). In addition opioid dependence may be viewed as a cluster of physiological, behavioural and cognitive phenomena which should be treated through a multidisciplinary approach (12). Regardless opioid dependence is associated with an increased risk of mortality (20;21). Additionally intravenous (IV) drug users have an increased risk of co-morbidities such as HIV and hepatitis (22-27).

Many and varied strategies in treating opiate dependence have been tried (13;19;28). In 1884 Freud recommended the use of cocaine for morphine dependence (13). In 1898 heroin, diacetylmorphine or diamorphine- a semi-synthetic derivative of morphine was

introduced as a treatment option for morphine dependence (13;19). At the same time morphine was prescribed for opium dependence (13;19;28). Prior to World War II methadone was synthesized for analgesia in Germany (29) and in 1949 methadone was found effective in withdrawing patients from heroin (29). However methadone treatment did not gain acceptance as a treatment for opiate dependence before Dole and colleagues had published several papers on the effectiveness of the treatment in the 1960's (14;30-33). Today OMT is recognised as an effective treatment for opioid dependence in most Western countries (20). Total number of clients receiving OMT in the EU and Norway in 2009 was estimated to be about 650 000 (17). This means that approximate 50% of all problem opioid users in Europe and Norway are currently in OMT.

1.2 OMT a contentious issue

Despite documented effectiveness, OMT have been and continuous to be a contentious issue in many countries (13;29;30). Introduction of OMT or changes in OMT policies are often based upon changes in society such as increased use of specific drugs, increased numbers of drug-related deaths or in response to the political climate (19;34). In Norway the political climate prior to the introduction of OMT emphasised the “drug free society” and abstinence-oriented treatment in the treatment of drug dependence (35-37). However the political climate began to change in the light of the HIV epidemic and an increasing number of drug-related deaths in the mid 1980's (38). Regardless there were strong resistance in the society against OMT. Thus OMT did not become nationally available before 1998 and only a small number of patients gained access in the early years of OMT in Norway (38).

Norway is not the only country where the introduction of OMT was a contentious issue; US is another example. In the US it was by 1925 determined that it was a crime to

prescribe morphine in the treatment of opioid dependence (13;28;30). Despite the prohibition some physicians continued to prescribe opioids and by 1938 25 000 physicians had been prosecuted for prescription of opioids and 3000 had served sentences (30). This illustrates the controversy in regards to OMT where some oppose OMT often based upon temperance moralism where abstinence from all drugs should be the main aim of treatment (39). While others believe it should be provided and some are even willing to risk imprisonment in order to provide treatment (30).

The contentiousness of OMT is likely to be one of the reasons why OMT is organised in many different manners. Treatment may focus differently on harm reduction, social rehabilitation or abstinence from all drugs (14;40-42). If the aim of treatment is harm reduction the focus on treatment will be on reducing the harms of drug use (43;44). Dole and Nyswander defined a person as rehabilitated when a patient in methadone treatment was self-supported in a steady job, and required little or no social help and this would be the main aim in programmes where the main treatment objective is social rehabilitation (14). Whereas abstinence-oriented treatment with methadone or buprenorphine have the aims of abstinence from all drugs including treatment medication (41;42;45;46).

Since there are variations in treatment aims, there are also differences in treatment provision. Some treatment programmes or clinicians prescribe mainly methadone, while others prescribe buprenorphine (47;48). Some discharge patients who continue to use drugs while in treatment, whereas others retain almost all patients regardless of drug use (40-42). There are also variations in opportunities of take-home doses and frequency of urine drug screening (40;49;50). Importantly variations in OMT provision are found

between countries (51), within countries (52), and even between counsellors within the same treatment programme (53).

Variations in provision and organisation of OMT affect treatment outcomes in various ways. Abstinence-oriented methadone programmes have been found to prescribe lower doses compared to long-term maintenance programmes (40;41;54). Treatment programmes that prescribe lower methadone doses (<60 mg) have had higher dropout rates and more drug use compared to programmes that provide higher doses (54-56). Smaller caseloads have been associated with more beneficial treatment outcomes such as less drug use and increased retention rates (53;57;58). In addition patients that receive intensified case management have had better outcomes compared to those that do not (59;60).

1.3 Staff attitudes towards OMT and drug users

Staff attitudes in the addiction field are widely researched (61-66). Attitudes are positive or negative evaluations of a particular entity (15;16). Someone who favours an issue such as harm reduction is viewed as holding a positive attitude towards this issue, whereas someone who disapprove of an issue such as harm reduction are viewed as holding a negative attitude towards this issue (15). Attitudes are generally expressed overt or covert through cognitive, affective and behavioural responses (15;16). They are not directly observable, but latent, hypothetical constructs which can be inferred from external observable responses such as attitudinal instruments (15;16). Attitudinal instruments are most commonly based upon standard attitudinal scaling techniques which results in a score that locates the respondent on an evaluative dimension according to the measured issue (e.g. harm reduction) (16;67).

The associations between attitudes and behaviour have been of particular interests to researchers (68-71), it is however important to be aware of the attitude-behaviour gap (71). This means that a person does not always act according to stated attitudes (72-79). Nevertheless there are some attitudes that are more likely to influence behaviour than others (68;70;80-83). Strong attitudes, the attitudes of the majority and perceived behavioural control (e.g. in decision making) are more likely to influence behaviour than weaker attitudes held by only one or few persons that perceive they don't have any control over their situation (low perception of behavioural control) (16;84-86). This means that in treatment programmes such as OMT where there are strong staff attitudes shared by a majority of staff that perceive they have control over their work situation, in terms of decision making, it is likely that treatment will be influenced.

The first investigations of staff and patients' attitudes towards opiate dependence were published in the 1970 and early 1980's (63;87-94). Some of these investigations (63;88-90) found that both staff and patients had more positive attitudes towards drug-free treatment compared to long-term methadone maintenance. These attitudes mirrored the political climate at the time in many Western countries, where there were a large opposition between those that supported OMT and those that opposed this type of treatment (28;35;95).

Some of those that opposed OMT could accept short-term methadone treatment if the long-term aim of treatment was abstinence from all drugs including methadone (41;42). To measure staff attitudes towards short-term and long-term methadone treatment an instrument was developed in New South Wales (NSW), Australia in 1996 (96). In this study staff that supported short-term methadone treatment were termed abstinence-

oriented (96). The instrument (96) was later used in other studies in Australia (97-99), USA, (100-104), Netherlands (105), Germany (106), and Spain (107). These later studies found that support for abstinence-orientated principles in methadone treatment differed between age, level of education and experience from the addiction field. Younger staff with less education and less experience from the addiction field were more likely to support abstinence-oriented principles in methadone treatment (103;105;106). Other studies have also found that staff attitudes differed between treatment programmes, staff's level of education and experience in the addiction field (108-110).

A number of studies have assessed the association between staff attitudes and treatment provision. Abstinence-oriented staff have been more likely to prescribe lower methadone doses compared to maintenance-oriented staff (97;98;111). Provision of lower methadone doses (<60 mg) have been associated with lower retention rates (56;97;98). Key OMT staff members' attitudes towards provision of OMT have been associated with prescriptions of benzodiazepines in the Norwegian OMT programme (6). In addition staff (programme directors, pharmacy staff, community staff, physicians) that have had positive attitudes towards drug using clients have been more likely to provide additional services such as needle-exchange services and HCV treatment compared to those that have had negative attitudes towards drug users (112-118). Consequently staff attitudes towards drug users and treatment appear to influence treatment provision.

Staff attitudes and the associations with treatment could be a result of organisational culture. Organisational culture is a collection of shared beliefs among members in an

organisation (119). The culture within an organisation has been described as a combination of attitudes, philosophy, and goals (120). Organisational cultures are likely to develop within a historical and societal context (13). When new staff begin their working career in the treatment programme it is likely that attitudes and treatment practices are influenced by those already employed in the organisation. In this manner specific organisational cultures develop and is maintained in each centre.

1.4 Cross-cultural adaption of study instruments

To use an instrument developed in one cultural context and to assume it is valid in another without modifications is a common mistake in research (7;9;10;121). One study assessed articles from two journals and found that bias due to an insufficient cross-cultural adaptation process possibly existed in as many as three-fourths of the articles (122). It is assumed appropriate to develop content validity based upon experts' advice and analysis while ignoring cultural understanding, to conform to the exact terms of standardized instruments in linguistic translations and to assume that all concepts are transferrable to all cultures (123). If these assumptions are followed the risk of information bias is introduced into a study (7;8).

There are many reasons for why this may introduce bias into a study; expressions in the original instrument may not give any meaning in the new setting (7;8). A questionnaire that measure level of physical activity and uses snow activities such as skiing as examples may make no sense in countries where there are no snow (121). Additionally studies have found differences between cultures in how psychiatric symptoms such as bipolar and depression presents itself in patients (124;125). A cross-cultural adaptation process are therefore important also in studies where the settings appear to be cultural

similar because without a thorough cross-cultural adaptation process dissimilarities will not be detected.

1.5 The Norwegian OMT programme

There are between 8 800 and 12 500 injecting drug users in Norway (126). The Norwegian OMT programme was established as a national publicly funded treatment programme in 1998 (127). There was a rapid expansion from the initial intake of 240 patients in 1998 to 4913 in 2008 (127;128). The programme comprises 14 regional centres that are subject to the same treatment standards specified in government guidelines (128).

There were some attempts to introduce methadone in the treatment of opioid dependence prior to 1998 (36). In 1969 a public hospital that treated opioid dependence prescribed methadone to some of their patients (35). The hospital concluded that methadone treatment was difficult when there were no other collaborating parties involved except the hospital, thus this type of treatment was terminated (38). There was another attempt of methadone maintenance treatment in 1971-72 (38). Five opioid dependents were prescribed methadone in a psychiatric hospital, but also this treatment attempt was short-lived (38). In 1976 the Department of Health decided it was against regulations to prescribe methadone in the treatment of opioid dependence (35;36). Instead there was an emphasis on and increase in abstinence-oriented treatment approaches (35;36).

The discussions in regard to methadone treatment reoccurred in the light of the HIV epidemic and an increasing number of drug-related deaths in the mid 1980's (36;37). The Director of Health at the time, established a working group to assess the possibility

of providing methadone treatment, but the report based on this assessment was never published (36;38). Nevertheless some practitioners began to prescribe methadone to HIV positive opioid dependents (38). In 1991 methadone maintenance treatment was established as a trial project for HIV positive opioid dependents in Oslo (129). In 1994 another trial project was established in order to reach opioid dependents that were hard-to-treat (130;131). Those that gained access into this latter project had to be above 30 years old, had to have at least ten years of opioid dependence and failed several abstinence-oriented treatment attempts (131). Based upon the results from these two trial projects OMT became nationally available in 1998; however the limitations on intake criteria continued (127).

The initial intake criteria were that only persons above 25 years with more than 10 years of opioid dependence that had failed abstinence-oriented treatment were accepted into treatment (127). These criteria were subsequently modified; the 25 years age criterion was removed and patients with less than 10 years of opioid dependence were included (47). The many years of heated debate before the introduction of OMT may have coloured staff's attitudes and beliefs towards OMT. Possibly the development of the Norwegian OMT programme were not only influenced by the legal framework and structure, but also by staff attitudes and beliefs.

Patient treatment relies on long-term three-party collaboration between an OMT centre, a GP and social services (47). Patients have until recently, had to establish contact with social welfare services and a GP to become applicable for OMT (47). Once an opiate dependent person has been accepted and stabilized into OMT a GP may be the prescribing doctor, but treatment should be supervised by a regional OMT centre (47).

Initial acceptance into treatment and treatment initiation are always the responsibilities of the OMT centre (47). A consequence of the long-term three party collaboration is that patients are not entirely free to choose their treatment centre due to logistical and geographical challenges (132). This means that patients are required to accept their local centre's treatment standards and practices, since there is only one OMT centre available in each geographical region.

To support consistency of treatment between the regional centres, managers from all of the centres meet several times a year. Centres that differ from the other centres in treatment practices or outcomes are identified through annual assessments and reasons for divergency are discussed. There are no formal regulatory body to ensure that centres follow the same treatment standards. However patients may file individual complaints to their regional board of health supervision. The board's decisions are normative for all centres and thus treatment practices in all centres may be changed or modified due to such complaints.

In 2004 a report was published that indicated that there were differences in treatment practices and treatment outcomes between the regional centres (2). Annual assessments of the OMT programme continued to document treatment differences between the regional centres (3-5;128). Based upon this report and the persistent documented differences between the centres, it was decided to establish formal guidelines for OMT in Norway (133). The guidelines were published in 2010 (134), but it is yet to be known whether they will reduce the differences found between the centres or not. Possibly there are other factors than lack of guidelines that are associated with the treatment differences within the Norwegian OMT programme. It is possible that one of these

factors is staff attitudes towards OMT. Therefore one of the main aims of this thesis was to investigate staff attitudes towards OMT in the Norwegian OMT programme and to assess if there were any associations with the documented treatment differences between the regional OMT centres.

2. Background and Objectives

2.1 Background for the three studies included in this thesis

2.1.1 Australian prison health staff study (Study I)

OMT was a contentious issue in the NSW; Australian prison context in 2003. Some prison governors opposed OMT on the grounds that it served to promote drug use; instead they preferred complete abstinence within their facility. There were also reports that some prison health staff discouraged prisoners to enter or remain in OMT (1). Justice Health was responsible for providing health care services to prisoners within NSW; Australia. This organisation was therefore one of the biggest prescribers of methadone in NSW, with more than 1100 prisoners on the programme. Consequently Justice Health found it necessary to assess staff attitudes towards OMT to address the issue that some prison health staff discouraged prisoners from OMT. It was therefore decided to investigate prison health staff attitudes towards and knowledge of methadone.

2.1.2 Norwegian attitudinal staff study (Study II)

The Norwegian OMT programme is assessed annually for quality assurance purposes. These assessments had documented persistent differences in treatment practices and outcomes between the 14 regional centres since 2004 (2;4;5). In 2004 key personnel, mainly managers' attitudes were assessed through telephone interviews, but no formally structured instrument was used (2). This study found that centre managers differed in their views on what to do if a patient had used drugs while in treatment. Some would discharge patients if they had used cannabis or alcohol and others would not. Some would tolerate benzodiazepine use, others would not. Centres were labelled "liberal", "restrictive" or "neutral" based upon this assessment (2). Another study found that centres labelled "liberal" had more benzodiazepines prescribed among their patients

compared to other centres (6). However no other characteristics or outcomes were assessed. Consequently there existed no formal study that assessed staff attitudes among all OMT staff and that had investigated the associations between staff attitudes and treatment characteristics, clinical practices and patient outcomes. It was therefore decided to assess Norwegian staff attitudes towards OMT using the same attitudinal instrument as in the Australian prison health staff study.

2.1.3 Norwegian OMT programme assessment (Study III)

In the Norwegian OMT programme possible patterns between centres in terms of clinical practices and outcomes had not previously been explored and described in full detail. Since 2004 annual assessments of the OMT programme had documented treatment differences between centres (2-5). However in these assessments the differences were listed as frequency reports, but the patterns and associations between treatment and treatment differences between centres had not been addressed. In 2007 a description of the national OMT programme was published, but this paper mainly described the structure of the programme and did not state explicitly what differences existed between centres (47). Another paper from 2007 described differences between regional centers in terms of prescriptions of benzodiazepines among their patients; however other differences between centres were not explored (6). Consequently there existed some knowledge that differences between centres existed, but there was a lack of an overall knowledge in what specific type of differences existed between centres and if there were any patterns between treatment characteristics, clinical practices and outcomes within the Norwegian OMT programme. Thus it was decided to formally assess the patterns in treatment differences between the regional OMT centres, based upon data from the annual assessments using more detailed analysis.

2.2 Objectives

The overall aims of this thesis were to investigate staff attitudes towards and knowledge of OMT in a prison context in NSW, Australia and among Norwegian OMT and harm reduction staff. It also aimed to cross-culturally adapt an attitudinal instrument from Australian-English into Norwegian. Additionally it aimed to explore differences in treatment organisation, clinical practices and outcomes within the Norwegian opioid maintenance treatment (OMT) programme and to assess staff attitudes and its possible associations with treatment organisation, clinical practices and outcomes.

The specific aims were:

- I. To assess and describe attitudes towards and knowledge of OMT among prison health staff in NSW, Australia (Study I; paper I).
- II. To cross-culturally adapt a study instrument from Australian-English to Norwegian and to assess and describe attitudes towards and knowledge of OMT among Norwegian OMT and harm reduction staff (Study II; paper II).
- III. To describe treatment organisation and clinical practices within the Norwegian national OMT programme. Furthermore to investigate possible associations between these factors and drug use and social rehabilitation outcomes among patients treated within the programme (Study III; paper III).
- IV. To assess if there were differences in staff attitudes between OMT centres, and to investigate the associations of staff attitudes with treatment organisation, clinical practices and outcomes (Study II and III; paper IV).

3. Material and Methods

3.1 Setting and Design

The prison health staff study (study I) was a cross-sectional mail out survey among 396 staff employed by Justice Health which was the correctional health services in NSW; Australia in May and June 2003. Respondents returned the questionnaires in prepaid envelopes.

The Norwegian staff study (study II) was a cross-sectional study where all eligible staff (n=140) from the national OMT programme and harm reduction services (n=180) in Oslo were invited to participate. The programme comprised 14 regional centres that employed from three to thirty-three staff members. Two of the centres were merged because they had a joint staff group at the time of the study. Harm reduction services included street clinics, needle-exchange programmes, injecting rooms and housing facilities. Harm reduction services included 12 facilities and employed between six to 30 employees. Data were collected between August and November 2007. Prior to data collection managers in each facility were contacted and asked if they and their staff wanted to participate in the study. In some facilities (12 OMT centres and 7 harm reduction facilities) the researcher was invited to give information during staff meetings when most staff were present, thereafter staff completed the questionnaires. Prepaid and anonymous envelopes addressed to the researcher were attached to each questionnaire. Responders could choose not to respond to the survey by returning an incomplete questionnaire in the envelope. Staff that were absent returned the questionnaire by mail. In other facilities (1 OMT centre and 4 harm reduction facilities) staff received information during staff meetings and thereafter returned the questionnaire by postal

mail or email. In addition in one harm reduction facility managers were informed by email and thereafter staff returned the questionnaire by postal mail. No names were collected, but number of staff that had completed the questionnaire at each facility was recorded. Centre managers were followed up to encourage that all staff returned questionnaires.

The assessment of the Norwegian OMT programme (study III) used data collected in the OMT programme assessments which is an annual national cross-sectional multicentre study. The study comprised all 14 regional OMT centres within the Norwegian OMT programme. To answer aim III (paper III) data collected for the annual assessment 2008 were used. To answer aim IV (paper IV) data collected for the annual assessment 2007 were used, this was because data from the Norwegian staff study were collected the same year.

3.2 Study instruments

3.2.1 The original attitudinal instrument

The prison health staff study (study I) and the Norwegian staff study (study II) used an instrument developed in NSW, Australia in 1996 (96) (appendix 1). The original instrument comprised two attitudinal scales; the 14-items “Abstinence-orientation” scale and the six items “Disapproval of drug use” scale (appendix 1). The “Abstinence-orientation” scale comprised two almost perfectly correlated dimensions; attitudes towards abstinence-oriented policies and support for disciplinary actions if programme rules were broken (96). Cronbach’s alpha for the “Abstinence-orientation” scale was $\alpha = 0.89$ (96) and for the “Disapproval of drug use” scale was 0.75 (96). When the instrument was developed there was a positive correlation between the “Abstinence-orientation” and “Disapproval of drug use” scale ($r=0.64$) (96).

The responses were recorded on a five-point Likert scale ranging from “strongly disagree=1” to “strongly agree=5” (96). A sum score was calculated for each of the two attitudinal scales by dividing number of completed items with the total score (96).

Additionally the instrument comprised a 12-item knowledge scale. This scale tested respondents’ knowledge of the benefits and risks of methadone treatment (96). The scale was characterised by statements such as “Methadone, when given as a maintenance programme, reduces (“blocks”) the effects of heroin” (96) (appendix 1). The items were scored “1” for correct answer, “0” for “uncertain” and “-1” for incorrect answer (96). The theoretical score range was -12 to 12. In the Australian prison health staff study (study I) and the Norwegian staff study (study II) the “knowledge around risks and benefits of methadone” scale (know scale) was reduced to 11 items due to discussions around the item “Withdrawing from methadone “cold turkey” is definitely worse than similarly withdrawing from heroin” (*Personal communication Caplehorn 2003*). Consequently the theoretical score range for the “know scale” was -11 to +11.

In the Australian prison health staff study (study I) another knowledge scale that measured knowledge of methadone toxicity (Tox scale) was added to the instrument. This scale was developed in 1998 (98) (appendix 1). The theoretical score range for this scale was -13 to 13. The instrument used in the prison health staff study is found in appendix 2.

Since the original study instrument was developed in 1996 there had become an increased focus on harm reduction (135). Items that measured support for harm-reduction principles were therefore added to the instrument in the prison health staff study. In addition there had been an increase in the use of buprenorphine rather than

methadone in community OMT programmes (136;137); two questions related to buprenorphine were therefore added. Also naltrexone was used increasingly to prevent relapse in opioid-dependent patients (138;139), thus two questions on naltrexone were included. These seven items were scattered throughout the 52-item instrument, but were not part of any of the scales.

In the Norwegian attitudinal staff study (study II) the original instrument (96) was cross-culturally adapted according to guidelines on cross-cultural adaptations (7-10). These suggested guidelines are found in appendix 3. The findings from the cross-cultural adaptation process were part of the results and were therefore presented in the results section both in paper II and in this thesis. In this process 12 attitudinal statements were added to the instruments. Some of these items were variants of the original items, while other items introduced new concepts. The additional items were placed after the original items and thus did not alter the instrument's original structure. The instrument used in the Norwegian staff study (study II) is found in appendix 4.

3.2.2 The instrument used in the Norwegian OMT programme assessment (Study III)

In the annual assessments of the OMT programme a 53-item questionnaire is completed for each patient. The instrument was originally developed in 2001 and taken into use in 2002 as a measure in the annual assessment of the Norwegian OMT programme (140). The variables within the questionnaire were developed on the basis that this should be the minimum information that the case manager should have of their patients. Information on patients' drug use previous four weeks were based mainly on urine drug screening results. The patients' case manager either at the OMT centre or at the social service centre completed the questionnaire for each patient, and if possible the instrument was completed in collaboration with the patient. The questionnaire's inter-

rater reliability was assessed in 2004 (140), and items with low reliability (< 0.60) were adjusted accordingly.

3.3 Study factors and outcome variables

3.3.1 Prison health staff study (study I)

In this study demographic information included age, employment period, qualifications in the treatment of drug dependence, frequency of dispensing methadone and position within the organisations (public health nurse, mental health nurse, general nurse, nurse unit manager, doctor, management or drug and alcohol position). The outcome variables were staff attitudes towards abstinence-oriented principles in methadone treatment, attitudes towards drug use in the society, knowledge around risks and benefits of methadone treatment and knowledge around methadone toxicity.

3.3.2 The Norwegian staff study (study II)

In this study OMT staff were compared to staff employed in harm reduction facilities. Demographic variables were staff category, age category, level of education, time worked at current workplace, time worked in the addiction field. The outcome variables were staff attitudes towards OMT and knowledge around risks and benefits of methadone treatment.

3.3.3 The assessment of the Norwegian OMT programme (study III)

In this study treatment organisation included number of patients and staff and caseload. Clinical practices included number of patients prescribed methadone or buprenorphine, median medication dosages, number of patients prescribed their medication either from a GP or the OMT doctor. Additionally number of patients' urine drug screened at least once a week and frequency of supervised dispensing were included. Supervised dispensing (observed intake of medication) gives an indication of take-home privileges

among patients. OMT centres with high frequency of supervised dispensing will have less take-home doses compared to centres with lower frequency.

Patient outcomes included the treatment termination rate and number of patients who had used opioids, benzodiazepines, cannabis and central stimulants previous four weeks. Number of patients with long-term living arrangements, number of unemployed patients, and number of patients with social security benefits as main income were also included.

3.3.4 The Norwegian staff study and the assessment of the OMT programme (study II and III)

In this study each centre's mean attitudinal scores were assessed. The attitudinal scores were based upon the scale developed in the Norwegian staff study (study II). It was decided to label those with the lowest mean scores on the scale "harm reduction-oriented" and those with the highest mean score "rehabilitation-oriented". These labels were based upon the content of the attitudinal scale. This means that the "harm reduction-oriented" would be more likely, compared to "rehabilitation-oriented" to disagree that drug use was a reason for disciplinary discharge and more likely to agree that an OMT programme should be available to all opiate dependents.

Centres were divided into three groups based upon their mean attitudinal scores, with equal number of centres in each group (4-5-4). The four centres with the lowest scores were termed "harm reduction-oriented" and the four centres with the highest scores were termed "rehabilitation-oriented". The five centres that had attitudinal scores between the two opposing groups were termed "intermediate" centres.

Centre organisation and clinical practices included patient/staff ratio, methadone and buprenorphine dose, and interdisciplinary meeting attendance among patients as well as supervised dispensing and urine drug screening at each OMT centre. Drug use previous four weeks and social functioning variables were outcome variables. Drug use variables were opioid, benzodiazepines, central stimulants and cannabis use previous four weeks. These data were measured by urine drug screening and self-report. Social rehabilitation was measured using current employment status, social security benefits as main income and type of living arrangements. Patient retention was measured indirectly using the treatment termination rate.

3.4 Data analysis

3.4.1 Prison health staff study (study I)

Summary statistics were calculated using SPSS version 11 (141). The abstinence-orientation and disapproval of drug use scales' structural validity were tested together in a confirmatory factor analysis model using unweighted least squares (Proc Calis, SAS Institute Inc, Cary, NC). The decision of overall model fit was based upon the following goodness-of-fit indices; root mean square residual (RMSR), Goodness of Fit Index (GFI), GFI adjusted for degrees of freedom and parsimonious GFI (142).

Analysis of variance was used to examine the association between mean scores on the various scales and the different staff categories. Tamhane T2 was used as a post-hoc analysis when there was a significant difference between the different staff categories mean scores. Pearson's correlation coefficient was used to examine the association between the scores on the various scales; t-tests were used to examine differences in mean scores on the various scales based on whether staff had community experience or

additional training and to test for differences between this study and previous Australian studies.

Additional analysis were completed for this thesis; the linear regression coefficient (b) and 95% CI were calculated between attitudinal and knowledge scores and all demographic variables such as staff category and additional training/experience.

3.4.2 Norwegian staff study (study II)

Descriptive statistics were calculated using the statistical software SPSS version 16

(143). Data were assessed using exploratory and confirmatory statistical analysis.

Initially the 14 original abstinence-oriented items were tested through confirmatory analysis. The confirmatory analysis were based on the one-factor model from the original instrument (96). Thereafter both original and new items were assessed using exploratory factor analysis. The model retrieved through exploratory factor analysis was tested through confirmatory analysis. Exploratory factor analysis were completed in the statistical software SPSS version 16 (143). Confirmatory analysis were completed in the statistical software AMOS graphic version 17 (144).

The main aim of the exploratory factor analysis was to find an instrument that could assess attitudes that were important to Norwegian OMT staff. The analysis were completed using principal axis and oblique rotation methods (promax and direct oblim). Promax and direct oblim are the two only oblique rotation methods available in SPSS version 16 (143). Both rotation methods were used to assess if the data were sensitive to rotation method. The correlation matrix and factor loadings were used to decide which items to retain. A scree plot was used to decide the number of factors to retain. Additionally the Cronbach's alpha (α) was assessed.

Confirmatory analysis were completed through structural equation modelling using maximum likelihood analysis. The maximum likelihood method assumes that data are continuous and have multivariate normal distribution (145-147). Data were checked for normality both graphically and by assessing univariate and multivariate skewness and kurtosis.

The statistical software AMOS version 17 does not handle missing values when modification indices are estimated (144). Thus a missing value pattern was generated for all items to assess if values were missing at random. If values were missing at random it would be appropriate to delete missing values listwise for the confirmatory analysis. Additionally a high number of missing items not missing at random could indicate that one or more items were not understood by the respondents. Furthermore a high number of the response “uncertain” could indicate that an item was problematic. Identification of problematic items at this stage of the cross-cultural adaptation process, would suggest that the pre-test of the instrument had been insufficient.

The sample data included two different groups (harm reduction staff and OMT staff), thus multi-group analyses were applied (145;147;148). The latent mean was assessed with OMT as reference group. Factor mean was constrained to zero in OMT staff and freely estimated in harm reduction staff. While factor loadings, item intercepts and measurement error means were constrained to zero in both groups. Factor covariances and measurement error variance were freely estimated in both groups.

In this study the decision of overall model fit was based upon four fit indices. These indices were the comparative fit index (CFI) (149), the Tucker-Lewis index (TLI) (150) and the root mean square error of approximation (RMSEA) (151). The average variance

extracted (AVE) (152) was also assessed. In order to decide best model fit in the multigroup analysis Aikake's information criterion (AIC) (153;154) and the Browne-Cudek criterion (BCC) (155) were assessed. A more detailed description of these fit indices is found in paper II.

3.4.3 The assessment of the Norwegian OMT programme (study III)

Aggregated information (number of patients for each variable and total number of patients) for each regional centre (14 centres) was available for analysis. Only completed items were included in the analysis. Thus the total number of respondents for each item varied from the total number of patients at each centre. Based upon these data it was possible to calculate the prevalence in each centre for each item. Data was presented as median (range) across all centres. The linear regression coefficient (b) and 95% CI were calculated between outcome and demographic variables.

Some of the outcome variables tended to be correlated. Principal component analysis (PCA) was conducted to assess if it was possible to reduce the number of outcome variables into components. PCA computes linear combinations, i.e. weighted sums, among the variables in question, that explain as much variance as possible. Often the first principal component describes a sufficient amount of the total variation that it provides a good representation of the variables (156). Descriptive statistics and linear regressions analysis were calculated in SPSS 16.0 (143) and PCA in the open source computer software R (157).

3.4.4 The Norwegian staff study and the assessment of the OMT programme (study II and III)

Descriptive statistics and regression analysis were completed using SPSS version 16.0 (143). A missing value pattern was generated for all items. Staff attitudes were

investigated by linear regression analysis with mean attitudinal score as dependent variable and age, gender, staff category, years of education, time worked in the addiction field and OMT centre as independent or predictor variables. Prevalence estimates were reported (158). Differences between centres were calculated using prevalence difference and 95% CI.

3.5 Ethics

Study I was a study of health staff employed at Justice Health in NSW, Australia. This study was undertaken as part of a quality exercise of health staffs knowledge and attitudes towards methadone treatment and it was therefore not formally necessary to obtain approval from an Ethics committee. Regardless the study followed guidelines given by the Australian National Health and Medical Research Council (1999) (159) and was completed in accordance with the National Health and Medical Research Council Act 1992 (160).

Study II was approved by the Norwegian Regional Ethics Committee and the Data Inspectorate in 2007. Prepaid and anonymous envelopes addressed to the researcher were attached to each questionnaire. Responders could choose not to respond to the survey by returning an incomplete questionnaire in the envelope. No names were collected, but number of staff that had completed the questionnaire at each facility was recorded. Centre managers were followed up to encourage that all staff returned questionnaires. Participants received written and oral information about the study. Respondents consented to participate in the study by submitting the questionnaire. The questionnaire was semi-anonymous. This means that the name of the facility and other demographic variables made some staff theoretically identifiable. Participants were

promised full anonymity upon distribution of results. Demographic variables that identify respondents will therefore be deleted upon completion of the project.

Study III was part of the data collected for the annual assessments of the Norwegian OMT programme at the Norwegian Centre for Addiction Research (Seraf) and data were only available as aggregated information published in the annual OMT reports. This means that no individual information was available and it did therefore not require informed consent or approval from the Norwegian Regional Ethics Committee and the Data Inspectorate.

4. Summary of results

This section responds to the aims of this thesis. The results presented in this section are therefore sometimes presented in a different manner to the results presented in the four articles included in this thesis.

4.1 Aim I

To assess and describe attitudes towards and knowledge of OMT among prison health staff in NSW, Australia (Study I)

Overall response rate was 51%. 77% of the respondents were women and 74% were more than 40 years old. 28% had been employed in Justice Health between 2 to 5 years, whereas 43% had been employed more than 5 years. 79% had not received any additional training in regards to OMT and 78% did not have any experience from a community OMT programme.

The mean “abstinence-orientation” scale (range 1-5) score was 2.86 (95% CI 2.76; 2.96) and 3.29 (95% CI 3.18; 3.40) for the “disapproval of drug use” scale (range 1-5) score. The mean scores on the “knowledge of risks and benefits of methadone” scale (range -11-11) was 2.65 (95% CI 2.36; 2.95) and 4.60 (95% CI 4.20; 5.00) on the “knowledge of methadone toxicity” scale (range -13-13).

There was a correlation between the scores on the “abstinence-orientation” scale and the “disapproval of drug use” scale ($r=0.60$, $b=0.52$ 95% CI 0.42; 0.61). This means that staff that supported abstinence-oriented principles in methadone treatment were more prone to disapprove of drug use compared to those that were less supportive. In addition it was a negative correlation between the scores on the “knowledge about the risks and benefits of methadone” scale and the scores on the “abstinence-orientation” scale ($r= -0.61$, $b= -0.20$

95% CI -0.24; -0.16). This means that those that had less knowledge about the risks and benefits of methadone were more likely to support abstinence-oriented principles in methadone treatment. There was also an association between scores on the “knowledge about the risks and benefits of methadone scale and the scores on the “disapproval of drug use” scale ($r=-0.36$, $b=-0.14$ 95% CI -0.19; -0.09).

Respondents that had worked in community methadone programmes were less inclined to be pro-abstinence than those who did not have this experience ($r=0.17$, $b=0.28$ 95% CI 0.05; 0.52), less likely to disapprove of drug use ($r=0.16$, $b=0.31$ 95% CI 0.04; 0.58) and more knowledgeable about the risks and benefits of methadone ($r=0.24$, $b=-1.22$ 95% CI -1.92; -0.52).

In paper I R square (r^2) was mistakenly reported as Pearson R in the presentation of correlations between the four scales (attitudinal and knowledge). This is corrected and the correct Pearson R is reported in this thesis. This means that the correlation coefficient was higher than what it appeared to be in paper I. However this only strengthens and does not alter the conclusions of this paper.

4.2 Aim II

To cross-culturally adapt a study instrument from Australian-English to Norwegian and to assess and describe attitudes towards and knowledge of OMT among Norwegian OMT and harm reduction staff (Study II).

The cross-cultural adaptation process included investigation of conceptual and item equivalence. Two forward and two back-translations were synthesized and compared by an expert committee. Thereafter the instrument was pretested and adjusted accordingly. The final questionnaire was administered to Norwegian OMT and harm reduction staff. All

OMT staff (100%) and 72% of harm reduction staff participated in this investigation. 2/3 of the respondents were women. OMT staff were older than harm reduction staff, with the majority of staff (60%) in the age category 40 to 59 years. All OMT staff had more than three years of tertiary education, whereas 43% of harm reduction staff had less than three years of tertiary education. In addition more OMT staff had worked more than six years in the addiction field compared to harm reduction staff (62% versus 41%).

The attitudes found among Australian prison health staff; attitudes towards abstinence-oriented principles in methadone treatment and disapproval of drug use were not valid in the Norwegian setting. Instead a new two-factor attitudinal scale was produced through exploratory factor analysis. This scale measured support for disciplinary discharge from treatment due to in-treatment drug use (“compliance”) and limitations on intake criteria (“accessibility”) in OMT (appendix 5).

The mean “compliance” score for OMT staff was 3.38 (95% CI 3.23; 3.52) and mean “accessibility” score was 3.51 (95% CI 3.40; 3.62). In harm reduction mean “compliance” score was 2.54 (95% CI 2.42; 2.67) and mean “accessibility” score was 2.49 (95% CI 2.39; 2.59). Multigroup analysis showed that the attitudinal scale differed in all parameters between the two groups. In other words OMT staff were more likely to support disciplinary discharge from treatment due to in-treatment drug use and limitations on intake criteria compared to harm reduction staff.

Norwegian OMT staff had higher mean “knowledge about risks and benefits of methadone” (range -11-11) scores (6.19 95% CI 5.80; 6.58) compared to harm reduction staff (3.43 95% CI 2.92; 3.93). Linear regression analysis did not find any associations between attitudinal scores and knowledge scores, staff category, age or experience in the addiction field.

4.3 Aim III

To describe treatment organisation and clinical practices within the Norwegian national OMT programme. Furthermore to investigate possible associations between these factors and drug use and social rehabilitation outcomes among patients treated within the programme (Study III)

4913 patients were in treatment in the 14 regional OMT centres at the end of 2008. The overall response rate in the centres was 81%. The median patient age was 41 years, and 30% of the patients were women. There were no major differences between OMT centres in patients' age and gender distribution.

Number of patients ranged from 124 to 1106 and caseload varied from 26 to 231 between centres. The involvement of a GP as the prescribing doctor varied from 3% to 100%. Choice of agonists (methadone or buprenorphine) also varied between the centres, however all centres prescribed high-dose treatment. Methadone dose ranged from 90 mg to 120 mg and the buprenorphine dose ranged from 16 mg to 24 mg.

Three centres supervised dispensing on average (median) twice a week, whereas four centres supervised dispensing four times a week (median). Urine drug screening at least once a week ranged from 90% of all patients in one centre to 43% of all patients in another centre.

Use of benzodiazepines ranged from 16% to 63% between the centres, while use of cannabis ranged from 12% to 49%. There were also variations between centres in the use of central stimulants (range 8%-24%) and opioids (range 3%-24%). There was a 28% difference between the centres with least and most patients with stable long-term living arrangements. Unemployed patients ranged from 54% to 86%, while patients with social

security benefits as main income ranged from 3% to 31% between the centres. The median treatment termination rate across all centres was as low as 4%, but it ranged from 1% to 18%. Centres with high use of benzodiazepines, cannabis and central stimulants had less social rehabilitation in terms of long-term living arrangements, unemployment and social security benefits as main income ($r=0.74$, $b=0.74$ 95% CI 0.31; 1.16).

4.4 Aim IV

To assess if there were differences in staff attitudes between OMT centres, and to investigate the associations of staff attitudes with treatment organisation, clinical practices and outcomes (Study II and III)

In this study the Norwegian OMT staff attitudes towards OMT were assessed separately from the data collected on Norwegian harm reduction staff. Staff attitudinal scores varied between centres. In the linear regression analysis the variable “regional OMT centre” was the only independent variable that was associated with staff attitudes ($r=0.44$, $b=0.06$ 95% CI 0.04; 0.08), none of the other independent variables such as gender, age or staff category were associated with the attitudinal scores.

The four centres that were labelled “rehabilitation-oriented”, because they had higher attitudinal scores compared to the other centres, comprised 1049 patients. The four centres with the lowest attitudinal scores (“harm reduction-oriented”) comprised 1980 patients. Centres between the two opposing groups in attitudinal scores (“intermediate”) comprised 1513 patients.

“Rehabilitation-oriented” centres had smaller caseloads, more frequent urine drug screening and increased case management (interdisciplinary meetings). In addition these centres had less drug use and more social rehabilitation among their patients in terms of long-term

living arrangements, unemployment and social security benefits as main income.

“Intermediate” centres had the lowest treatment termination rate. More than half of the patients (55%) had used benzodiazepines in the “harm-reduction oriented” centres previous four weeks compared to 32% in “rehabilitation-oriented” centres. Furthermore 17% more patients were unemployed, 12% more patients had social security benefits as main income and 15% less patients had long-term living arrangements in the “harm reduction-oriented” centres compared to the “rehabilitation-oriented” centres.

4.5 Brief summary of main findings

Aim I

Among participating prison health staff positive attitudes towards abstinence-orientated principles in methadone treatment were associated with less knowledge around risks and benefits of methadone and less experience with methadone treatment in the community.

Aim II

The cross-cultural adaptation process highlighted the importance of such a process as the original Australian attitudinal scales were not valid in the Norwegian setting. Instead a new two-factor attitudinal scale was identified. Norwegian harm reduction staff were less likely to support discharge from treatment due to drug use and more likely to support an OMT programme open to all opioid dependents compared to Norwegian OMT staff. Norwegian OMT staff had more knowledge of methadone compared to harm reduction staff.

Aim III

There were large differences between the 14 regional OMT centres in the treatment characteristics, patients’ drug use previous four weeks and social rehabilitation. Centres with high levels of drug use had lower levels of social rehabilitation among their patients.

Aim IV

There were differences between the regional OMT centres in staff attitudes and these differences were associated with variations in treatment organisation, clinical practices and outcomes. “Rehabilitation-oriented” centres had smaller caseloads, more frequent urine drug screening and increased case management. In addition these centres had less drug use and more social rehabilitation among their patients.

5. Methodological considerations

Methodological considerations include evaluations of internal and external validity of research studies. Internal validity is the inference made in the population studied (161). This inference may be threatened by study design, selection bias, information bias and confounding (158;161). External validity depends on the internal validity of a study (161). It concerns generalizations such as to what populations the conclusions from a study may be generalized (158;161)

5.1 Study design

The three studies, included in this thesis, all had a cross-sectional study design. This means that data was collected at a specific point in time, without either forward or backward timing (158;161). A cross-sectional design limits inference to causality (158;161). It is however possible to measure strength of associations between independent and dependent variables, but normally not to determine what preceded the other (161). Thus the three studies were limited by the cross-sectional design in terms of inference to causality.

5.2 Selection bias

There were large variations in response rates between the three studies. In the prison health study (study I) all staff were invited, but only 51% participated. This increases the possibility that study participants differed from non-participants, which is the concern in regard to selection bias (162). No data were formally collected on reasons why some staff did not participate. However, two questionnaires were incomplete with comments that respondents refused to participate in a study that was not anonymous. The questionnaires, in this study, were individually labelled with numbers to facilitate follow up. These numbers were identification numbers that corresponded to the names of the individual staff in the

organisation. Thus it is likely that some staff did not participate due to uncertainties around the anonymity of this study. Possibly those that had attitudes that deviated from the overt or stated norms or that thought their answers could lead to repercussions did not participate, while those that thought their attitudes were accepted responded. This could mean that more prison health staff were less supportive of abstinence-oriented principles in OMT than what it appeared to be in this study (study I). The respondents' age, gender, staff distribution and length of employment corresponded well to the demographics of staff in general employed in the organisation (Justice Health). However it is possible that those that participated differed from the non-participants in other variables than those measured.

In the Norwegian staff attitudinal study (study II) all eligible OMT staff participated, compared to 72% of harm reduction staff. This difference was most likely due to the data collection procedure. The researcher was present in all except one OMT centre while respondents completed the questionnaires. In comparison the researcher was present in seven out of 12 harm reduction facilities during data collection. It was most likely easier for staff to complete the questionnaire when there were allocated time to complete the questionnaires and the researcher was present. This is possibly the main reason why the response rate was higher among OMT staff compared to harm reduction staff.

Each harm reduction facility was contacted after the completion of data collection. The reasons given for non-participation were that some staff were not informed or lacked time to complete the survey. This confirms that it was easier to participate in the study when there were allocated time to complete the questionnaire. Additionally one person did not trust the questionnaire would be used as an anonymous descriptive study and therefore did not complete the questionnaire.

There was no risk of selection bias among Norwegian OMT staff as all invited staff participated, but there could have been some selection bias among the Norwegian harm reduction staff. However the reasons given for non-participation were mainly lack of information and/or time. There were no indications that the non-participants differed greatly from the participants and it is therefore not likely that selection bias have influenced the results in any direction.

In the assessment of the Norwegian OMT programme (study III) there were variations between the regional centres in completed forms for each patient and this varied from 53% to 100%. Nine of 14 centres had information on more than 80% of their patients, but five centres lacked information on approximate 1/3 of their patients. There were no specific patterns in the findings that indicated a selection bias neither in the centres with the highest or lowest response rates; on the other hand there were no patterns that could confirm that there were not a selection bias and some caution in interpretation are therefore required.

5.3 Information bias

5.3.1 The attitudinal instrument

The two attitudinal studies (study I and II) used an instrument that was developed in NSW, Australian 1996 to measure staff attitudes towards OMT (96). There exists many possible pitfalls of using an instrument validated in a different temporal, linguistic or cultural setting (7;9;121). The prison health staff study (study I) was conducted in 2003 and the Norwegian staff study in 2007. This means that the instrument was used in different temporal and cultural settings.

The instrument was used in its' original form in the prison health staff study (study I). It was assumed that the concept of abstinence-orientation in OMT was familiar to prison health

staff in NSW, as a previous study had found that prison health staff in the same setting had discouraged inmates from entering or remaining in methadone treatment (1). Confirmatory analysis confirmed the abstinence-orientation scales structural validity. However it is possible that if a cross-cultural adaptation process had been conducted other attitudes than those measured would have been detected.

In the Norwegian staff study (study II) the instrument was cross-culturally adapted. In this thesis and in paper II the findings from the cross-cultural adaptation process were presented in the results section and not in the methodology section. The reason for this was that one of the aims in study II was to cross-culturally adapt the instrument; findings from the cross-cultural adaptation process were therefore not solely methodological descriptions but also results.

As part of the cross-cultural adaptation process in the Norwegian staff study (study II) harm reduction staff were included as a comparison group to OMT staff. It was expected that harm reduction staff would differ from OMT staff especially in terms of attitudes towards OMT and knowledge around methadone. It was expected that harm reduction staff would know less of risks and benefits of methadone compared to OMT staff as they did not work directly with OMT. In addition it was assumed that they would favour principles of harm reduction as they were employed in harm reduction facilities. The study (study II) confirmed that harm reduction staff differed from OMT staff in knowledge and attitudinal scores. Importantly multigroup analysis confirmed differences between groups in all parameters within the new attitudinal scale. This means that the instrument appeared to detect the expected differences between Norwegian OMT and harm reduction staff and thus had good face validity.

5.3.2 The instrument used in the assessment of the OMT programme

The assessment of the OMT programme (study III) used data from the annual assessments of the Norwegian OMT programme in 2007 and 2008. One of the limitations of the annual assessments were that the instrument not necessarily was completed in collaboration with the patient. It should primarily be completed by the patients' case manager either at the OMT centre or at social welfare services and it is expected that the person who complete the instrument knows the patients' situation well. It would have strengthened the findings if all forms were completed in collaboration with the patients. On the other hand it is possible that such a requirement could reduce participation rates. The questionnaire's inter-rater reliability was assessed in 2004 (140), and this study (study III) only used variables that had a high inter-rater reliability (>0.60). There was one exception; opioid use previous four weeks which had a Cohen's kappa (k) of 0.47. However the main findings in both paper III and IV were based on outcomes in non-opioid drug use and social rehabilitation. This means that although the opioid use variable may have had a low reliability, this was not likely to alter the main findings and conclusions made from these findings.

5.3.3 Classifications and labelling

Findings from the Norwegian attitudinal study (study II) and the assessment of the OMT programme in 2007 (study III) were merged to assess if staff attitudes were associated with treatment organisation, clinical practices and outcomes (aims IV, paper IV). Centres were divided into three groups based upon the centres mean attitudinal scores (4-5-4). There were differences in mean attitudinal scores between centres, it was therefore possible to divide the centres' into high and low scores groups. To reduce some of the measurement error it was decided to divide the centres into three equal groups. The rationale for this was to ensure the comparison between the centres with highest and lowest mean scores.

5.3.4 Data analysis

In the assessment of the OMT programme (study III) only aggregated information was available. This prevented detailed analysis of outcomes for individual patients and limited the analysis of associations between treatment characteristics, practices and outcomes.

In the two attitudinal studies (study I and II) sum scores were from a five-point Likert scale. The use of data from Likert-scales in maximum likelihood analysis is a contentious issue (146). The controversies evolve around the treatment of ordinal scale variables as if they were of a continuous scale (163). Yet research has shown that with five or more response categories and a normal distribution, the problems from disregarding the categorical nature of responses are minimized (146;148;164-168). In both studies (study I and II) data were collected from a five-point Likert scale and had a normal distribution. It was therefore assumed appropriate to treat these data as continuous variables.

5.4 Confounding

Confounding is when the effect in focus is confused or mixed with the effects of other variables (158;161). It is possible to reduce the effects of confounding through stratification and multivariate data analysis (158;161). In the three studies included in this thesis; prison health staff study, Norwegian staff study and the assessment of the Norwegian OMT programme, multivariate data analysis were applied. However there are always the possibility that other variables than those assessed and analysed are associated with the dependent variables.

The Norwegian OMT programme relies on the collaboration with GPs and social welfare services. In some regions this collaboration may be efficient and unproblematic, whereas in others there may be a strained relationship between the collaborating parties. Also social welfare services may be better equipped in some regions compared to others and as a result

the OMT programme achieve better outcomes in terms of social rehabilitation.

Consequently the shared care between the OMT centre, GP and social welfare services could be a confounding factor in the third study (paper III and IV). Possibly the results were influenced by local social welfare services and the time and interests of the collaborating GPs. If this is the case it may be that the findings presented in paper III are not only due to the regional OMT centres, but also an effect of the efforts (or lack of efforts) of social services and/or the collaborating GP.

5.5 Strengths

The three studies included in this thesis had several strengths. The prison health staff study was the first study to investigate prison health staff attitudes towards abstinence-orientation in methadone treatment. The study confirmed previous findings that the support of principles of abstinence-orientation in methadone treatment were associated with less knowledge of methadone and experience with community methadone programmes. It also highlighted areas where improvements could be made through training and education.

The Norwegian staff attitudinal study (study II) had a high response rate, which included all eligible OMT staff. This supported the validity of the findings, as it was not only a selection of OMT staff that responded. The instrument that was used underwent a thorough and appropriate cross-cultural adaptation from Australian-English into Norwegian. The cross-cultural adaptation process was a strength of the Norwegian staff study.

The third study (study III) was a large nationwide cross-sectional study, which included data from all regional OMT centres representing all Norwegian OMT patients. This gave a nationwide picture of OMT delivery and challenges within the Norwegian OMT programme. The combination of findings from the Norwegian staff study (study II) with the

findings from the OMT programme assessment in 2007 (study III) gave the opportunity to assess the association between staff attitude and treatment organisation, practices and outcomes between all the OMT centres (paper IV). This combination (paper IV) found that centres where staff were more likely to support disciplinary discharge from treatment due to drug use and limitations on intake criteria had smaller caseloads, more frequent urine drug screening and increased case management. In addition these centres had less drug use and more social rehabilitation among their patients.

5.6 External validity

External validity requires internal validity (161). In this thesis it was possible to identify associations between experience and level of knowledge of methadone and support of the principles of abstinence-orientation (study I). It was also possible to identify associations between staff attitudes and treatment characteristics, practices and outcomes (study II and III). Additionally study III found an association between level of drug use and social rehabilitation in the OMT centres, these associations seemed relatively robust as the overall impression from these studies were that there were no major known mechanisms of selection bias or confounding occurring.

In the Australian prison health staff (study I) staff were likely to support abstinence-oriented principles in OMT and disapprove of drug use. This was in conjunction with another study that found that prison health staff discouraged inmates from participation in a methadone trial (1). It is therefore likely that the findings from study I may be generalised to those Australian prison health staff that did not participate in this study.

The assessment of the OMT programme (study III) included data from all regional centres representing all Norwegian OMT patients. It was therefore possible to make inference to all patients within the Norwegian OMT programme. Generalisations outside of the studied population should always be made with some caution (158). OMT is provided in many different manners (40) and it is therefore important to be cautious of making inference from the findings from the Norwegian OMT programme to OMT programmes outside of Norway.

The cross-cultural adaption process in study II highlighted the importance of not assuming that instruments developed in one setting are valid in another. The findings from the cross-

cultural adaptation process also indicated that attitudes found among staff in Norway in 2007 not necessary are valid in a different time or cultural context. However the combination of findings from the staff attitudinal study (study II) and the assessment of the Norwegian OMT programme (study III) confirmed previous findings in other international studies (97;98;111;112;169;170); that there was an association between staff attitudes and treatment practices. This suggests that it is possible to make a generalisation that staff attitudes are associated with treatment practices also in other treatment programmes outside the Norwegian OMT programme.

6. Discussion of results

This section discusses the main findings of this thesis and issues connecting the individual papers together.

6.1 Attitudes towards and knowledge of OMT

In the Australian prison health staff study (study I) staff that had less knowledge of risks and benefits of methadone and that had no experience from community OMT programmes tended to be more supportive of abstinence-orientation in OMT. This is in conjunction with previous studies that have measured attitudes towards abstinence-orientation in methadone treatment. Younger staff with less knowledge of methadone, less education and experience from the addiction field have been more likely to support abstinence-oriented principles in methadone treatment (99;101;103;106). This suggest that level of knowledge, educational level and experience are associated with attitudes towards abstinence-oriented principles in methadone treatment.

It is not only in studies that have measured attitudes towards abstinence-orientation that staff attitudes have been associated with knowledge, experience in the field and level of education. Increased knowledge in regards to specific issues, such as buprenorphine, naltrexone, harm reduction and aggression minimization have been found to increase favourable attitudes towards these issues (108;110;171-173). The Norwegian staff study differed from other attitudinal studies as there were no associations between the measured attitudes and knowledge of methadone or experience in the addiction field. However the majority of OMT staff had high level of knowledge of methadone and long experience in the addiction field, this means there were only a small difference between staff in terms of these factors. This was possibly the reason why there was no association between

Norwegian attitudinal scores and knowledge of methadone or experience in the addiction field. Instead it is likely that other variables not measured in this study (study II) were associated with the attitudes.

6.2 The cross-cultural adaptation process

The findings from the cross-cultural adaptation process are presented as results in this thesis and in paper II and are therefore discussed in this section rather than in the “Methodological considerations” section. Since the Norwegian staff study was conducted in a different country, language and time from when the original instrument was developed it was cross-culturally adapted. The original attitudinal scales were not valid in Norway. There are many reasons for this. It may be that the failure of the original scale in the new setting was due to changes in society over time (121). The original “abstinence-orientation” scale was developed in the 1990’s. Abstinence-oriented treatment in OMT have, since then, been found to be less effective than long-term maintenance (174;175). Based upon previous research it may be that the debate has moved on to other issues.

On the other hand it could also be that there was a difference in the cultural context between the population the instrument was developed in (Australian community methadone staff) and Norwegian staff. At the time the original instrument was developed abstinence-oriented methadone treatment was common in Australia (41;54) and this was therefore an issue Australian community methadone staff were familiar with. In comparison abstinence-oriented methadone treatment are not common in Norway and this type of treatment have never been available through the national Norwegian OMT programme. It is possible that Norwegian staff were unfamiliar with the principles of abstinence-orientation in OMT because this type of treatment is not available in the Norwegian OMT programme.

Regardless of reasons why the original attitudinal scales were not valid in the Norwegian setting, the cross-cultural adaptation process highlighted the importance of such a process. Previous research (7-10;123) and study II show the dangers of taking an instrument into use in a new setting without adjustments. If the original instrument had been taken into use in the Norwegian staff study without the cross-cultural adaptation process, the findings would have been misleading, even if presented with apparent precision.

6.3 Treatment differences in the Norwegian OMT programme

The assessment of the Norwegian OMT programme found differences between the 14 regional OMT centres in treatment characteristics, patients' drug use and social rehabilitation. Centres with high use of drugs had lower levels of social rehabilitation among their patients. Diversity in treatment organisation, practices and outcomes are common (40). There may be differences in type of agonist such as buprenorphine or methadone, in the use of intake and discharge criteria as well as caseload and services available to patients (40;42;49). These differences may be found both between and within countries (40;49;176). Yet this study (study III) was conducted within a national OMT programme, comparing 14 regional OMT centres that were subject to the same government treatment standards, and not between independent treatment programmes. The data show that centres organised treatment differently and that patients did not achieve similar outcomes.

One reason why centres organised their treatment differently could be that current treatment guidelines conflicted with what staff interpreted as evidence-based treatment practices.

There were no regulatory body that ensured adherence to a minimum of treatment standards, except that patients may file a complaint to their regional board of supervision. This could be another reason why there were differences in treatment provision. A third reason could

be that there were not enough resources to adhere to the government treatment standards at least in some centres.

However it was not only differences in treatment provision, it was also a difference between centres in treatment outcomes; where centres that had high levels of drug use had lower levels of social rehabilitation. One of the reasons for variations in treatment outcomes could be differences in patient populations. Another reason could be differences in the quality of treatment provided. Data from 2006 and 2007 were analysed and the same differences between centres were found. As in 2008 there was no difference between centres in patients' age and gender distribution. In addition the regulations specify that only those with long-term opioid dependence should be accepted into treatment. It is therefore unlikely that the patients' characteristics alone i.e. severity of dependence and drug use patterns, could explain all the observed variations. Instead other factors not assessed in this study may have influenced treatment outcomes, such as differences in staff attitudes and organisational culture.

6.4 Staff attitudes and the associations with treatment differences

There was an association between staff attitudes and treatment differences (paper IV). OMT centres where staff were more likely to support disciplinary discharge due to drug use and limitations on intake criteria had smaller caseloads, more frequent urine drug screening and increased case management. In addition these centres had less drug use and more social rehabilitation among their patients.

In 2004 key OMT staff member's attitudes towards drug use and harm reduction were assessed (2). The centres were divided into three groups; "restrictive", "liberal" and "neutral" based upon this assessment (2). In 2007 patients in the "liberal" centres were

found to have the highest frequency of benzodiazepine prescriptions (6). In the Norwegian staff study (study II) the “harm reduction-oriented” centres had the most non-opioid drug use, which is consistent with the findings from the latter study (6).

Not only type of attitudes, but also staff consensus has been associated with treatment practices and outcomes (120;177;178). In one study, treatment programmes with higher mean attitudinal scores (stronger attitudes) had less variability in their scores (179). Less variability in attitudinal scores means that there was more consensus between staff in terms of attitudes towards treatment. These treatment programmes had better treatment outcomes compared to other programmes (179). This suggests that treatment programmes where staff have strong attitudes towards a treatment issue will have higher consensus between them. Possibly high staff consensus means that their treatment practices are more coordinated and that they agree on treatment goals. As a consequence they achieve better treatment outcomes compared to treatment programmes where staff attitudes are not so strong.

In the Norwegian OMT programme (study II) there were differences in the mean attitudinal scores between the regional centres. The scores between centres ranged from 2.5 to 4.3. The theoretical score range was 1 to 5. Centres that had a mean score of 4 and more were closer to the highest end of the theoretical scale, and thereby had the strongest attitudes. By comparison centres with the lowest scores had mean scores around 2.5 which were in the middle of the theoretical scale. The centres with the highest attitudinal scores (“rehabilitation-oriented”) in paper IV had lower levels of drug use and higher levels of social rehabilitation compared to the other centres. Possibly these centres had better treatment outcomes as a consequence of higher staff consensus and agreement on treatment goals.

Differences in attitudes towards OMT and the associations with treatment could be a result of an organisational culture. The initiation of the Norwegian OMT programme were influenced by strong forces that opposed methadone treatment, those that believed that OMT should only be provided to a selected few and those that believed OMT should be available to all opioid dependents (36-38;180). The findings from the Norwegian staff study (study II) suggests that these attitudinal differences towards OMT still exist within the Norwegian OMT programme and that the attitudes and treatment practices (organisational culture) have developed somewhat differently within the different centres.

A large proportion (63%) of Norwegian OMT staff (study II) had worked in the addiction field for more than six years. This means that many had worked in the addiction field when OMT was introduced in Norway and it is likely that this have influenced their attitudes towards OMT and treatment practices. When new staff begin their working career at an OMT centre it is likely that they are influenced by the attitudes and subsequently treatment practices of those that have more experience in the addiction field. In this manner specific organisational cultures develop and are maintained in each centre.

One of the main strategies to reduce treatment differences between treatment programmes is to develop treatment guidelines (181;182). Ideally guidelines should ensure that the aims of treatment and how it should be provided are clearly stated and easy to follow (181;182). Nonadherence to guidelines is common especially if the guidelines are only advisory and there are no consequences for nonadherence (183). Staff attitudes and organisational culture are identified as one of the obstacles in terms of guideline adherence (120;184). Staff attitudes are likely to influence adherence especially if there exist contradictory evidence in the field on what is best practice (182). Contradictory or limited evidence for treatment

practices are common in the addiction field (13;19;28;30;185). To introduce treatment guidelines in the addiction field with the aim of reducing treatment differences will therefore be a challenge because of the existence of contradictory and limited evidence in the field.

In 2010 new OMT guidelines and regulations were introduced by the Norwegian Directorate of Health (186). One of the aims of these guidelines was to reduce treatment differences between centres (134). However it is yet to be known whether the introduction of these guidelines is sufficient to address the differences in staff attitudes which are likely to be embedded into a organisational culture. It is also uncertain whether treatment differences will be reduced or not.

7. Future research

The three studies included in this thesis (prison health staff study, Norwegian staff study, OMT programme assessment) all had cross-sectional designs. The cross-sectional design prevents inference made to causality. Future research should attempt to use individual patient information to further assess associations between treatment organisation, practices and outcomes.

The Norwegian staff study (study II) found marked variations in staff attitudes between the regional centres within the Norwegian OMT programme. These variations were associated with measurable differences in caseload, case management and patient outcomes. In addition centres that had increased drug use (benzodiazepines, central stimulants, cannabis), had less social rehabilitation among their patients, but it was not possible to detect any associations between specific treatment organisation, practices and outcomes. The lack of associations was possibly due to the use of aggregated information. Future research should therefore use individual information to further explore the associations between treatment provided and outcomes.

In 2010 new OMT guidelines were introduced in Norway (134). One of the aims of these guidelines was to reduce treatment differences between the regional OMT centres. Thus it is essential to assess if the differences persist despite the new guidelines and to assess if there continue to be an association between staff attitudes and treatment organisation, practices and outcomes. The annual assessments of the Norwegian OMT programme collect the same information from all Norwegian OMT patients each year. This gives the opportunity to assess changes in treatment over time. However currently these data are only available as aggregated data, with individual patient information it would be more likely to find

associations between specific treatment organisation, practices and outcomes. Currently we know that there are differences between the regional OMT centres in staff attitudes and that there is an association with treatment provided and outcomes. Future research should explore these differences and associations further using individual information. Importantly future OMT programme research should include measures on staff attitudes towards OMT, as they seem to be an important factor associated with treatment organisation, practices and subsequently treatment outcomes in OMT.

8. Conclusions

This thesis investigated attitudes towards and knowledge of OMT in three different populations; prison health staff in NSW, Australia, Norwegian OMT staff and harm reduction staff in Oslo. The cross-cultural adaptation process highlighted the dangers in taking an instrument into use in a new setting without adjusting the instrument. If the original instrument had been taken into use in the Norwegian staff study without the cross-cultural adaptation process, the findings would have been misleading, even if presented with apparent precision. This means that the use of all research instruments including those that are assumed to be standardised requires caution if the instrument was developed in a different language, setting or time. It will always be a balance between retaining an instruments original terminology and words and to ensure that the terminology and words make sense in the new setting.

Positive attitudes towards abstinence-orientated principles in methadone treatment, among Australian prison health staff, were associated with less knowledge around risks and benefits of methadone and less experience with methadone treatment in the community. In comparison attitudes towards disciplinary discharge due to drug use and limitations on intake criteria were not associated with knowledge as measured in the Norwegian study or experience among Norwegian OMT and harm reduction staff.

The assessment of the Norwegian OMT programme identified variations in treatment organisation, practices and outcomes between the regional OMT centres. These variations were associated with Norwegian OMT staff attitudes towards OMT. These findings suggest that there exist different organisational cultures including staff attitudes within the Norwegian OMT programme that influence treatment outcomes. This means that attitudes

play an important role in the Norwegian OMT programme and it is important for staff, managers and stakeholders to be aware of this. To become aware of what attitudes exist within ones centres is one step towards ensuring that treatment is not ruled solely by attitudes. Another step would be to introduce OMT guidelines. Such guidelines were introduced in 2010; however is it yet to be known whether these will reduce differences in staff attitudes and treatment. This thesis provide baseline information for future follow up studies to measure changes in staff attitudes and the associations with treatment organisation, practices and outcomes after the introduction of new guidelines and regulations. Additionally the findings from this thesis suggest that future OMT programme assessments should include measures of staff attitudes as it is an important factor in OMT.

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RESEARCH ARTICLE

Open Access

Cross-cultural adaptation of research instruments: language, setting, time and statistical considerations

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Abstract

Background: Research questionnaires are not always translated appropriately before they are used in new temporal, cultural or linguistic settings. The results based on such instruments may therefore not accurately reflect what they are supposed to measure. This paper aims to illustrate the process and required steps involved in the cross-cultural adaptation of a research instrument using the adaptation process of an attitudinal instrument as an example.

Methods: A questionnaire was needed for the implementation of a study in Norway 2007. There was no appropriate instruments available in Norwegian, thus an Australian-English instrument was cross-culturally adapted.

Results: The adaptation process included investigation of conceptual and item equivalence. Two forward and two back-translations were synthesized and compared by an expert committee. Thereafter the instrument was pretested and adjusted accordingly. The final questionnaire was administered to opioid maintenance treatment staff (n=140) and harm reduction staff (n=180). The overall response rate was 84%. The original instrument failed confirmatory analysis. Instead a new two-factor scale was identified and found valid in the new setting.

Conclusions: The failure of the original scale highlights the importance of adapting instruments to current research settings. It also emphasizes the importance of ensuring that concepts within an instrument are equal between the original and target language, time and context. If the described stages in the cross-cultural adaptation process had been omitted, the findings would have been misleading, even if presented with apparent precision. Thus, it is important to consider possible barriers when making a direct comparison between different nations, cultures and times.

Background

There is much emphasis on using standardized and validated research instruments [1]. One reason for this is the assumption that it enables comparisons of results across different studies both nationally and internationally [1]. Another assumption is that the use of validated instruments increases the certainty with which the instruments accurately reflect what they are supposed to measure [1]. However, a previously validated instrument does not necessarily mean it is valid in another time, culture or context [2-5].

There is no universal agreement on how to adapt an instrument for use in another cultural setting. However, there is agreement that it is inappropriate to simply translate and use a questionnaire in another linguistic context [2,6]. Conversely, studies may have a comprehensive linguistic translation process, but this still does not ensure construct validity and reliability [4,5]. As an example a questionnaire that asks about physical activity and uses cross-country skiing as an example may not be relevant in settings where there is no snow [2]. Moreover, a depression inventory validated in addicted individuals is likely to confuse somatic symptoms of depression with those of intoxication and withdrawal. Additionally, instruments that were validated some time ago may not be valid in the present time due to changes in society that occur continuously [2,3].

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In Norway an instrument that measured staff attitudes towards opioid maintenance treatment (OMT) was needed for a study. Staff attitudes towards OMT had never previously been investigated in Norway; consequently there were no instruments available in Norwegian. An Australian-English instrument that measured staff attitudes towards OMT was available. The instrument was developed in NSW, Australia, in 1996 [7]. The instrument had been used in several other studies in Australia [8-11], USA [12-15], Netherlands [16], Germany [17], and Spain [18]. Items tailored towards the country's OMT system were added when the instrument was used outside of Australia [12-18]. However, previous research had not explicitly addressed the cross-cultural adaptation process of the questionnaire.

The cross-cultural adaptation process is important when an instrument is used in a different language, setting and time to reduce the risk of introducing bias into a study [2]. In addition attitudes cannot be measured directly [19]. This means that attitudes are measured indirectly, through some set of items in a questionnaire [19]. In studies where a phenomenon is measured indirectly with questionnaires, comparison of results between cultures and groups may be a challenge. In particular comparison will be difficult if the adaptation process has been flawed. It is therefore important that each item is adapted appropriately.

Thus the aim of this paper is to illustrate the process and required steps involved in the cross-cultural adaptation of a research instrument using the adaptation process of an attitudinal instrument as an example.

Methods

A suggested cross-cultural adaptation process

Table 1 shows a suggested sequence of the cross-cultural adaptation process. The first stage is to assess if there is the same relationship between the questionnaire and underlying concept in both the original and target setting [2,3]. In addition it is important to assess that items within the instrument are equally relevant and acceptable in the target population as they are in the original population [2]. Both conceptual and item equivalence can be assessed through a literature review [2,3]. Findings from the literature review should be discussed with experts in the field and members of the target population [2,3].

The original instrument should thereafter be translated from the original language into the language of the target population [2-5]. At least two persons should produce the initial translations independently [4-6]. The translators should be fluent in the language of the target population with a good understanding of the original language [2-5]. The translated versions should be synthesized into one version by a third independent

Table 1 A suggested cross-cultural adaptation process

Investigation of conceptual and item equivalence	Literature review Discussion with experts in the field and members of target population
Original instrument translated	Translator I: Fluent in target language, good understanding of original language
	Translator II: Fluent in target language, good understanding of original language
A synthesized translated version	Translator III: Fluent in target language, good understanding of original language
Back-translations	Back-translator I: Fluent in original language, good understanding of target language
	Back-translator II: Fluent in original language, good understanding of target language
A synthesized back-translated version	Back-translator III: Fluent in original language, good understanding of target language
Expert committee	
Instrument pretested	
Revised instrument	
Investigation of operational equivalence	Literature review Discussions with experts in the field and members of target population
Main study	
Exploratory and confirmatory analysis	
Final instrument	

translator [4,5]. Thereafter the synthesized version should be back-translated independently by at least two different persons [4-6]. The back-translators should be fluent in the original language with a good understanding of the language in the target population [2-5]. Thereafter the synthesized translated version and the synthesized back-translated version should be reviewed by an expert committee [4,5].

The expert committee should comprise of methodologists, health professionals, language professionals, and the translators (forward and back-translators) [4]. The expert committee assesses if a word or several words reflect the same ideas or subjects in both the original and adapted versions of the questionnaire [2-5]. This assessment ensures that items are translated correctly and are relevant in the new setting [4-6]. If there are uncertainties around the meaning of specific words or items, the developer of the original instrument can be contacted for clarifications [2,4]. It is also suggested to return to the target population and have experts in the field discuss subtleties brought out by the various translation proposals [3]. The instrument should be adjusted accordingly after a consensus is reached [4,5].

Thereafter the instrument should be pretested [4]. Between 30 and 40 respondents are viewed as appropriate in the pretest [3,4]. Respondents are probed for their understanding, acceptability and emotional impact of the items in order to detect confusing or misleading items [3,4]. To ask respondents to rephrase each item is one technique that can identify whether an item is understood or not [3]. Reichenheim (2007) suggests that interviews are conducted until a pre-established percentage of understanding is achieved for all items (e.g. $\geq 90\%$) [3]. A final semantic adjustment should be made by the research group based on the evidence from the pilot study [3-5].

The operational equivalence of the instrument should be evaluated after the semantic adjustments [2,3]. Operational equivalence means that it is possible to use similar questionnaire format, instructions, mode of administration and measurement methods in the target populations as was used in the original setting [2]. A literature review may give information regarding the use of instruments in the target setting [2]. It is also possible to contact experts in the field and members of the target population to assess if format, instructions, mode and administration and measurement methods are appropriate [2]. Once consensus is reached in regards to operational equivalence, the methods are incorporated into the study [3].

Finally, the instrument should be administered to participants in a formal study. On the basis of the results from this study the psychometric properties of the instrument should be tested using recognized statistical methods [4,5].

Study instrument

The original study instrument was developed in 1996 [7]. The instrument comprised two attitudinal scales. The 14-item "Abstinence-orientation" scale contained two almost perfectly correlated dimensions: attitudes towards abstinence-oriented policies and support for disciplinary actions if programme rules were broken [7]. Cronbach's alpha for the "Abstinence-orientation" scale was $\alpha = 0.89$ [7]. The "Disapproval of Drug Use" scale comprised six-items and was characterised by statements such as "modern society is too tolerant towards drug addicts", "marijuana should be legalized", "drug addiction is a vice" and "drug addiction is a menace to society" [7]. The Cronbach's α was 0.75. There was a positive correlation between the "Abstinence-orientation" and "Disapproval of Drug use" scales ($r = 0.64$) [7].

The responses were answered on a five-point Likert scale ranging from "strongly disagree = 1" to "strongly agree = 5" [7]. A sum score was calculated for each of the two attitudinal scales by dividing the number of completed items by the total score [7].

Additionally the instrument comprised of a 12-item knowledge scale. This scale tested respondents'

knowledge of the benefits and risks of methadone treatment [7]. The scale was characterised by statements such as "methadone, when given as a maintenance programme, reduces ("blocks") the effects of heroin" and "methadone maintenance reduces addicts' criminal activities" [7]. The items were scored "1" for correct answer, "0" for "uncertain" and "-1" for incorrect answer [7].

In total there were 32 items in the original instrument. The attitudinal and knowledge items were mixed throughout the instrument [7].

Main study

The study had a cross-sectional multicenter design. Staff ($n=140$) from the national OMT programme and harm reduction services ($n=180$) in Oslo were invited to participate. The national OMT programme comprised of 14 centres and employed from three to thirty-three staff members. In this study two of the 14 centres were merged because they had a joint staff group at the time of the study. Harm reduction services included street clinics, needle-exchange programs, injecting rooms and housing facilities. The harm reduction services included 12 facilities and employed between six to thirty employees.

Data was collected between August and November of 2007 and was mainly collected through visits by the first author. The researcher was present during the completion of the questionnaires in all except one OMT centre and five harm reduction facilities. In the one OMT centre the researcher gave information during a staff meeting and questionnaires were returned by mail. In one harm reduction facility information about the study was given only to the leader of the facility. Questionnaires from this facility were returned by postal mail. In four harm reduction facilities the researcher gave information during staff meetings and questionnaires were returned by email and mail. Follow-up phone calls were made to ensure that staff returned questionnaires.

The study was approved by the Norwegian Regional Ethics Committee and the Data Inspectorate. Participants received written and oral information about the study. Respondents consented to participate in the study by submitting the questionnaire. The questionnaire was semi-anonymous. This means names were not required, but the name of the facility and other demographic variables made some staff theoretically identifiable. Participants were promised full anonymity. Demographic variables that identify respondents will therefore be deleted upon completion of the project.

Data analysis

Descriptive statistics were calculated using the statistical software SPSS version 16.0 [20]. Data were assessed using exploratory and confirmatory statistical analysis.

Initially the 14 original abstinence-oriented items were tested through confirmatory analysis. The confirmatory analyses were based on the one-factor model developed by Caplehorn, Irwig and Saunders [7]. Subsequently both original and new items were assessed using exploratory factor analysis. The model retrieved through exploratory factor analysis was tested through confirmatory analysis. Exploratory factor analyses were completed in the statistical software SPSS version 16.0 [20]. Confirmatory analyses were completed in the statistical software AMOS graphic version 17.0 [21].

Exploratory factor analyses were completed using principal axis and oblique rotation methods (promax). The correlation matrix and factor loadings were used to decide which items to retain. A scree plot was used to decide the number of factors to retain. Additionally the Cronbach's alpha was assessed.

Confirmatory analyses were completed through structural equation modelling using maximum likelihood analysis. Data were checked for normality both graphically and by assessing univariate and multivariate skewness and kurtosis.

The statistical software AMOS version 17.0 does not handle missing values when modification indices are estimated [21]. Thus a missing value pattern was generated for all items to ensure that values were missing at random. If values were missing at random it would be appropriate to delete missing values listwise for the confirmatory analysis.

The sample data included two different groups (harm reduction staff and OMT staff), thus multigroup analyses were applied. Multigroup analyses were completed stepwise. The steps were 1) the model was tested separately in each group, 2) equal form (unconstrained model) was assessed, 3) equality of factor loadings were tested, 4) equality of structural covariances and 5) equality of measurement errors were assessed. Thereafter if factor loadings and indicator intercepts were invariant, the equality of latent means was assessed [22-24].

There are several goodness-of-fit indices available in maximum likelihood analysis and no agreement on which are best. Goodness-of-fit indices reflect different aspects of the model. It is recommended to report several fit indices to assess how well the hypothetical model fit the sample data [23]. In this study the decision of overall model fit was based upon four fit indices. These indices were the comparative fit index (CFI) [25], the Tucker-Lewis index (TLI) [26] and the root mean square error of approximation (RMSEA) [27]. The average variance extracted (AVE) [28] was also assessed. Aikake's information criterion (AIC) [29] and the Browne-Cudek criterion (BCC) [30] were assessed to decide best model fit in the multigroup analysis. The

standardized residuals and the modification indices were assessed to identify any areas of misfit in the model [31].

CFI is based on a comparison of a hypothesized model and a baseline model [25]. The advantage of this fit index is that it avoids underestimation of fit as it takes sample size into account [23,25]. TLI also addresses the issues of wrongful rejection or acceptance of a model due to sample size [23,26]. Values for both CFI and TLI range from zero to 1.00. Values above 0.90 indicate acceptable fit, whereas values close to 0.95 are indicative of good fit [32].

RMSEA is an attempt to correct for the tendency of the chi-square statistic to reject models with a large n or a large number of observed variables [27]. One of the main advantages of RMSEA is that a confidence interval (CI) can be constructed [31]. Values less than 0.05 indicate good fit and values as high as 0.08 represent reasonable errors of approximation in the population [23,24]. Values ranging from 0.08 to 0.10 indicate mediocre fit, and those greater than 0.10 indicate poor fit [23,24].

AVE is a summary indicator of convergence [28]. An AVE of at least 0.50 means that variance explained by the construct is greater than the measurement error [28,31]. AIC and BCC indicate the best trade-off of model fit and parsimony in multigroup analysis [23,29,30]. The model with the smallest estimate indicates the best fit [23].

Results

Investigation of conceptual and item equivalence

The research team identified four main concepts within the study instrument. The identified concepts were 1) abstinence-orientated policies in methadone treatment, 2) attitudes towards disciplinary actions if programme rules were broken, 3) attitudes towards drug use in general and 4) knowledge of risks and benefits of methadone treatment. These concepts were identified through reading previous papers that had used the study instrument. In addition each item within the instrument was assessed for potentially irrelevant concepts in the target population.

After a review of the literature, experts and members of the target population were consulted. Based upon the literature review and the general feedback it was decided to omit the six items that made up the "Disapproval of drug use" scale. There were doubts around the relevance of the abstinence-oriented items, but it was decided to retain these items. All other items were retained except for one knowledge item that the scale's original developer suggested be omitted.

Additional items

It became evident that the instrument lacked certain concepts relevant in the Norwegian setting through

discussions and feedback from experts in the addiction field and OMT staff. The main aim of the Norwegian attitudinal study was to identify attitudes that were relevant in the Norwegian setting. Thus it was decided to add items to the instrument. OMT staff and experts in the field were asked to suggest additional items. These suggestions came both via email and in face-to-face meetings. Based upon a subjective judgment of the authors and the feedback from the experts in the field, 12 attitudinal statements were added to the instrument. Examples of these statements are found in italics in table 2. Some items were variants of the original items, while other items introduced new concepts. The additional items were placed after the original items and thus did not alter the instrument's original structure.

Forward and back-translations

The original version of the questionnaire was translated from Australian-English to Norwegian by two translators. One of the translators was a health professional and the other translator was not. Both translators were fluent in Norwegian and had good knowledge of English. A third person reviewed the two translated versions and synthesized the two versions into one. This third person was fluent both in Norwegian and English. Both translators agreed on the synthesized version.

Next, the synthesized version was back-translated by two different people. One person was a health professional and one was not. One of the back-translators had English as native language, whereas the other person had lived and studied in the US for many years. The same person, who synthesized the translated versions, reviewed the two back-translations. The two back-translated versions were then synthesized into one. Words that were back-translated differently were highlighted and discussed. When an agreement was reached, the word was added to the synthesized version.

Review by expert committee

Finally the original instrument, the translated version and the back-translated version were compared by a committee. The committee comprised of PhD students, psychiatrists, medical doctors, one registered nurse and OMT staff. All members of the committee had either full-time or part-time positions at the Norwegian Centre for Addiction Research. All members knew the Norwegian OMT system well. Several members of the committee were fluent in both English and Norwegian, and had completed their degrees in English speaking countries. The instrument was adjusted according to advice from the committee. None of the translators or members of the committee were financially reimbursed.

Table 2 Factor loadings in the "Compliance" and "Accessibility" scale

Compliance items	OMT staff		Harm reduction staff	
	Factor loading	Squared multiple correlations†	Factor loading	Squared multiple correlations†
OMT patients who ignore repeated warnings to stop using heroin should be gradually withdrawn off methadone	0.630	0.397	0.729	0.532
OMT patients who continue to abuse non-opioid drugs (e.g. benzodiazepines) should have their dose of OMT medication reduced.	0.612	0.374	0.611	0.374
<i>If repeated warnings of non-prescriptive use of benzodiazepines are ignored, the patient should be discharged from the OMT program</i>	0.939	0.882	0.948	0.898
<i>If repeated warnings of use of Cannabis are ignored, the patient should be discharged from treatment (OMT)</i>	0.845	0.714	0.643	0.413
<i>The GP should waive the right to prescribe class A and B drugs other than the OMT medication to OMT patients</i>	0.540	0.292	0.472	0.223
<i>OMT patients who continue to take drugs and function poorly should be discharged from the OMT program</i>	0.675	0.455	0.726	0.527
<i>It is unethical to discharge patients from the OMT program due to continuing drug use and poor functioning</i>	0.672	0.451	0.690	0.475
Accessibility items				
OMT services should be expanded so all heroin addicts who want OMT can receive it	0.635	0.403	0.683	0.466
It is unethical to deny heroin addicts OMT	0.678	0.460	0.743	0.552
<i>OMT's main aim is to reduce harmful effects of opioids and IV drug use (syringes)</i>	0.487	0.237	0.310	0.096
<i>GPs should be able to initiate OMT-medication on their own initiative</i>	0.288	0.083	0.385	0.148
<i>Too many LAR-patients are discharged from the OMT program</i>	0.475	0.226	0.379	0.143
<i>Young opioid dependents (<20) should not be offered OMT</i>	0.495	0.245	0.403	0.162

Examples of additional items in italics

† The extent that the variance of the measured variable is explained by the latent factor.

Pretest of instrument

A pretest of the instrument (response rate 42/69) was completed among staff working in the addiction field, but not in OMT in May-June 2007. OMT staff were not invited to participate as they were the target population in the main study. Questionnaires were mailed out via email and postal mail. The respondents were asked to complete the questionnaire and comment on words and sentences that were difficult to understand. These comments were written on a paper attached to the questionnaire. There were no criteria for how to reach certain decisions, such as retain or adjust items. Instead this was based solely on the subjective judgement of the researcher and group discussions with experts in the field.

Unclear words and items identified in the pretest were discussed with members of the expert committee and target population. Final adjustments were made based on the subjective judgement of the research team after discussions with members of the expert committee and target population.

Assessment of operational equivalence

After the final adjustments of the instrument, the instrument format, instructions, mode of administration and measurement methods were assessed by the research group. There was nothing in the format, instructions, mode of administration or measurement methods that was unfamiliar to the Norwegian setting.

Main study

The overall response rate was 84% (269 out of 320 questionnaires were returned). All staff in the OMT programme (100%), and 129 out of 180 (72%) of harm reduction staff completed the survey.

Reasons given for non-participation in the harm reduction facilities were that staff was not informed and did not have time to complete the survey. One person did not trust the questionnaire would be used only as an anonymous descriptive study and therefore did not complete the questionnaire. Two questionnaires (0.74%) were unusable due to incomplete answers. There were no specific patterns in the missing values. For the confirmatory analysis 21 individuals from harm reduction and 14 individuals from OMT were deleted listwise due to one or more missing attitudinal items.

2/3 of the respondents were women. OMT staff were older than harm reduction staff, with the majority of staff (60%) in the age category 40 to 59 years. All OMT staff had more than three years of tertiary education, whereas 43% of harm reduction staff had less than three years of tertiary education. In addition more OMT staff had worked more than six years in the addiction field compared to harm reduction staff (62% versus 41%).

Confirmatory analysis of the original abstinence-oriented scale

Data had a normal distribution. The original one-factor abstinence-oriented scale failed confirmatory analysis. This means that the model did not have a good-fit to the data neither in OMT staff (RMSEA = 0.11 (90% CI 0.09; 0.13), CFI = 0.59, TLI = 0.52, AVE = 0.17) nor in harm reduction staff (RMSEA = 0.12 (90% CI 0.09; 0.14), CFI = 0.58, TLI = 0.51, AVE = 0.19). There was substantial covariance between measurement error 3 and 5 (MI = 19.533) and error 2 and 7 (MI = 31.554) in the OMT group. The model was adjusted accordingly, but the adjusted model did not have an adequate fit to the data. In harm reduction staff, there was a relatively large covariance between error 2 and 7 (MI = 23.807), error 8 and 12 (MI = 11.439) and error 13 and 14 (MI = 11.439). The model was adjusted accordingly, but this model also failed. Table 3 shows the original factor loadings and the factor loadings in the current study. The Cronbach's alpha was $\alpha = 0.71$ in harm reduction and $\alpha = 0.67$ in OMT staff. In comparison the Cronbach's alpha was ($\alpha = 0.89$) when the scale was originally developed.

Omitted items in the exploratory factor analysis

Five of the 14 original items had to be explained to almost all respondents (items in italics in table 3). Throughout the cross-cultural adaptation process there had been doubts around the relevance of these items in the Norwegian setting. Thus it was decided to omit the five items from the following exploratory factor analysis.

Assessing original and new items using exploratory factor analysis

The analysis produced a two-factor model including 13 items. The first factor, "Compliance", included seven items ($\alpha = 0.89$). "Compliance" explained 44% of the variance in the model and the eigenvalue was 5.74. "Compliance" reflected staff attitudes towards sanctions against continuing drug use among OMT patients. The second factor, "accessibility", included six items ($\alpha = 0.78$) and explained 11% of the variance in the model. Eigenvalue was 1.4. "Accessibility" reflected staff attitudes towards intake criteria in OMT.

Confirmatory analysis of the model retrieved through exploratory factor analysis

The new attitudinal model had an adequate fit to the data in both groups (Table 4). In the OMT group the model was adjusted to allow covariance between error 1 and 6 (MI = 11.014). The goodness-of-fit indices were improved by this adjustment (Table 4). The model was also improved in the harm reduction group when the model was adjusted to allow covariance between error 6 and 7 (MI = 16.31) and error 11 and 12 (MI = 8.35) (Table 4).

Table 3 Items and factor loadings in the original abstinence-oriented scale

Original abstinence-oriented items	Original factor loadings	OMT staff		Harm reduction staff	
		Factor loadings	Squared multiple correlations†	Factor loadings	Squared multiple correlations†
Confrontation is necessary in the treatment of drug addicts	0.53	0.358	0.128	0.556	0.309
<i>Left to themselves, most methadone patients would stay in maintenance for life</i>	0.60	0.007	< 0.001	0.013	< 0.001
OMT services should be expanded so all narcotic addicts who want OMT can receive it	0.62	0.238	0.057	0.246	0.061
<i>Abstinence from all opioids (including methadone) should be the principal goal of maintenance treatment</i>	0.60	0.516	0.266	0.531	0.282
Methadone maintenance patients who continue to use illicit opiates should have their dose of methadone reduced	0.77	0.699	0.489	0.457	0.209
<i>No limits should be set on the duration of methadone maintenance</i>	0.64	0.260	0.067	0.514	0.265
<i>Methadone should be gradually withdrawn once a maintenance patient has ceased using illicit opiates</i>	0.62	0.193	0.037	0.558	0.311
It is unethical to deny a narcotic addict OMT	0.54	0.284	0.080	0.334	0.112
OMT patients who ignore repeated warnings to stop using illicit opiates should be gradually withdrawn off methadone	0.76	0.659	0.434	0.594	0.353
Maintenance patients should only be given enough methadone to prevent the onset of withdrawals	0.59	0.115	0.013	0.248	0.062
The clinician should encourage patients to remain in methadone maintenance for at least three to four years	0.51	0.036	0.001	-0.123	0.015
It is unethical to maintain addicts on methadone indefinitely	0.58	0.354	0.126	0.385	0.148
OMT patients who continue to abuse non-opioid drugs (e.g. benzodiazepines) should have their dose of OMT medication reduced.	0.60	0.602	0.363	0.530	0.281
<i>The clinician's principal role is to prepare methadone maintenance patients for drug-free living</i>	0.56	0.526	0.277	0.464	0.216

Items in italics omitted from exploratory analysis of a new attitudinal scale

† The extent that the variance of the measured variable is explained by the latent factor.

Table 4 Confirmatory analysis of the new two-factor attitudinal scale

Single group analysis	RMSEA (90% CI)	CFI	TLI	AVE		AIC	BCC
				F1	F2		
OMT (n=126)							
Unadjusted model	0.072 (0.047; 0.096)	0.928	0.913	0.515	0.276	N/A	N/A
Adjusted*	0.063 (0.034; 0.088)	0.946	0.934	0.509	0.276	N/A	N/A
Harm reduction (n=108)							
Unadjusted model	0.079 (0.052; 0.105)	0.905	0.884	0.506	0.267	N/A	N/A
Adjusted model ^{††}	0.049 (0.000; 0.080)	0.964	0.955	0.492	0.261	N/A	N/A
Measurement Invariance							
<i>Adjusted model^{***}</i>							
Equal form (Unconstrained model)	0.039 (0.021; 0.053)	0.959	0.947	N/A	N/A	284.528	301.136
Equal factor loading	0.043 (0.028; 0.056)	0.945	0.935	N/A	N/A	288.024	301.587
Equal structural covariances	0.045 (0.031; 0.058)	0.937	0.928	N/A	N/A	292.944	305.677
Equal measurement residuals	0.061 (0.050; 0.072)	0.874	0.868	N/A	N/A	345.446	354.580
Saturated model	N/A	N/A	N/A	N/A	N/A	364.000	414.377
Independent model	0.169 (0.160; 0.178)	N/A	N/A	N/A	N/A	1241.206	N/A

[†]Allowing covariance between Err1 ↔ Err6, ^{††}Allowing covariance between Err 6 ↔ 7, Err 11 ↔ 12

^{***}Allowing covariance between Err1 ↔ Err6, Err6 ↔ Err7, Err 11 ↔ 12

Multigroup analysis showed that the attitudinal scale differed in all parameters between the two groups (Table 4). The mean “compliance” score for OMT staff was 3.38 (95% CI 3.23; 3.52) and mean “accessibility” score was 3.51 (95% CI 3.40; 3.62). In harm reduction mean compliance score was 2.54 (95% CI 2.42; 2.67) and mean “accessibility” score was 2.49 (95% CI 2.39; 2.59). It was not possible to assess differences in latent means between the two groups as item intercepts and factors loadings were not equal (Table 4). Factor loadings in the two scales are shown in table 2. There was also a difference in factor covariance between the two groups (Table 4). In OMT staff the covariance between “compliance” score and “accessibility” was 0.32 and in harm reduction staff the covariance was 0.15. Consequently there was also a difference in factor correlations. Factor correlations were 0.71 for OMT staff and 0.37 for harm reduction staff.

Additionally the two groups differed in knowledge scores. OMT staff had a mean knowledge score of 6.19 (95% CI 5.80; 6.58). In comparison harm reduction staff had a mean knowledge score of 3.43 (95% CI 2.92; 3.93).

Discussion

The failure of the original scale highlights the importance of adapting instruments to current research settings. It also emphasizes the importance of ensuring a single item’s and concept’s validity in the current language, time and context. The thorough assessment of the Australian attitudinal instrument showed that the concept of abstinence-oriented principles in OMT was not as relevant in the Norwegian setting as it was in Australia in the 1990s. Importantly, if no items had

been added at the end of the original instrument, the only findings of this study would have been that the original scale was not valid in Norway. Alternatively, one could have ignored the validity testing intentionally and simply reported findings. However, this would have been misleading and could have given the impression that abstinence-oriented principles in OMT was a current and contentious issue in Norway in 2007.

There are many potential reasons why a cross-culturally adapted scale fails confirmatory analysis. One reason could be a flawed cross-cultural adaption process. This introduces the possibility that the instrument does not measure the same concepts in the original and target settings. The pretest was not conducted according to suggested guidelines [2-5]. Instead respondents were asked to highlight problematic words or items. It would have been more appropriate to ask the respondents to rephrase each item. Furthermore it would have been easier to detect any discrepancies in the instrument if the respondents were interviewed in face-to-face meetings, rather than through mail and email. Additionally decisions for when understanding was achieved for all items were left to the subjective judgement of the researchers. This introduced bias into the cross-cultural adaptation process and may be one of the reasons why the original scale failed.

Alternatively, it may be that the failure of an original scale in a new setting is due to changes in society over time [2]. The original scale was developed in the 1990s. Since then several studies have found that abstinence-oriented treatment in OMT is less effective than long-term maintenance [33,34]. Based upon previous research it may be that the debate has moved on to other issues.

Two unpublished studies support this hypothesis. The original scale failed confirmatory analysis in Spain in 2000 and in NSW, Australia in 2003 (Caplehorn 2007, *personal communication*). These findings suggest that the failure of the original abstinence-oriented scale is possibly related to changes over time.

In the cross-cultural adaptation process new items were added to the instrument. It is possible that this altered the structure of the original scale and thus the scale failed confirmatory analysis. However, these items were added at the end of the instrument, after the original items. This means that the structure of the instrument was the same as in the original. The additional items enabled the researchers to find two new attitudinal scales that were valid in the Norwegian setting. Yet the need for additional items suggested that the original instrument was not directly applicable in the new setting.

Another difficulty in the described cross-cultural adaptation process was to locate a second native English-speaking back-translator. This was mainly due to financial constraints. Instead for practical reasons, someone who spoke and wrote English fluently was used as a second back-translator. This illustrates that a thorough cross-cultural adaptation process may be difficult to achieve if there are time or financial constraints. Regardless, the subsequent stages after the back-translation presumably detected any discrepancies that might have occurred in the back-translation process. However, it is important to acknowledge that it may have been more appropriate to use someone whose mother tongue was English.

Harm reduction staff were included in this study as a comparison group to OMT staff. It was expected that harm reduction staff would differ greatly from OMT staff. This study confirmed that harm reduction staff differed from OMT staff in age, level of education and experience in the addiction field. They had a lower response rate which was possibly related to the data collection procedure. The researcher was present in all except one OMT centre while respondents completed the questionnaires. In comparison the researcher was only present in seven out of 12 harm reduction facilities during data collection. Potentially it was easier for staff to complete the questionnaire when the researcher was present. Furthermore there were differences between groups in knowledge and attitudinal scores. Importantly multi-group analysis confirmed differences between the groups in all parameters within the new attitudinal scale.

One of these parameters was the correlations between the factors in the new attitudinal scale. There was a higher correlation between the attitudinal factors in the OMT group compared to harm reduction. The differences in correlations suggest that the two factors were more predictive of each other among OMT staff

compared to harm reduction staff. If OMT staff believed that no drug use should be tolerated, there was a high possibility they believed the OMT programme should be only for a selected few. Conversely, harm reduction staff who believed drug use should not be tolerated among OMT patients did not necessarily support an OMT programme with limited access. Harm reduction staff were sampled from various institutions and therefore work within different ideologies and traditions. This could explain why there was a lower correlation between the factors among harm reduction staff.

The attitudes of OMT staff are of importance as they are likely to influence treatment practices and, subsequently, treatment outcomes [8,10]. The persistent treatment differences between the Norwegian OMT centres documented through annual assessments [35,36], the high correlations between the two factors within the new attitudinal scale and high mean factor scores support the proposition that attitudes contribute to differences in treatment practices. This needs to be further investigated in a parallel study of staff attitudes and treatment outcomes.

Conclusions

The failure of the original scale highlights the importance of adapting instruments to current research settings. It also emphasizes the importance of ensuring that concepts within an instrument are equal between the original and target language, time and context. If the described stages in the cross-cultural adaptation process had been omitted, the findings would have been misleading, even if presented with apparent precision. Consequently, it is important to consider possible barriers when making a direct comparison between different nations, cultures and times. There will always be some differences between time-periods and settings, and in many cases, cross-cultural adaptation is recommended even for well established questionnaires.

Acknowledgements

We thank both staff employed in the Norwegian OMT program (LAR) and staff from harm reduction services for participating and supporting this study. In addition we want to thank Lise Ulvestrand, Ingunn Bjørkhaug, Nina Smedby and Chris Lightfoot, for translating the study instrument. A great thanks to colleagues who gave advice during the translation process. Furthermore we want to thank all those that provided feedback and had suggestions to additional statements in the development of a Norwegian scale. In addition we want to address a special thanks to Professor Knut Hagtvet at the Department of Psychology, University of Oslo, for invaluable advice on structural equation modelling. We also want to address a special thanks to our colleague Priscilla Martinez for critically revising the manuscript for spelling and grammar mistakes.

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Authors' contributions

LG participated in the conception and design of the study, carried out the data collection, analyzed and interpreted the data and drafted the manuscript. JRM participated in the analysis and interpretation of the data and revised the manuscript critically for intellectual content. TC participated in the conception and design of the study, participated in the interpretation of the data and revised the manuscript critically for intellectual content. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Received: 12 June 2009

Accepted: 10 February 2010 Published: 10 February 2010

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Pre-publication history

The pre-publication history for this paper can be accessed here:<http://www.biomedcentral.com/1471-2288/10/13/prepub>

doi:10.1186/1471-2288-10-13

Cite this article as: Gjersing et al.: Cross-cultural adaptation of research instruments: language, setting, time and statistical considerations. *BMC Medical Research Methodology* 2010 **10**:13.

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RESEARCH ARTICLE

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Staff attitudes and the associations with treatment organisation, clinical practices and outcomes in opioid maintenance treatment

Linn Gjersing*¹, Helge Waal¹, John RM Caplehorn², Michael Gossop^{3,1} and Thomas Clausen¹

Abstract

Background: In opioid maintenance treatment (OMT) there are documented treatment differences both between countries and between OMT programmes. Some of these differences have been associated with staff attitudes. The aim of this study was to 1) assess if there were differences in staff attitudes within a national OMT programme, and 2) investigate the associations of staff attitudes with treatment organisation, clinical practices and outcomes.

Methods: This study was a cross-sectional multicentre study. Norwegian OMT staff ($n = 140$) were invited to participate in this study in 2007 using an instrument measuring attitudes towards OMT. The OMT programme comprised 14 regional centres. Data describing treatment organisation, clinical practices and patient outcomes in these centres were extracted from the annual OMT programme assessment 2007. Centres were divided into three groups based upon mean attitudinal scores and labelled; "rehabilitation-oriented", "harm reduction-oriented" and "intermediate" centres.

Results: All invited staff ($n = 140$) participated. Staff attitudes differed between the centres. "Rehabilitation-oriented" centres had smaller caseloads, more frequent urine drug screening and increased case management (interdisciplinary meetings). In addition these centres had less drug use and more social rehabilitation among their patients in terms of long-term living arrangements, unemployment, and social security benefits as main income. "Intermediate" centres had the lowest treatment termination rate.

Conclusions: This study identified marked variations in staff attitudes between the regional centres within a national OMT programme. These variations were associated with measurable differences in caseload, intensity of case management and patient outcomes.

Background

Opioid maintenance treatment (OMT) is recognised as an effective treatment in opiate dependence [1-3]. However OMT is a contentious issue and there are many views on how to organise this treatment [4,5]. OMT programmes differ in treatment objectives, organisation and clinical practices [6,7]. Treatment objectives range from harm reduction [8], long-term maintenance and rehabilitation [2], to abstinence from all drugs including treatment medication [9]. Diversity in treatment is evident between countries [10], within countries [11], and even between counsellors within the same treatment pro-

gramme [12]. Such differences have been associated with variations in programme policies and staff attitudes [13-15].

Several studies have assessed staff attitudes in the addiction field [16-19]. Differences in staff attitudes have been associated with treatment practices and outcomes [20-22]. OMT staff's favour towards abstinence-models has been associated with provision of low dose methadone [22,23]. Abstinence-oriented OMT staff have had more in-treatment drug use and more drop out compared to programmes where staff were long-term maintenance-oriented [20,21,24]. Strong attitudes and the beliefs of the majority are more likely to influence behaviour than weaker attitudes held by only one or few persons [25-28]. Consequently staff attitudes should be included when OMT programmes are assessed.

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There are between 8 200 and 12 000 injecting drug users in Norway [29] and approximately 5000 are currently in OMT [30]. In Norway OMT is only available through a single publicly funded programme [31]. The programme was established in 1998 and it has had a rapid expansion from the initial intake of 240 patients to 4542 patients in 2007 [30]. The programme comprises 14 regional centres that are subject to the same treatment standards specified in government guidelines [31].

Annual assessments of the OMT programme indicate marked differences in treatment organisation, practices and outcomes between centres [32,33]. This is of concern since not all centres appear to achieve outcomes in line with specified programme aims; reduced drug use and improved social rehabilitation. Also OMT in Norway relies on long-term three-party collaboration between an OMT centre, a GP and social services, thus patients are not entirely free to choose their treatment centre due to logistical and geographical challenges. This means that patients are required to accept their local centre's treatment standards and practices. Thus it is important to investigate factors that may be associated with differences in treatment delivery and outcomes. The aim of this study was to 1) assess if there were differences in staff attitudes between OMT centres, and 2) investigate the associations of staff attitudes with treatment organisation, clinical practices and outcomes.

Methods

Setting

All clinical OMT staff ($n = 140$) in full-time and part-time positions, in the national OMT programme in Norway were invited to participate in this study. A list of all clinical staff at each centre ensured that all staff were invited. The national OMT programme comprised of fourteen centres, and had from three to thirty-three staff employed. In this study two of the fourteen centres were merged because they had a joint staff group at the time of the study.

Design

The study was a cross-sectional multicentre study. Data was collected from August to November 2007, through visits by the first author. The visits were in conjunction with staff meetings when most staff were present. Staff that were absent returned the questionnaire by mail. The first author was present during the completion of the questionnaires in all except one OMT centre. In the latter OMT centre the researcher gave information during a staff meeting and thereafter questionnaires were returned by mail. Prepaid and anonymous envelopes addressed to the researcher were attached to each questionnaire. Responders could choose not to respond to the survey by returning an incomplete questionnaire in the

envelope. No names were collected, but number of staff that had completed the questionnaire at each facility was recorded. Centre managers were followed up to encourage that all staff returned questionnaires.

The study was approved by the Norwegian Regional Ethics Committee and the Data Inspectorate May-June 2007. Participants received written and oral information about the study. Respondents consented to participate in the study by submitting the questionnaire. The questionnaire was semi-anonymous. This means that the name of the facility and other demographic variables made some staff theoretically identifiable. Participants were promised full anonymity. Demographic variables that identify respondents will therefore be deleted upon completion of the project.

Study instrument

The study instrument included a 13-item attitudinal scale (Table 1). This scale was developed through exploratory factor analysis and confirmed in structural equation modelling using maximum likelihood analysis [34]. The scale comprised two factors; "compliance" and "accessibility" that were highly correlated in this OMT sample ($r = 0.71$) [34]. The "Compliance"-items measured attitudes towards in-treatment drug use in OMT and the "accessibility"-items measured attitudes towards who should have access to an OMT programme. The development of the scale is described in details elsewhere [34]. Participants were asked to rate their responses to each item on a five-point Likert scale from strongly disagree = 1 to strongly agree = 5. Total scores were divided by number of questions answered [35]. The theoretical range of mean scores was 1.00 to 5.00.

Demographic variables such as treatment centre, age, gender, profession, time employed in the organisation and time worked in the addiction field were collected.

Labelling

In this study it was decided to label those with the lowest mean scores on the attitudinal scale "harm reduction-oriented" and those with the highest mean scores "rehabilitation-oriented". These labels were based upon the content of the attitudinal scale. This means that the "harm reduction-oriented" would be more likely to disagree that drug use was a reason for disciplinary discharge, more likely to agree that an OMT programme should be available to all opiate dependents and more likely to agree that GPs should be able to treat OMT patients independently of the OMT programme. "Rehabilitation-oriented" would have opposite attitudes.

Division of centres into attitudinal groups

Each centre's mean attitudinal score was assessed. Centres were divided into three groups based upon these scores, with equal number of centres in each group (4-5-

Table 1: The 13-item scale measuring attitudes towards opioid maintenance treatment*

1	OMT patients who ignore repeated warnings to stop using heroin should be gradually withdrawn off methadone
2	OMT patients who continue to abuse non-opioid drugs (e.g. benzodiazepines) should have their dose of OMT medication reduced.
3	If repeated warnings of non-prescriptive use of benzodiazepines are ignored, the patient should be discharged from the OMT programme
4	If repeated warnings of use of Cannabis are ignored, the patient should be discharged from treatment (OMT)
5	The GP should waive the right to prescribe class A and B drugs other than the OMT medication to OMT patients
6	OMT patients who continue to take drugs and function poorly should be discharged from the OMT programme
7	It is unethical to discharge patients from the OMT programme due to continuing drug use and poor functioning**
8	OMT services should be expanded so all heroin addicts who want OMT can receive it**
9	It is unethical to deny heroin addicts OMT**
10	OMT's main aim is to reduce harmful effects of opioids and IV drug use (syringes)**
11	GPs should be able to initiate OMT on their own initiative**
12	Too many OMT-patients are discharged from the OMT programme**
13	Young opioid dependents (< 20) should not be offered OMT

*Participants were asked to rate their responses to each item on a five-point Likert scale from strongly disagree = 1 to strongly agree = 5.

** Reversed scores

4). The four centres with the lowest scores were termed "harm reduction-oriented" and the four centres with the highest scores were termed "rehabilitation-oriented". The five centres that had attitudinal scores between the two opposing groups were termed "intermediate" centres.

OMT centre characteristics

The Norwegian OMT programme is assessed annually as part of an ongoing quality assessment. A 53-item questionnaire is to be completed for each OMT patient. The questionnaire comprises items such as main income, employment status and drug use previous four weeks. The questionnaire is completed by the patients' case manager. The questionnaire was reliability tested in 2005 [36] and revised according to findings. Data was collected as a multicentre study; however only aggregated information was available for analysis. This study used data collected in the third quarter of 2007.

Treatment variables and treatment outcomes

Patient/staff ratio, methadone and buprenorphine dose, and interdisciplinary meeting attendance among patients

as well as supervised dispensing and urine drug screening at each OMT centre were selected as treatment variables. Drug use and social functioning variables were outcome variables. Drug use variables were opioid, benzodiazepines, central stimulants and cannabis use previous four weeks. These data were measured by urine testing and self-report. Social functioning was measured using current employment status, social security benefits as main income and type of living arrangements. Patient retention was measured indirectly using the treatment termination rate. This rate was calculated by adding all patients at the beginning of the year to all new patients throughout the year (n_1). Thereafter this (n_1) was subtracted from the total number of patients at the end of the year (n_2). Finally this ($n_1 - n_2$) was divided by the sum of all patients at the beginning of the year and all new patients throughout the year (n_1).

Data analysis

Descriptive statistics and regression analysis were completed using SPSS version 16.0 [37]. A missing value pat-

tern was generated for all items. Staff attitudes were investigated by linear regression analysis with mean attitudinal score as dependent variable and age, gender, staff category, years of education, time worked in the addiction field and OMT centre as independent or predictor variables. Prevalence estimates were reported [38]. Differences between centres were calculated using prevalence difference and 95% CI. Data on centre characteristics were only available as aggregated information (number of patients for each variable and total number of patients) for each regional centre (14 centres) was available for analysis. Only completed items, from the annual OMT assessment, were included in the analysis. Not all items in each patient questionnaire were completed, thus the total number of respondents for each item varied from the total number of patients at each centre.

Results

Respondents

All invited staff ($n = 140$) responded. One questionnaire (1%) was discarded due to incomplete answers. Two questionnaires had two missing responses and five questionnaires had one missing response, all items were completed in the remaining questionnaires. There were no observed differences in age, gender, occupation and length of employment in the addiction field between OMT centres. 63% of staff were women. 59% of staff were either social workers or registered nurses, and 21% were psychologists and doctors. Other staff categories were teachers and social educators. The majority of staff (60%) were between forty and fifty-nine years old. No staff were below twenty-five years. 62% had worked in the addiction field more than six years.

OMT centres and staff attitudes

OMT centre was the only independent variable that was associated with staff attitudes ($r = 0.44$, $b = 0.06$ 95% CI 0.04; 0.08). No other personal descriptors contributed to explaining variations in staff attitudes. An assessment of each OMT centre found that mean attitudinal scores varied from 2.50 (95% CI 2.01; 2.99) to 4.26 (95% CI 4.02; 4.51).

Treatment practices and staff attitudes

There were 4542 patients in the OMT programme by the end of 2007. The four centres with the lowest attitudinal scores ("harm reduction-oriented") comprised 1980 patients. The four centres with the highest attitudinal scores ("rehabilitation-oriented") comprised 1049 patients (Table 2). Centres between the two opposing groups in attitudinal scores ("intermediate") comprised 1513 patients. The patient/staff ratio varied between groups. The "harm reduction-oriented" centres had a much higher patient/staff ratio (30% (95% CI 27%; 34%, p

> 0.001) than the "rehabilitation-oriented" centres (Table 2).

All three groups had a high dose policy. The median methadone dose varied from 106-111 mg and buprenorphine from 17-20 mg between groups (Table 2). Number of supervised dispensing per patient per week, i.e. the use of "take-home doses" did not differ greatly between groups. However "harm reduction-oriented" centres were 12% (95% CI 5%; 18%, $p > 0.001$) less likely to collect weekly urine specimens than the "rehabilitation-oriented". In addition there were differences in number of patients attending interdisciplinary meetings. 13% less patients (95% CI 8%; 19%, $p > 0.001$) attended interdisciplinary meetings the previous four weeks in the "harm reduction-oriented" centres compared to the "rehabilitation-oriented".

The "intermediate" centres had rates in treatment characteristics and practices between the "harm reduction-oriented" and "rehabilitation-oriented" in most variables (Table 2).

Treatment outcomes and staff attitudes

"Harm reduction-oriented" centres had more in-treatment drug use compared to the two other groups (Table 3). More than half of the patients (55%) had used benzodiazepines previous four weeks compared to 32% in "rehabilitation-oriented" centres. Furthermore "harm reduction-oriented" centres had less social functioning among their patients compared to the "rehabilitation-oriented" centres; 17% more patients were unemployed, 12% more patients had social security benefits as main income and 15% less patients had long-term living arrangements (Table 3). The "intermediate" centres were between the "harm reduction-oriented" and "rehabilitation-oriented" centres in all treatment outcomes. The exception was the treatment termination rate, where the "intermediate" centres had the lowest rate.

Discussion

Within one national OMT programme there were differences between the regional centres in staff attitudes and these differences were associated with variations in treatment organisation, clinical practices and outcomes. Staff in "rehabilitation-oriented" centres were more likely to agree that drug use was a reason for disciplinary discharge, disagree that an OMT programme should be available to all opiate dependents and less likely to agree that GPs should be able to treat OMT patients independently of the national OMT programme. "Rehabilitation-oriented" centres had smaller caseloads, more frequent urine drug screening and increased case management (interdisciplinary meetings). In addition these centres had less drug use and more social rehabilitation among their patients in terms of long-term living arrangements,

Table 2: Treatment characteristics and practices for OMT centres when divided into attitudinal groups

Characteristics for each group	"Harm reduction-oriented" centres	"Intermediate" centres	"Rehabilitation-oriented" centres
Total number of patients per group	1980	1513	1049
Patient/staff ratio	64	50	34
Methadone dose (mg)*	111 mg	111 mg	106 mg
Buprenorphine dose (mg)*	18 mg	17 mg	20 mg
Number of supervised dispensing per patient per week*	4.1	3.9	3.7
Number of patients urine drug screened at least once a week *†	62% (1419)	73% (1325)	74% (1115)
Interdisciplinary meeting previous 4 weeks*†	46% (1493)	49% (1326)	59% (1070)

*Median

† Number of patients in brackets

†† Not all items in each patient questionnaire were completed, thus the total number of respondents for each item varied from the total number of patients at each centre.

unemployment, and social security benefits as main income. "Intermediate" centres had the lowest treatment termination rate.

Treatment approach has been associated with staff attitudes [13]. Abstinence-oriented staff have provided lower methadone doses compared to long-term maintenance oriented staff [20-22]. Staff in pharmacies with negative attitudes towards drug users have been less likely to provide needle exchange services [39]. Psychiatric staff with positive attitudes towards seclusion of patients have been more likely to be involved in this treatment practice [40]. In the current study centres with "rehabilitation-oriented" staff urine drug screened more frequently and had increased case management (interdisciplinary meeting attendance) of their patients.

"Harm reduction-oriented" centres had almost double caseload compared to the "rehabilitation-oriented" centres. Staff in these centres were more likely to agree that OMT programmes should be open to all opiate dependents and possibly attempted to admit all those who presented for treatment. Conversely it is possible that staff in "rehabilitation-oriented" centres emphasised provision of services and limited their intake to ensure a manageable caseload.

Caseload affects services provided [41,42]. Smaller caseloads allow staff more time per patient and this affect the services provided [41-43]. However small caseloads are not sufficient to ensure beneficial treatment outcomes; quality of services, such as case management, are also important [2]. Several studies have demonstrated

that increased case management are associated with less drug use and increased social rehabilitation [44,45]. The "rehabilitation-oriented" centres had smaller caseloads and more intense case management of their patients. This is possibly one of the reasons why they had less drug use and more social rehabilitation among their patients compared to the "harm reduction-oriented" centres.

Staff disapproval of in-treatment drug use could be another reason why "rehabilitation-oriented" centres had less drug use and more social rehabilitation among their patients. High expectations of functioning have been found to enhance patients' engagement in treatment services and subsequently treatment outcomes [43]. Staff in "rehabilitation-oriented" centres were more likely to agree that in-treatment drug use was a reason for discharge from treatment. It is possible that patients were motivated to abstain from drug use because staff disapproved of in-treatment drug use, and thus staff attitudes influenced patient's outcomes positively.

It is also possible that the "rehabilitation-oriented" centres only included patients that were less severely affected and with a higher level of social functioning. A differential selection of patients into treatment would possibly influence level of drug use and social functioning of patients in treatment. Baseline information on each patient was not available. However there was no difference between centres in patients' age and gender distribution. In addition the government regulations of the OMT programme specify that only those with long-term opioid dependence should be accepted into treatment. It is

Table 3: Treatment outcomes for OMT centres when divided into attitudinal groups

Treatment outcomes for each group	"Harm reduction-oriented" centres	"Intermediate" centres	"Rehabilitation-oriented" centres	Prevalence difference* (95% CI)	p-value**
Opioids use previous 4 week	18% (1260)††	15% (1215)	14% (1092)	4% (1%; 7%)	0.022
Central stimulant drug use previous 4 week	19% (1227)	19% (1200)	16% (1093)	3% (-1%; 6%)	0.102
Benzodiazepine use previous 4 weeks	55% (1296)	50% (1229)	32% (1102)	23% (18%; 29%)	< 0.001
Cannabis use previous 4 weeks	46% (1258)	41% (1224)	21% (1090)	25% (20%; 29%)	< 0.001
Unemployed in treatment	83% (1503)	77% (1342)	66% (1112)	17% (10%; 23%)	< 0.001
Social security benefits as main income	24% (1494)	15% (1257)	12% (1111)	12% (9%; 15%)	< 0.001
Long-term living arrangements for patients in treatment	71% (1503)	82% (1344)	86% (1116)	-15% (-21%; -8%)	< 0.001
Treatment termination rate	11% (2213)	9%† (1667)	15% (1241)	-4% (-8%; -2%)	< 0.001

Total number of patients (n) per item in brackets

*Prevalence difference in percent. It was calculated by subtracting the prevalence of "harm reduction-oriented" centres from the prevalence of the "rehabilitation-oriented" centres.

**P-values estimated for prevalence difference

† Prevalence difference ("rehabilitation-oriented" vs. "intermediate" centres) 5% (4%; 9%), p-value < 0.001

††Not all items in each patient questionnaire were completed, thus the total number of respondents for each item varied from the total number of patients at each centre.

therefore unlikely that the patients' characteristics alone i.e. severity of dependence and drug use patterns, could explain all the observed variations in social rehabilitation and drug use.

Drug use is an important measure in OMT. Especially benzodiazepine use has been related to increased risk of overdose, other drug use, sharing injecting equipment, and more psychopathology and social dysfunction [46-48]. The "rehabilitation-oriented" centres had less drug use and higher rates of social rehabilitation among their patients.

Retention in treatment is another important treatment indicator as OMT protect patients against increased risk of mortality [49]. All centres had low treatment termination rates, but the "intermediate" centres had the lowest. It may be that too strong attitudes ("harm reduction-oriented" or "rehabilitation-oriented") in either directions influence termination rates in OMT negatively.

Overall the cross-sectional design prevented any inference as to causality. Differences in treatment outcomes were not necessarily caused by differences in either staff attitudes or centre policies. Aggregated information prevented detailed analysis based upon individual patients. In addition the disciplinary discharge of patients for continuing drug use would reduce the proportion of patients using drugs while in treatment. There were no systematic patterns between response rate and treatment practices and outcomes, which suggested that selection bias was not a major concern.

Despite these limitations, the present study provides a detailed description of the Norwegian OMT programme and differences in staff attitudes, centres and patient outcomes. This study was able to identify significant differences in staff attitudes, treatment practices and outcomes between OMT centres. Furthermore all eligible staff participated in this study which support the validity of the

findings, as it was not only a selection of OMT staff that responded.

Conclusions

This study identified marked variations in staff attitudes between the regional centres within one national OMT programme. These variations were associated with measurable differences in caseload, intensity of case management and patient outcomes. These findings add to the body of evidence that staff attitudes are associated with programme policies and the intensity and style of case management and, subsequently, patient outcomes in opioid maintenance treatment. Policy makers and stakeholders, as well as programme managers and OMT staff need to be aware of this.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

LG participated in the conception and design of the study, carried out the data collection, analyzed and interpreted the data and drafted the manuscript. HW participated in the conception and design of the study, interpreted the data and revised the manuscript critically for intellectual content. JRM participated in the analysis and interpretation of the data and revised the manuscript critically for intellectual content. MG participated in the analysis and interpretation of the data and revised the manuscript critically for intellectual content. TC participated in the conception and design of the study, participated in the interpretation of the data and revised the manuscript critically for intellectual content. All authors read and approved the final manuscript.

Acknowledgements

We thank staff employed in the Norwegian OMT program (LAR) for participating and supporting this study. Also a great thanks to Professor Kenneth Rothman who gave invaluable advice on how to analyse and interpret the data. This study was funded through the Agency for Alcohol and Drug Addiction Services in Oslo, Norway.

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Received: 16 December 2009 Accepted: 6 July 2010

Published: 6 July 2010

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Pre-publication history

The pre-publication history for this paper can be accessed here:
<http://www.biomedcentral.com/1472-6963/10/194/prepub>

doi: 10.1186/1472-6963-10-194

Cite this article as: Gjersing et al., Staff attitudes and the associations with treatment organisation, clinical practices and outcomes in opioid maintenance treatment *BMC Health Services Research* 2010, **10**:194

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11. Appendices

Appendix 1. The attitudinal scales “abstinence-orientation” and “disapproval of drug use” and the “knowledge about risks and benefits of methadone” and “knowledge of methadone toxicity” scales

	Original abstinence-orientation items	Disapproval of drug use items	Knowledge of risks and benefits of methadone items	Knowledge of methadone toxicity
1	Confrontation is necessary in the treatment of drug addicts	Modern society is too tolerant towards drug addicts	Methadone maintenance reduces addicts' risk of death	Methadone is potentially dangerous because it reduces breathing
2	Left to themselves, most methadone patients would stay in maintenance for life**	Drug addiction is a vice	Methadone is more dangerous to the unborn child than heroin	Repeated doses of methadone given 24 hours apart can have cumulative, toxic effect
3	OMT services should be expanded so all narcotic addicts who want OMT can receive it**	Marihuana use among teenagers can be health experimentation	Methadone maintenance can cause chronic constipation	New maintenance patients who have trouble staying awake or waking up should have their daily dose of methadone reduced
4	Abstinence from all opioids (including methadone) should be the principal goal of maintenance treatment	Drug addiction is a menace to society	Stable doses of methadone significantly interfere with the ability to drive a car and operate machinery	Methadone maintenance increases addicts' risk of fatal heroin overdose
5	Methadone maintenance patients who continue to use illicit opiates should have their dose of methadone reduced	Person convicted of the sale of illicit drugs should not be eligible for parole	Methadone maintenance can cause disturbance of sexual function (e.g. impotence, amenorrhea)	Brown fluid coming from the mouth or nose of an unconscious drug user is a sign of a medical emergency
6	No limits should be set on the duration of methadone maintenance**	The use of marihuana should be decriminalized	Methadone maintenance can cause liver damage	Healthy adults who don't have a tolerance can die from the cumulative, toxic effects of daily doses of 30mg to 40 mg of methadone
7	Methadone should be gradually withdrawn once a maintenance patient has ceased using illicit opiates		Methadone maintenance increases the severity of pre-existing depression	When taken in excessive doses methadone can cause fatal pulmonary oedema
8	It is unethical to deny heroin addicts OMT**		High-dose methadone maintenance reduces ("blocks") the euphoric effects of injected heroin	Methadone maintenance patients' risk of dying is highest in the first two weeks of treatment
9	OMT patients who ignore repeated warnings to stop using illicit opiates should be gradually withdrawn off methadone		Methadone maintenance reduces addicts' criminal activities	Drug users with a tolerance to the effects of opioids are much less likely to die from a heroin overdose than those with no tolerance
10	Maintenance patients should only be given enough methadone to prevent the onset of withdrawals		Methadone maintenance reduces addicts' heroin use	Unusually loud snoring in a maintenance patient who is difficult to wake can be a sign of dangerous methadone toxicity
11	The clinician should encourage patients to remain in methadone maintenance for at least three to four years**		Methadone maintenance can cause kidney damage	Deaths from prescribed doses of methadone are most likely to occur in the first 3 to 5 days of maintenance treatment
12	It is unethical to maintain addicts on methadone indefinitely		Withdrawing from methadone "cold turkey" is definitely worse than similarly withdrawing from heroin*	Addicts are at increased risk of fatal heroin overdose after detoxification and maltrexone treatment
13	OMT patients who continue to abuse non-opioid drugs (e.g. benzodiazepines) should have their dose of OMT medication reduced.			Starting new maintenance patients on daily doses of 30mg to 40 mg of methadone is completely safe
14	The clinician's principal role is to prepare methadone maintenance patients for drug-free living			

*Due to discussions around this item, it was omitted in the analysis

** Reversed scores 6-score

Appendix 2. The instrument used in the prison health staff study in NSW, Australia (study I)

STRICTLY CONFIDENTIAL

Study
Number

**CHS METHADONE MAINTENANCE STAFF
ATTITUDES QUESTIONNAIRE**

This questionnaire is designed to measure the attitudes and beliefs of staff working in Corrections Health Service methadone maintenance programs. The survey is anonymous and all data will be treated with the strictest confidence. Only aggregated results will be provided to management and published in the peer-reviewed literature. Individual responses and results from particular units will not be made available to management. Results will not be reported in a way that will identify or allow the identification of individual respondents or units. Completed forms will be kept at the University of Sydney for five years after the publication of reports and then destroyed.

If you agree to be involved in the study under these conditions, please complete the questionnaire.

What is your professional description? (tick box)

- Nurse Unit Manager
- Public Health Nurse
- General Nurse
- Mental Health Nurse
- Doctor
- Executive/ Management D&A
Position (non- clinical)

How often do you dispense methadone?

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

Are you (tick box)

- Male
- Female

Have you ever worked for a community methadone program? (tick box)

- Yes
- No

Age: (tick box)

- 20 years or under
- 21 - 30 years
- 31 - 40 years
- 41 - 50 years
- over 50 years

If YES, how long did you work on the community program? (tick box)

- Less than 1 year
- 1 - 2 years
- 2 - 5 years
- 5 - 10 years
- More than 10 years

How long have you been working for CHS? (tick box)

- Less than 1 year
- 1 - 2 years
- 2 - 5 years
- 5 - 10 years
- More than 10 years

What professional qualifications and D&A training do you have?



INSTRUCTIONS

This questionnaire seeks to measure your beliefs and opinions on drugs, drug addiction and addiction treatment. The items on methadone maintenance policy seek to determine what you think SHOULD happen in maintenance clinics. Pretend you're the boss. Please do NOT feel limited by current CHS policies and practices. Please read the questions carefully then give your initial, gut reaction.

PLEASE CIRCLE OR CROSS ONE RESPONSE TO EACH STATEMENT

1. Confrontation is necessary in the treatment of drug addicts.	strongly disagree	disagree	uncertain	agree	strongly agree
2. Methadone is potentially dangerous because it reduces breathing.	strongly disagree	disagree	uncertain	agree	strongly agree
3. Needle and syringe exchanges should be established in all cities and large towns with large numbers of injecting drug users.	strongly disagree	disagree	uncertain	agree	strongly agree
4. Methadone maintenance reduces addicts' risk of death.	strongly disagree	disagree	uncertain	agree	strongly agree
5. Marijuana use among teenagers can be healthy experimentation.	strongly disagree	disagree	uncertain	agree	strongly agree
6. Left to themselves, most methadone patients would stay in maintenance for life.	strongly disagree	disagree	uncertain	agree	strongly agree
7. Many methadone patients would be better off on naltrexone.	strongly disagree	disagree	uncertain	agree	strongly agree
8. Methadone services should be expanded so all heroin addicts who want methadone maintenance can receive it.	strongly disagree	disagree	uncertain	agree	strongly agree
9. Modern society is too tolerant towards drug addicts.	strongly disagree	disagree	uncertain	agree	strongly agree
10. Abstinence from all opioids (including methadone) should be the principal goal of maintenance treatment.	strongly disagree	disagree	uncertain	agree	strongly agree
11. Repeated doses of methadone given 24 hours apart can have a cumulative, toxic effect.	strongly disagree	disagree	uncertain	agree	strongly agree
12. Methadone is more dangerous to the unborn child than heroin.	strongly disagree	disagree	uncertain	agree	strongly agree
13. Maintenance patients who continue to use heroin should have their dose of methadone reduced.	strongly disagree	disagree	uncertain	agree	strongly agree
14. Methadone maintenance can cause chronic constipation.	strongly disagree	disagree	uncertain	agree	strongly agree
15. Drug addiction is a menace to society.	strongly disagree	disagree	uncertain	agree	strongly agree
16. Stable doses of methadone significantly interfere with the ability to drive a car and operate machinery.	strongly disagree	disagree	uncertain	agree	strongly agree

CHS Methadone Staff Survey - Strictly Confidential

17. Methadone maintenance can cause disturbance of sexual function, (e.g. impotence, amenorrhoea).	strongly disagree	disagree	uncertain	agree	strongly agree
18. New maintenance patients who have trouble staying awake or waking up should have their daily dose of methadone reduced.	strongly disagree	disagree	uncertain	agree	strongly agree
19. No limits should be set on the duration of methadone maintenance.	strongly disagree	disagree	uncertain	agree	strongly agree
20. Methadone maintenance increases addicts' risk of fatal heroin overdose.	strongly disagree	disagree	uncertain	agree	strongly agree
21. Young addicts should have failed naltrexone maintenance before being offered methadone.	strongly disagree	disagree	uncertain	agree	strongly agree
22. Methadone maintenance can cause liver damage.	strongly disagree	disagree	uncertain	agree	strongly agree
23. Persons convicted of the sale of illicit drugs should not be eligible for parole.	strongly disagree	disagree	uncertain	agree	strongly agree
24. Brown fluid coming from the mouth or nose of an unconscious drug user is a sign of a medical emergency.	strongly disagree	disagree	uncertain	agree	strongly agree
25. Methadone maintenance increases the severity of pre-existing depression.	strongly disagree	disagree	uncertain	agree	strongly agree
26. Safe injecting rooms should be established wherever large numbers of addicts use on the street.	strongly disagree	disagree	uncertain	agree	strongly agree
27. The use of marihuana should be decriminalized.	strongly disagree	disagree	uncertain	agree	strongly agree
28. Methadone should be gradually withdrawn once a maintenance patient has ceased using heroin.	strongly disagree	disagree	uncertain	agree	strongly agree
29. Healthy adults who don't have a tolerance can die from the cumulative, toxic effects of daily doses of 30mg to 40mg of methadone.	strongly disagree	disagree	uncertain	agree	strongly agree
30. It is unethical to deny heroin addicts methadone maintenance.	strongly disagree	disagree	uncertain	agree	strongly agree
31. Withdrawing from methadone "cold turkey" is definitely worse than similarly withdrawing from heroin.	strongly disagree	disagree	uncertain	agree	strongly agree
32. When taken in excessive doses methadone can cause fatal pulmonary oedema.	strongly disagree	disagree	uncertain	agree	strongly agree
33. Buprenorphine is a better maintenance drug than methadone.	strongly disagree	disagree	uncertain	agree	strongly agree
34. Methadone patients who ignore repeated warnings to stop using heroin should be gradually withdrawn off methadone.	strongly disagree	disagree	uncertain	agree	strongly agree

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- | | | | | | |
|--|-------------------|----------|-----------|-------|----------------|
| 35. High-dose methadone maintenance reduces ("blocks") the euphoric effects of injected heroin. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 36. Maintenance patients should only be given enough methadone to prevent the onset of withdrawals. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 37. Methadone maintenance patients' risk of dying is highest in the first two weeks of treatment. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 38. Methadone maintenance reduces addicts' criminal activities. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 39. Methadone patients should be encouraged to remain in maintenance for at least three to four years. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 40. Drug addiction is a vice. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 41. Drug users with a tolerance to the effects of opioids are much less likely to die from a heroin overdose than those with no tolerance. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 42. It is unethical to maintain addicts on methadone indefinitely. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 43. Unusually loud snoring in a maintenance patient who is difficult to wake can be a sign of dangerous methadone toxicity. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 44. Methadone maintenance reduces addicts' heroin use. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 45. Methadone patients who continue to abuse non-opioid drugs (e.g. benzodiazepines) should have their dose of methadone reduced. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 46. Methadone maintenance can cause kidney damage. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 47. Deaths from prescribed doses of methadone are most likely to occur in the first 3 to 5 days of maintenance treatment. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 48. Young addicts should have failed buprenorphine maintenance before being offered methadone. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 49. Addicts are at increased risk of fatal heroin overdose after detoxification and naltrexone treatment. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 50. The clinician's principal role is to prepare methadone maintenance patients for drug-free living. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 51. Starting new maintenance patients on daily doses of 30mg to 40mg of methadone is completely safe. | strongly disagree | disagree | uncertain | agree | strongly agree |
| 52. Doctors should be able to prescribe heroin to known addicts. | strongly disagree | disagree | uncertain | agree | strongly agree |

PLEASE QUICKLY CHECK THAT YOU HAVE RESPONDED TO ALL ITEMS

THANK YOU !

Appendix 3. A suggested cross-cultural adaptation process

Investigation of conceptual and item equivalence	Literature review Discussion with experts in the field and members of target population
Original instrument translated	Translator I: Fluent in target language, good understanding of original language
	Translator II: Fluent in target language, good understanding of original language
A synthesized translated version	Translator III: Fluent in target language, good understanding of original language
Back-translations	Back-translator I: Fluent in original language, good understanding of target language
	Back-translator II: Fluent in original language, good understanding of target language
A synthesized back-translated version	Back-translator III: Fluent in original language, good understanding of target language
Expert committee	
Instrument pretested	
Revised instrument	
Investigation of operational equivalence	Literature review Discussions with experts in the field and members of target population
Main study	
Exploratory and confirmatory analysis	
Final instrument	

Holdninger til og kunnskap om LAR

Dette er en undersøkelse som skal måle holdninger til og kunnskap om LAR og arbeidet med rusavhengige. Det ene skjemaet er en blanding av kunnskaps- og holdningsutsagn og det andre skjemaet undersøker hvordan du oppfatter kunnskapsnivået ditt omkring rusfeltet. Mange utsagn har **IKKE** et entydig riktig eller galt svaralternativ. Svaralternativene er gradert fra ”svært uenig” til ”svært enig”. Om du kun er ”litt enig/uenig” i et utsagn krysser du av for svaralternativet ”enig/uenig”.

Kryss av for det svaralternativet du tenker på først, dette er **ikke** et skjema som er ment å ta lang tid å fylle ut!

Dato:	Arbeidssted:	Kjønn : M <input type="checkbox"/> K <input type="checkbox"/>
Alder:	≤ 25 år <input type="checkbox"/>	
	26-39 <input type="checkbox"/>	
	40-59 <input type="checkbox"/>	
	≥ 60 <input type="checkbox"/>	
Hva er høyeste nivå på din utdanning?		
3 årig høyskole/ Bachelor	<input type="checkbox"/>	
Videreutdanning/ Spesialistutdanning	<input type="checkbox"/>	Spesifiser _____
Hovedfag/ Master	<input type="checkbox"/>	
PhD	<input type="checkbox"/>	
Postdoc	<input type="checkbox"/>	
Annet	<input type="checkbox"/>	Spesifiser _____
Hvilken yrkesgruppe tilhører du?		
Pedagog	<input type="checkbox"/>	
Vernepleier	<input type="checkbox"/>	
Sykepleier	<input type="checkbox"/>	
Sosionom	<input type="checkbox"/>	
Psykolog	<input type="checkbox"/>	
Lege	<input type="checkbox"/>	
Annet	<input type="checkbox"/>	Spesifiser _____
Hvor lenge har du arbeidet på din nåværende arbeidsplass?		
0-2 år	<input type="checkbox"/>	
3-5 år	<input type="checkbox"/>	
6-10 år	<input type="checkbox"/>	
11-15 år	<input type="checkbox"/>	
≥ 16 år	<input type="checkbox"/>	
Hvilken stillingsprosent har du?	_____ %	
Hvor lenge har du arbeidet innen fagområdet rus?		
0-2 år	<input type="checkbox"/>	
3-5 år	<input type="checkbox"/>	
6-10 år	<input type="checkbox"/>	
11-15 år	<input type="checkbox"/>	
≥ 16 år	<input type="checkbox"/>	

	Utsagn	Svært uenig	Uenig	Usikker	Enig	Svært enig
1	LAR reduserer opiatavhengiges dødsrisiko					
2	Hvis de får mulighet, vil de fleste pasienter forbli i LAR livet ut					
3	LAR bør utvides slik at alle opiatavhengige som vil, kan få tilbudet					
4	Avholdenhet fra alle opioider (også metadon og buprenorfin) bør være hovedformålet med LAR					
5	Metadon er farligere for fosteret enn heroin					
6	LAR-pasienter som fortsetter å bruke heroin bør få dosen med LAR-medikamentet redusert					
7	Substitusjonsbehandling med metadon kan forårsake kronisk forstoppelse					
8	Stabile metadondoser har en svært forstyrrende effekt på evnen til å kjøre bil eller å håndtere maskiner					
9	Substitusjonsbehandling med metadon kan føre til nedsatt sexlyst og menstruasjonsforstyrrelser					
10	LAR bør ikke tidsbegrenses					
11	Substitusjonsbehandling med metadon kan forårsake leverskader					
12	Substitusjonsbehandling med metadon forsterker en underliggende depresjon					
13	Doseringen av LAR-medikamentet bør gradvis trappes ned så snart LAR-pasienten slutter å bruke heroin					
14	Det er uetisk å nekte opiatavhengige LAR					
15	Dersom gjentatte advarsler om bruk av heroin ignoreres, bør pasienten skrives ut av LAR					
16	Høy dose metadon reduserer ("blokkerer") de euforiske effektene ved injisert heroin					
17	LAR-pasienter bør kun få høy nok dose av LAR-medikamentet til å forebygge abstinenser					
18	Opiatavhengige i LAR reduserer sin kriminelle aktivitet					

	Utsagn	Svært uenig	Uenig	Usikker	Enig	Svært enig
19	LAR-pasienter bør oppmuntres til å bli i LAR i minst tre til fire år					
20	Det er uetisk å beholde en opiatavhengig i LAR på ubestemt tid					
21	Substitusjonsbehandling med metadon reduserer den opiatavhengiges heroinbruk					
22	LAR-pasienter som fortsetter å bruke ikke-opioider (f. eks benzodiazepiner) bør få dosen med LAR-medikamentet redusert					
23	Substitusjonsbehandling med metadon kan forårsake nyreskader					
24	Behandlerens viktigste oppgave er å forberede den opiatavhengige til en medikamentfri tilværelse					
25	Konfrontasjon er nødvendig i behandlingen av rusavhengige					
26	Dersom gjentatte advarsler om ikke forskrevet bruk av benzodiazepiner ignoreres, bør pasienten skrives ut av LAR					
27	LARs hovedformål er å redusere skadevirkningene av opiat- og sprøytebruk					
28	Dersom gjentatte advarsler om bruk av cannabis ignoreres, bør pasienten skrives ut av LAR					
29	Fastlegen bør frasi seg retten til å forskrive andre A- og B-preparater enn LAR-medikamentet til LAR-pasienter					
30	Fastleger bør kunne starte opp pasienter med LAR-medikament på eget initiativ					
31	Altfor mange LAR-pasienter skrives ut av LAR-tiltakene					
32	LAR-pasienter er ikke til å stole på					
33	Noen LAR-pasienter burde aldri ha fått tilbud om LAR fordi de er for dårlig fungerende					
34	De fleste LAR-pasienter vil ruse seg hvis sjansen for å bli oppdaget er minimal					
35	LAR-pasienter med vedvarende rusing og dårlig fungering bør skrives ut av LAR					
36	Det er uetisk å skrive ut pasienter fra LAR på grunn av vedvarende rusing og dårlig fungering					

	Utsagn	Svært uenig	Uenig	Usikker	Enig	Svært enig
37	Substitusjonsmedikamentet beskytter bare mot heroinbruk, ikke mot bruk av andre rusmidler					
38	Tiltaket, der jeg jobber, gir det beste tilbudet av alle rustiltakene					
39	Unge opiatavhengige (< 20) bør ikke få tilbud om LAR					

Original artikkel: Caplehorn JR, Irwig L, Saunders JB. Attitudes and beliefs of staff working in methadone maintenance clinics. Subst Use Misuse 1996 Mar;31(4):437-52.

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Oversatt med tillatelse fra Caplehorn JR av Gjersing L, Clausen T, Aarhus Smeby N, Lightfoot C, Ulvedal L, Bjørkhaug I etter retningslinjer utarbeidet av: Guillemín F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality-of-life measures: literature review and proposed guidelines. J Clin. Epidemiol 1993. vol. 46 pp. 1417-32.



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Appendix 5. The new Norwegian attitudinal scale

“Compliance” items

*OMT patients who ignore repeated warnings to stop using heroin should be gradually withdrawn off methadone**

OMT patients who continue to abuse non-opioid drugs (e.g. benzodiazepines) should have their dose of OMT medication reduced.

If repeated warnings of non-prescriptive use of benzodiazepines are ignored, the patient should be discharged from the OMT program

If repeated warnings of use of Cannabis are ignored, the patient should be discharged from treatment (OMT)

The GP should waive the right to prescribe class A and B drugs other than the OMT medication to OMT patients

OMT patients who continue to take drugs and function poorly should be discharged from the OMT program

It is unethical to discharge patients from the OMT program due to continuing drug use and poor functioning

“Accessibility” items

OMT services should be expanded so all heroin addicts who want OMT can receive it

It is unethical to deny heroin addicts OMT

OMT's main aim is to reduce harmful effects of opioids and IV drug use (syringes)

GPs should be able to initiate OMT-medication on their own initiative

Too many LAR-patients are discharged from the OMT program

Young opioid dependents (<20) should not be offered OMT

*Original items in italics

Errata

Page 24, paragraph 2, 8th row Removed "s" in numbers

Page 28, paragraph 2, 9th row added "-“ to needle exchange

Page 53, paragraph 4, 1st row. Added comma after "rehabilitation-oriented" and before comprised

Page 62, paragraph 3, 5th row. Added an "a" before strength