Older Adults Prescribed Methadone for Opiate Replacement Therapy: A Literature Review

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Abstract

Aim: This paper is a follow-up to the previous review of the literature on older adults in Methadone Maintenance Treatment for opiate replacement therapy. The purpose of this follow-up review is to see what contributions have been added to the literature since the earlier review and to identify and compare the trends of interest that have been studied among scholars who are interested in this aging population.

Method: The databases PsycINFO (American Psychological Association), Medline, including In Process Medline, (National Library of Medicine) and Embase (Excerpta Medica Database) were searched as far back as the last 30 years. The search results for methadone maintenance were then combined with terms relating to older populations. In addition, references of all relevant articles retrieved were checked to supplement the review.

Results: One striking difference when comparing the earlier studies with the more current research is that 20 out of the 21 studies retrieved were from the United States (US), whereas this current review provides three non-US studies. Another noticeable difference is that research has recently begun to examine treatment interventions for this group. A total of five studies were retrieved from this up-dated review of the literature on older adults prescribed methadone for opiate replacement therapy.

Conclusion: Conducting analysis of both recent and past studies can help identify gaps in the literature, areas that may need further research, country of origin of study and types of research methods being used. This information alerts program developers and policy makers of the need to establish appropriate treatment modalities for this group.

Keywords: Methadone; Opiate Replacement; Older Adults; Literature Review

Introduction

Today’s aging population who began experimenting with substance use decades ago belongs to a group that will increase in their need for substance abuse treatment. It is projected that in the United States (US) the number of adults 50 years of age or older requiring treatment for problematic substance use will increase from 1.7 million in 2000 to 4.4 million in 2020 [1]. This increased need for treatment is quite apparent among older adults in Methadone Maintenance Treatment (MMT). The effectiveness of MMT in decreasing risk of premature death [2,3] and the rapidly growing rate of older adults in North America [4], whose lives are being extended with the advances of medical treatments [5], has resulted in some patients being prescribed methadone for decades [6]. Much of these high rates also have to do with the large scale enrolment of MMT in North America in the 1970s, where many who entered in their twenties are now in midlife and older [7].

This paper is a follow-up to the previous review of the literature on older adults in MMT [8]. The purpose of this review is to see what contributions have been added to the literature and to identify and compare the trends of interest that have been studied among scholars who are interested in this aging population. As the numbers of this group continue to grow they are also nearing the end of their life cycle. This analysis of both recent and past studies can help to identify gaps in the literature, areas that may need further research, country of origin of study and types of research methods being used. This up-dated literature review that provides current data can guide the development of new interventions and modalities of care that can be improved from previous review data.

Parameters for the Term “Older Adult”

The terms older or elderly vary from one country to another. For example, the U.K. observes a cut-off as low as forty, but the U.S. will often use fifty [9]. As in the previous review, this current follow-up review will also provide studies that use participants that are fifty years of age or older. The rational supporting the decision of fifty or older is because the majority of studies available on this population are from the USA, which uses fifty as a cut off.

Literature Review Search Strategy

The databases PsycINFO (American Psychological Association), Medline, including In Process Medline, (National Library of Medicine) and Embase (Excerpta Medica Database) were searched at least as far back as the last 30 years. The subject headings for methadone maintenance or opioid replacement therapy specific to the database being searched were used. For example, Methadone Maintenance is a subject heading in PsycINFO. In Medline, the medical subject heading (MeSH) Methadone was combined with Substance Related Disorders or Opioid Related Disorders. The search results for methadone maintenance or opioid replacement therapy specific to the database being searched were used. For example, Methadone Maintenance is a subject heading in PsycINFO. In Medline, the medical subject heading (MeSH) Methadone was combined with Substance Related Disorders or Opioid Related Disorders. The search results for methadone maintenance were then combined with terms relating to older populations. Key words such as Elderly, Older, Aging, Aged, Geriatric or Veteran* were searched in title, or phrases such as Post Menopause*, or Older (or Aging) Adult*, Patient*, Client*, Person*, People, Methadone were searched in the abstract field. In addition, references of all relevant articles retrieved were checked to supplement the review. A description of studies from the previous literature review on older adults in MMT were checked.

In the earlier literature review of older adults in MMT [8], there were 21 studies retrieved that used both quantitative and qualitative design methods. Twenty of these studies were from the US and only four were qualitative. The quantitative studies retrieved from the earlier review were cross-sectional survey based studies and chart reviews that were primarily pursuing prevalence rates for various biopsychosocial social factors. Three of the four qualitative studies in the previous review explored the social networks of this group and the stigma perceived among this population through semi-structured interviews. The one focus group conducted among the four qualitative studies examined the changes in significant
relationships since enrolling in MMT and the relief of no longer being in fear of incarceration as a result of criminal activity to support an opioid dependence.

**Mortality and Comorbidity**

This first wave of research focusing on older adults in MMT showed interest in mortality, as well as comorbidities in the physical and mental health domains. When examining the rate and causes of death among a sample of 636 patients fifty or older from the US, researchers found there were 6% fewer deaths among those still maintained on methadone when compared to those discharged from MMT [10]. The results of this chart review shows that premature mortality can decrease by maintaining patients in treatment or ensuring that patients who have been discharged are quickly enrolled in another methadone program. While evidence from the US shows that methadone has contributed to protecting patients from premature death [3], there are numerous comorbidities associated with this population. For example, researchers conducted a retrospective chart review of ninety-one methadone patients over the age of forty from the US, identifying risk factors for premature mortality and potential targets for early intervention. There results showed that 18% had diabetes, 73% hypertension, 25% coronary artery disease and 16% had chronic obstructive pulmonary disease [11]. When measuring for psychiatric diagnosis among a sample of 140 adults from the US age 50 or older in MMT, researchers found that 57% of the sample was diagnosed with at least one mental health disorder, such as 32% for depression, 29% for generalized anxiety disorder and 27% for posttraumatic stress disorder [5]. The literature describes a high rate of psychiatric and physical diagnosis among opiate users, so as this age group ages there is a concern that psychological and physical conditions will increase with age, potentially placing this vulnerable group in a precarious position for their future well-being.

**Treatment Outcomes**

Thus far the US dominates the research retrieved for this population, but there was one study found based out of Singapore. These researchers set out to assess the impact of illicit opiate use, psychological and social functioning, and feasibility of caregiver involvement with supporting a monthly take home regime in forty opium dependant patients undergoing MMT [12]. Three years into treatment, none of the patients interviewed reported using opiates, which was corroborated by urine analysis. When caregivers were asked about improvements to the patient, 55% totally agreed that there was a reduction in burden to the family, 62.5% in reduced drug seeking behaviour and 52% totally agreed that there was an improvement in family relationship. The results strongly indicate that older adults in MMT can reduce or eliminate their opiate use and maintain a liberal schedule of take home doses of methadone [12]. These above results are consistent with the results from another US-based study [13]. In their cross-sectional study of 155 participants of which 29% were 55 years of age or older, these researchers found that older adults received more liberal methadone take-home schedules as a result of less illicit drug use than their younger counterparts [13]. Evidence of older adults doing better in consuming less illicit drugs than their younger counterparts is also observed in another US study [14]. These researchers reviewed 759 consecutive admissions into a methadone maintenance program, with 7% of the sample being 55 years of age or older. Their results found that 61% of their overall sample was highly successful at maintaining their sobriety and 35% of this 61% were older adults [14]. Although the research shows that older adults do well while in treatment, an US survey based - study consisting of 143 older adults showed that 69.9% of participants were unable to remain abstinent from illicit drug use within the last month of being surveyed [15]. Researchers of this study observed that ability to maintain abstinence was strongly affected by the amount of drugs participants were exposed to from day to day [15]. Unfortunately, adhering to a goal of abstinence is difficult when considering that many of the clinics where methadone is dispensed are frequented by fellow patients who sell or swap their own prescriptions or ‘top up’ their medication with illicit drugs [16,17].

**Women Specific Studies**

When observing studies focusing on women in MMT, the previous review found that seven of the ten US-based articles retrieved examined the high rates regarding the link between drug-related activities and intimate partner violence (IPV) [18–24]. Researchers found that illicit drug use is often a central part of the couple’s relationship and that much of the abuse escalates from arguments to physical assault over drug sharing [23]. When compared to women in MMT who did not use illicit drugs, researchers found that those who used crack or heroin experienced more IPV than those who did not [19].

Another area of interest that produced two survey based studies from the US was the menopausal transition for women and how the symptoms of menopause may sometimes be confused with the symptoms related to methadone or withdrawal from opiates [25,26]. After administering a survey based on frequently cited menopausal symptoms to 135 women from the Bronx ages 40 to 55, 96% of participants experienced at least one symptom while 25% reported ten. These symptoms ranged from weight gain (50%), achy joints (55%), decreased libido (43%), depression (64%), insomnia (62%), irritability (69%), as well as estrogen-related symptoms such as night sweats (53%) and hot flashes (59%) [25,26]. This researcher also found that 26% of her study’s participants were HIV positive [26]. When these symptoms were compared with those of opiate withdrawal, or withdrawal from inadequate methadone dosage, she found many similarities: decreased libido, sweats, weight gain, irritability, sleep disturbances, depression and achy joints [7]. This confusion further complicates the proper understanding of menopausal symptoms due to the medical conditions associated with this illness and the medication prescribed which often leads to inadequate health care for the individual.

**Social Networks, Therapeutic Relations and Perceived Stigma**

Moving to the qualitative literature we examine the only focus group method available and find researchers showing an interest in social networks, medical issues and incarceration [27]. Women spoke of methadone helping them restore their family relationships, while men spoke about no longer fearing incarceration for committing crimes to support their heroin dependence. Both genders spoke of health issues they attributed to methadone such as sore joints, dental problems, hypertension and arthritis, but all were happy for the safety and stability methadone has helped to establish in their lives [27].

Understanding the social networks of older adults in MMT is a continued topic of interest among researchers. Researchers explored the obstacles that prevent the use and expansion of social networks among older methadone patients [28]. Their research found that members of this group were choosing to self-isolate and avoid forming relationships because of many unfortunate past experiences of being taken advantage of. Many participants spoke of avoiding relationships all together because of the painful loss in the future that is associated with depression and grief. The third main theme found in this study was participants avoiding intimate
relationships because of painful memories of domestic violence [28]. This unfortunately places older adults in MMT among the most socially isolated groups of older adults.

Social themes extend to therapeutic relationships in another US-based qualitative study [29]. These researchers found that counsellors who shared similar stigmas with their clients such as, age, racial background and being in recovery would influence a better therapeutic relationship and positively affect client participation in treatment. Participants in the study also thought that counsellors who were former addicts or had experienced poverty would be less stigmatizing towards them [29]. This stigmatized perception that many face comes at multiple levels, which brings us to the final study found in the previous review of the literature on this population. The concept of experiencing multiple types of stigma among this ageing group was examined [30]. The results of this study show that 33% of participants in there sample experienced two stigmas concurrently. The two top stigmas experienced were drug addiction and aging. Sixty-six percent of the sample reported experiencing four stigmas in combination, the most common being substance abuse, the second being ageism, followed by stigma towards psychotropic medication and finally depression. Data from this study suggests that utilizing coping strategies may be key components of MMT programs for aging adults who struggle with mental health concerns [30].

**Summary of Studies**

The first wave of quantitative research conducted on this population is predominantly prevalence studies. This is understandable because researchers may be trying to identify and understand patterns and the severity of problems associated with this ageing group on a bio-psycho-social level. Information gathered from this earlier research can help with program development and more effective ways of allocating funds to address the specific needs of this population.

Researchers have made good use of their qualitative interests to explore social matters on a micro, mezzo and macro level among this ageing population. As is crucial to mental wellbeing particularly as one gets older, micro level interests pursued how vast and stable the social networks are among this vulnerable group. Researchers have also explored perceived stigma among this vulnerable group, which extends the inquiry to a macro level. These social areas of focus are also apparent as social ties are an intricate part of well-being, especially as one gets older. Now that the scientific community has come to recognize that this population is growing and the concerns of this group continue to increase on a bio-psycho-social level, the second wave of research has begun to produce interventions now that data has accumulated to help guide treatment.

**Current Literature Review on Older Adults in MMT**

The next section will describe the studies that were captured by this recent review of the literature on older adults in MMT. This up-dated review is maintaining the consistency of the former literature review [8] in that only peer reviewed studies were sought after. From this up-dated review of the literature we see that since 2011 to 2016, the scientific community has produced four studies that all used quantitative-based methods. This current review identified one earlier qualitative study from the US [31] that was missed from earlier literature review [8]. It is difficult to ascertain why the researchers missed this specific study in the earlier review, other than the researcher error. Since the current review located this earlier study from 2005, it was decided to add it to this current review, as it has not yet received attention through the process of a literature review. The five studies that were retrieved from this current review that will be discussed in this section include two US-based studies [32], one from Canada [33], one from Iran [34], and the third being from Switzerland [35].

**Demographics and Comorbidity**

One striking difference when comparing the earlier studies on older adults in MMT with the more current research is that 20 out of the 21 studies retrieved were from the United States, where as this current review provides three non-US studies [33–35]. In this first non-US retrospective cohort study based out of Switzerland [35], researchers evaluated the age trends and related developments among those prescribed methadone in the city of Basel between 1995 and 2003. These researchers analyzed for age distributions by splitting the sample made up of 2153 into four age categories: 20-29; 30-39; 40-49 and 50 years of age or older. Results showed that there was a substantial increase between 1996 and 2003 in the number of older adults in MMT. During that period, the percentage of patients 50 years of age or older rose almost tenfold, while the percentage of patients aged 30 or less dropped considerably from 52.8% to 12.3% [35]. These results are consistent with similar trends in Canada. In Ontario,Canada there were 4,357 (7%) patients in MMT who were fifty or older [36], which grew to 6,200 (16.0%) as of April 2013 [37].

The second non-US study was conducted in Canada [33]. These Canadian researchers compared MMT patients with a matched control group in terms of medications dispensed for hypertension, diabetes, chronic obstructive pulmonary disease (COPD) and depression. In this case-control study, 199 MMT patients age 50 or older were randomly selected, and control subjects were individually matched in terms of sex, age, social assistance coverage and geographic jurisdiction. These researchers compared the odds of MMT patients to non-MMT patients on a first-line medication for each chronic disease under investigation. Results showed that the MMT group was significantly more likely to receive medications for COPD (OR = 32.68, p < 0.001) and depression (OR = 4.07, p < 0.001), and no significant differences were found for hypertension (OR = 0.86) or diabetes (OR = 0.74). The researchers’ conclusions were similar to other research in where higher rates of COPD among MMT patients is likely explained by elevated rates of smoking when compared to the general population [38], and higher rates of depression [39] may be explained by multiple disadvantages associated with substance use.

In this third and final non-US study retrieved from the current review, we examine a 2015 study from Iran [34]. Following in the same theme of identifying psychiatric disorder prevalence rates for this group, a cross-sectional study performed on 160 MMT patients 60 years of age or older assessed for current or lifetime axis-1 psychiatric disorder. In this Iranian study, researchers found that 28% of their sample was diagnosed with at least one current psychiatric disorder. This study reported that psychiatric disorders were more common among individuals who had a family history of substance abuse and for those whose dependence had started prior to the age of thirty-five. In addition, 34% had a lifetime history of at least one psychiatric diagnosis, with a greater incidence among those concurrently dependent another substances in addition to opiates. Major depression was the most prevalent disorder among this sample and roughly one third of this group reported a lifetime history of at least one such disorder. These same researchers concluded that the type of substance being abused can influence the occurrence of psychiatric disorders, and concurrent use of non-opioids and other substances can also increase their prevalence [34].

This current review retrieved one earlier study that should
have been captured by the earlier review [8]. This 2005 US-based qualitative study [31] continues the earlier theme of examining comorbidity prevalence among this ageing cohort and making comparisons with their younger counterparts as in the two studies mentioned earlier [13,14]. These researchers’ exploratory study [31] examined the degree and nature of psychiatric, physical, psychosocial and substance abuse comorbidities in a sample of MMT patients 55 or older. The researchers compared the profiles of 100 MMT patients 55 years of age or older with a representative sample of 100 younger MMT patients between the age of 18 to 54. It was the hope of these researchers to identify areas of dysfunction and modes of adaptation that appear to be uniquely attributable to the interaction of long term methadone use and aging. After conducting their 90 minute interviews with the 200 participants, these researchers found a number of clinical and psychosocial characteristics [31].

These same researchers observed that in comparison to younger MMT patients, older patients have greater difficulty maintaining a heroin habit and are therefore more likely to consume licit substances such as alcohol or prescription drugs [31]. Decreasing their illicit drug use is consistent with the reports found in Anderson and Levy’s (2003) qualitative study in where the older opiate abusers had over time lost their center positioning in the drug culture of their youth [40]. As these older individuals aged they spread to the margins of the drug culture, whose participation in the culture is mostly unnoticed by others. Nostalgic for the ‘Old School’ mores of the past, and unable to transcend or assimilate fully into the cultural practices and norms of the ‘New’, they respond to their predicament by embracing ‘poise’ in the face of loneliness, stress and fear of victimization. These trajectories problematize life for older people with opioid dependence, resulting in a double marginalization, both from mainstream society which was constant and also within their sub-cultures as they continued to age [40]. In addition to receiving their methadone for the treatment of opiate addiction, unlike their younger counterparts, the researchers found that older adults in MMT are more likely to be prescribed methadone as an analgesic for a variety of chronic pain conditions.

And since the average amount of medications prescribed for older adults is 6.5, this raises the concern of the potential for drug-drug interactions compared to the younger population [31]. While studies on younger patients in MMT have not found any results suggesting that methadone affects cognitive functioning, research has not been conducted on older MMT subjects. The lack of studies involving older adults in MMT neglects the need to identify barriers to accessing services. This aging cohort faces psycho-social obstacles that range from memory impairments, inadequate social supports and financial difficulties, to physical disabilities that preclude ready access and use of public transportation [31].

Studies such as these [13,14,31], which compare comorbidities and treatment outcomes between young and old methadone patients are a significant contribution to the methadone prescribed population. These types of studies can help with creating interventions for younger opiate addicts by identifying and understanding pathways on how older addicts entered old age, which may provide insight into strategies for intervening with younger addicts [15].

### Treatment Outcomes

In this recent wave of studies we see emerge for the first time a study from the US that investigates treatment outcomes. Researchers examined the relationship between pathological gambling and negative treatment outcomes for 130 MMT patients 50 years of age or older [32]. The outcomes for this study were negative urine screens for drug use and remaining in treatment. After subjects were screened for pathological gambling, results showed that 20% of the sample identified as pathological gamblers and the pathology was not related to remaining in treatment or negative urine screens. This data identifies the necessity for service providers to inquire into potential gambling addictions during assessments and counseling sessions. In obtaining this information, front line staff may uncover financial issues, as well as methods by which some patients support their drug use [32].

### Discussion

Three of the five studies found from this current literature review are not unlike the earlier wave of studies conducted on older adults in MMT. These three studies were very focused on demographics [35] and identifying prevalence rates of psychical and psychiatric comorbidities [33,34]. It was promising to find that all three of these above articles were non-US studies, making a total of three out of five belonging to the US as opposed to the earlier review that consisted of twenty out of twenty-one studies coming from the United States. A qualitative study [31] was retrieved from this current review, but it belongs to the earlier stage of research, which means that there are no recent qualitative studies on this population beyond 2011. What was interesting about this qualitative article and acted as a new contribution to the literature, was that instead of exploring the social micro, mezzo and macro domains of this older group, this recent study inquired into the biopsychosocial characteristics and compared the results between older participants and younger. The final study belonging to the recent wave of research shows a new trend, as researchers from the US were interested in treatment outcomes regarding pathological gambling [32].

Despite the large rate of older adults in MMT, the research available on this cohort is still limited [8,11,15,30] and mostly from the US, whose participants are predominantly of White and African-American decent from the Midwestern United States [8]. In the last decade members of the scientific community observed that the research is limited in addressing mortality [11], but there is practically nothing that concentrates on the medical and mental well-being of older adults engaged in MMT [15]. While there have been no new studies concerned with mortality, it is encouraging to see two new studies emerge in this decade that address the medical and mental health of this group [33,34]. There is no new literature that builds on the earlier qualitative study [30] exploring the perceived stigma, showing that older adults in MMT are still underrepresented in the stigma literature. This is unfortunate since stigma is strongly associated with treatment retention and mental well-being and can be a significant deterrent for those who need mental health or addiction services [30].

Research is needed that can help add to manuals and best practice guidelines that sorely lack attention for this unique group. After searching for available manuals that inform on best practice when working with methadone patients, very little attention has been provided that focus specifically on older adults. The European Commission developed a fifty-two page, comprehensive manual, Methadone Guidelines (European Commission, 2000). This manual addresses the specific training needed by methadone staff to ensure that a high quality of service is delivered and that it should involve users of the service in the process of the planning and designing of the treatment service. The manual provides a section that focuses on specific groups, such as young people, pregnant women, people with HIV/AIDS and those with mental health problems, but nothing that speaks to older adults. In Canada, Health Canada developed a 104 page manual entitled, Best Practices: Methadone Maintenance (2002). This Canadian manual is similar to the European version in where an entire section addresses best practices in meeting the
needs of specific groups such as youth, pregnant women, people with HIV/AIDS, First Nations People and those incarcerated, but nothing devoted to older adults. This lack of information contributed to best practice manuals is a clear indication that more research is needed to help guide practice for front line staff and to help develop training for these unique service providers.

As more individuals prescribed methadone continue to increase, it will be essential to view the development of best practice and training through a geriatric lens and include programs with early interventions when this group enters treatment that target preventable risk factors for premature death and a healthier lifestyle [41]. In a point in their lives where health and quality of life are so paramount, identifying what independent psychosocial factors can predict success in treatment for older methadone patients is crucial [41]. But this task is not easy when one considers the US dominant influence on the literature, and how necessary it is for this field to extend its knowledge to other global regions that provide methadone as an opioid replacement therapy. With the US dominating this field, it makes generalizability to other non-US cohorts problematic because of the differing social, attitudinal, cultural and legal climates, and due to the different availability of specific drugs and of drug treatment options and medical services available that are characteristics of other countries and regions.

**Conclusion**

Older adults in methadone treatment are a unique group, which is growing in numbers. They present with many problems across the biopsychosocial spectrum that need to be addressed in the context of an older group because of their long career with opiate dependence and the unhealthy lifestyle associated with those in MMT.

We are also reminded that this group is generally aging more quickly than the general population because of past and present lifestyle choices that has led to consequences. Furthermore, the ongoing substance use for many in this group places them at risk for consequences that has to be understood and clinically addressed from a harm reduction standpoint, giving attention to palliative care because many are approaching the end of their cycle of life.

This literature review has raised the importance of understanding the interconnectedness of medical, psychological and social aspects unique to this population. This paper also alerts front line workers of the potential strain on treatment needs as this population continues to grow and present in treatment with complex issues of a biopsychosocial nature. The information provided in this review is therefore essential in helping to guide appropriate care for this aging population. As Rosen (2004) stated over two decades ago, the increased service needs of an aging opiate-addicted population will place a financial strain on existing resources. Funding programs that are directed to this aging population may help to decrease overall expenditures in the health and mental health field for seniors addicted to opiates by allowing them to receive care in appropriate settings” [15].

**References**


