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Exploring perceived quality of life in long-term methadone-dependent patients: a qualitative study

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Abstract

Background and aim Considering opioid use disorder (OUD) as one of the major global concerns, methadone maintenance treatment (MMT) has been documented the core treatment for such dependence in the affected individuals. With regard to the significant role of quality of life (QoL) in evaluating the outcomes of various treatment methods in this line, the present study was to explore perceived QoL in long-term methadone-dependent patients (MDPs).

Materials and methods Applying a qualitative research design, this study was performed on 25 long-term MDPs, selected by purposive sampling with maximum variation. The data were also collected through semi-structured, in-depth interviews until data saturation was reached, and then analyzed via the MAXQDA10 software program and conventional content analysis.

Results The themes mined from the qualitative data were (i) satisfaction with improvements of physical-mental deterioration, with two main categories, viz. (a) improved physical efficiency and (b) improved mental efficiency; (ii) satisfaction with having a meaning in life, comprised of two categories, i.e., (a) hope for the future and (b) new beginnings in life; (iii) positive self-perception, made up of four main categories of (a) Increased Confidence and Self-Acceptance, (b) Positive Self-Acceptance and Improved Self-Image, (c) Improved Decision-Making Abilities, and (d) More Effective Coping with Stressful Situations; (iv) satisfaction with perceived social capital, consisting of two categories, namely, (a) strong social support and (b) no worry of the stigma of substance use; (v) growth in marital satisfaction, with two main categories of (a) increased libido and (b) effective communication with one's spouse; and (vi) physical-mental exhaustion caused by MMT, containing three categories, i.e., (a) fear of physical harm induced by MMT, (b) stigma and discrimination due to MMT, and (c) financial hardship following MMT.

Conclusion The study results revealed that QoL in MDPs was associated with their satisfaction with improvements of physical-mental deterioration, satisfaction with having a meaning in life, positive self-perception, satisfaction with perceived social capital, growth in marital satisfaction, and physical-mental exhaustion caused by MMT. Accordingly, it was suggested to reduce the negative impacts of MMT, such as stigma and discrimination due to MMT and the related treatments, on QoL in opioid-dependent patients (ODPs) and boost its benefits in their daily life.

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Keywords Methadone, Quality of life, Qualitative study

Introduction

Opioid use disorder (OUD) has been thus far documented as one of the major concerns worldwide, ranked the fourth following international nuclear crisis, growing population, and environmental pollution [1]. In view of that, narcotic drugs, including their production, transfer, distribution, and use have been listed by the World Health Organization (WHO) along with three other global issues, i.e., proliferation of weapons of mass destruction, environmental pollution, and poverty and class stratification, among the basic challenges that are seriously threatening the human life from socioeconomic, cultural, and political aspects [2]. In this vein, opium has been introduced as the dominantly used substance in Iran [3] with the prevalence rate of 11.9% [4]. However, the four-decade statistics in this region indicate less attention devoted to research on substance use in Iranian society even with the significant hazards of narcotics and psychotropic drugs and the high prevalence rate of addiction as well as the drastic shifts in the gender, marital status, age, occupation, and educational attainment among opioid-dependent patients (ODPs) [2].

Given the outbreak of the human immunodeficiency virus (HIV) infection in injecting ODPs in Iran in 1996, the number of detected cases amplified by 23 times. With regard to the relatively low efficiency of using abstinence-oriented treatments, such as therapeutic camping programs, in moderating this infection, harm-reduction approaches have been thus adopted in order to minimize the side effects of OUD. As a result, this condition has been controlled and even treated by means of legal and authorized drugs [5]. Among them is methadone, which has been utilized as one of the medical biological therapies for detoxification and maintenance purposes, particularly in the case of heroin and other narcotics. For the first time, methadone was developed by Max Bachmoll and Gustav Ehrhardt in a pharmaceutical research laboratory in Germany in 1939, and then registered in 1941. Its low cost together with high efficiency in controlling physical-mental conditions during addiction to pseudo-opioids made it a useful drug in the treatment of ODPs [6]. In methadone maintenance treatment (MMT) programs, this substance is accordingly delivered to patients in the form of oral syrups and pills in a controlled manner in special centers. As evidenced, methadone helps diminish the prevalence rate of injecting OUD and chronic complications, such as acquired immunodeficiency syndrome (AIDS) and interrupts the relationship between ODPs and drug dealers, thereby decreasing the chance of crimes [1].

MMT also improves health status and contracts mortality rates, but it can be a major source of stress due to frequent visits to the certain clinics for methadone administration, regular paraclinical screening procedures, and continuity of treatment. As established, social relationships are likely to lessen, compound, or aggravate stress in a variety of contexts, including treatments for OUD. In addition, sexual dysfunction has been documented as a common side effect of MMT, which can harmfully affect romantic relationships [7]. From this angle, many researchers and healthcare providers are reflecting on quality of life (QoL) among ODPs, but most quantitative studies have so far given limited attention to the patients' perspectives. Moreover, little information is still available about the way ODPs perceive their QoL and the core components they value as contributors to higher QoL. As a whole, the studies with quantitative methods have demonstrated that MMT is useful, but no comprehensive data are at hand in relation to understanding of the effects of this treatment on QoL and life satisfaction among such patients, to the best of the authors' knowledge [8]. Some studies have further presented the ambiguous effects of methadone on QoL in ODPs, that is, the way it is usually considered good for some individuals and can be bad for others [9].

In general, QoL has been decided as a valid measure for evaluating the outcomes of treatment methods [10]. As it takes account of people's physical-mental health, social relationships, and spiritual and personal beliefs, it can be assessed based on their subjective experiences. Against this background, QoL needs to be evaluated in the population of ODPs, particularly those undergoing different treatments, like MMT, to withdraw, as one of the main practices in Iran [11]. This qualitative study was thus to explore perceived QoL in long-term methadone-dependent patients (MDPs).

Materials and methods

Study design and participants

This study with a qualitative research design, utilizing conventional content analysis, was to explore perceived QoL in long-term MDPs in 2023. The study setting was the places of living of the target patients where their experiences occurred or other locations as they preferred. To facilitate data collection upon an agreement with the participants, semi-structured, in-depth individual interviews were conducted in the clinics where they were receiving MMT after their consent. The statistical population consisted of all MDPs with a history of long-term MMT (more than 10 years) and the study samples were those who met the inclusion criteria. Therefore,

purposive sampling with maximum variation was fulfilled based on the Lamont Scale in terms of gender, age over 18, and a 10-year history of MMT. The MDPs' willingness to withdraw from the study and those with severe mental illnesses were also excluded.

Data collection

Upon obtaining the permission and the required coordination, sampling was done to start and record the interviews individually based on the participants' consent. Interviewing skills were also practiced to create safe and intimate environments for the participants and help them freely share their experiences, thoughts, feelings, and impressions. The data collection tool was an interview question guide and the interview duration depended on the participants' readiness to continue the interview and fully express their ideas, ranging from 30 to 60 min. The interviews started with some questions, such as "Please describe quality of life", "What factors do affect quality of life?", and "What effects has methadone had on your quality of life?". To clarify all dimensions of the study, more questions, such as "How?", "What do you mean?", and "Please explain it" were consequently raised. At the onset of each interview session, the research objectives were further enlightened to the participants, the interviews were recorded following their agreement, and then each interview was transcribed verbatim immediately, in less than 24 h. The coding process also started simultaneously with the data collection. At the end of the interviews, the interviewer's mobile phone number was given to the participants to let them have calls if they had any questions. The participants additionally showed their consent to the researcher to contact them if there were any questions during the transcription of the interviews. No interview needed to be duplicated. Though data saturation was achieved with 21 interviews, four additional interviews were correspondingly carried out for more certainty.

Rigor of data

Constant comparative method was tapped in the course of the study according to the principles of conventional content analysis and the quantification of the materials. To ensure the validity and reliability of the data, some measures were thus taken. Accordingly, Research participants checking was first practiced to confirm the validity and strength of the data. The other authors then reviewed the interviews and the extracted the codes and categories to check the accuracy of the coding process and settle that they also attained similar codes. In the second step, the research credibility was measured. To review the transcriptions by the participants, they were contacted and the interviews were held in more than one session. To find the accuracy of the data in the third step, peer debriefing was considered. To achieve peer debriefing,

the researcher gave the data analysis to other qualitative researchers to see if they also reach the same conclusions and classes and agree with us or not. Then we compared their results with our work.

These combined methods of member checking, research team review, and peer debriefing ensured that the findings were well captured and reflectively representative of participants' genuine perceptions, thereby increasing the trustworthiness and rigour of our study.

Data analysis

The present study conducts a conventional qualitative content analysis as prescribed by [Hsieh & Shannon, 2005]. This approach was used to interpret meaning from the text data content by analytically mainly focusing on identifying key themes and patterns straight from the data without imposing preconceived categories. Unlike other forms of content analysis, conventional content analysis allows the categories to emerge inductively from the data, by systematic coding, which is particularly suitable for the investigation of subjective experiences. We followed the main steps of recommendation in this approach: open coding of transcriptions, grouping similar codes in categories, and deriving themes reflective of the participants' perspectives and experiences. Accordingly, the main categories were mined from the data rather than a priori concepts. The MAXQDA10 software program was also operated for data management purposes.

Ethical considerations

This study was part of the Doctoral Thesis in Psychiatry with the ethics code no. IR.MAZUMS.REC.1401.393. Before the interviews, the researcher explained the study objectives and ensured the confidentiality of data and voluntary participation. In addition, informed written and verbal consent was obtained from the participants to take part in the study and record the interviews. All interviews were conducted in a private, quiet room and the participants remained anonymous.

Results

25 MDPs were interviewed; whose mean \pm standard deviation (SD) age was 54.48 ± 9.04 , with 37 and 67 as the minimum and maximum values. The mean \pm SD dose of methadone used by the participants was 81.6 ± 38.26 mg, and the mean \pm SD duration of MMT was 12.96 ± 3.21 years. Other demographic characteristics of the participants are presented in Table 1.

The data analysis led to the emergence of about 1213 primary codes. After reviewing the codes and categorizing the primary ones, 258 merged codes were obtained, and classified into XXX subcategories, 14 main categories, and 6 themes. The themes were (i) satisfaction with

Table 1 Demographic characteristics of study participants

Variables	MDPs (n = 25)	Minimum	Maximum
Age, years old, mean (SD)	54.48 (9.04)	37	67
Male, number (percentage)	19 (76)	-	-
Female, number (percentage)	6 (24)	-	-
Marital status, mean (SD)	18 (72)	-	-
Married	1 (4)		
Single	6 (24)		
Divorced			
Educational attainment, mean (SD)	3 (12)	-	-
Illiterate	17 (68)		
High school diploma or lower	5 (20)		
Higher education			
Income, mean (SD)	15 (60)	-	-
Yes	10 (40)		
No			
Methadone dose, mg, mean (SD)	81.6 (38.26)	20	150
MMT duration, years, mean (SD)	12.96 (3.21)	10	21

improvements of physical-mental deterioration, (ii) satisfaction with having a meaning in life, (iii) positive self-perception, (iv) satisfaction with perceived social capital, (v) growth in marital satisfaction, and (vi) physical-mental exhaustion caused by MMT.

Theme 1: satisfaction with improvements of physical-mental deterioration

One of the main themes regarding perceived QoL among long-term MDPs was satisfaction with improvements of physical-mental deterioration that had arisen from substance use. This theme was unearthed from the main categories of (a) improved physical efficiency and (b) improved mental efficiency. Accordingly, the MDPs confirmed that improvements of their physical-mental health could significantly boost their QoL.

Improved physical efficiency

From the perspective of long-term MDPs, increased physical strength and the ability to manage daily routines and responsibilities was one of the positive experiences of MMT. Almost all participants had gained favorable experiences in this respect. For example, one of the participants stated that:

"I am not drowsy anymore when I take methadone. Someone told me that it is not like opium, and it does not make you sleepy. You know that opium drastically makes you fall asleep. These days; I wake up early in the morning and get to work. When I had opium dependence, especially when my children were younger, I did not have spare time to control my life and work. I used to sleep until two in the

afternoon and could not even cook because I could not sleep through the night. If you ask me opium was rarely good. Now, I can do all my daily living activities." (Female, 52 years old, 10-year history of MMT).

Enhanced physical strength to start and keep a routine was further voiced as one of the constructive experiences raised by the study participants. Being physically capable to work was also mentioned among one of the perceived benefits of MMT. As an illustration, one of the participants reiterated that:

"I used to work for two hours and I did not feel like working anymore. These days, I take a pill in the morning, I work until two or three in the afternoon and I am energized without facing any problems." (Male, 45 years old, 10-year history of MMT).

Reaching ideal daily working time along with preventive treatments was correspondingly among the points uttered by all participants. They accordingly acknowledged that their useful working hours increased following MMT, and they did not even suffer from hangover but as much power during all working hours. In this line, one of the study participants said that:

"Taking methadone gives me plenty of energy. Now, I can think better, and I am able to work for more hours. The story of opium was different. The enthusiasm for getting home early and smoking or taking opium used to make me quit my job early. I was always waiting for opium, but not now. During my working hours, there is no more thinking about it and I work more hours." (Male, 53 years old, 13-year history of MMT).

Smoking fewer cigarettes was additionally expressed as a positive experience by 20 participants. They confessed that their physical ability improved and the occurrence of respiratory infections decreased as smoking habits was reduced. For instance, one of the participants pointed out that:

"I used to smoke opium. I used to smoke many cigarettes. Now, I smoke less and feel much better. I rarely get sick. My ability to work has currently boosted. I had short of breath." (Male, 66 years old, 10-year history of MMT).

As well, better self-care and higher physical health status due to periodic health check-up was among the details highlighted by most participants. In this line, one of the study participants maintained that:

"I only take methadone because it is prescribed as a medicine. The physician also orders some tests now and then. I am more aware of my illness, and I am very happy to have check-up periodically." (Male, 54 years old, 18-year history of MMT).

Improved mental efficiency

The majority of the participants accepted the improvements of their emotional and mental functioning during long-term MMT. Explaining their understanding of long-term MMT, which expanded their mental efficiency to handle everyday issues and problems, one of the participants stated that:

"Generally, methadone has normalized my life. That is, it has thus far helped me to divest myself of depression. My mental and emotional abilities have accordingly boosted to solve many problems." (Male, 37 years old, 12-year history of MMT).

Theme 2: satisfaction with having a meaning in life

Most study participants disclosed their satisfaction with their purpose and meaning in life once they withdrew and started MMT for a long time. As well, they considered it as a protection against temptation in recovery and relapse. They further expressed hope for better life in the future and assumed MMT as a new beginning in their life. This theme consisted of the categories of hope for the future and new beginnings in life.

Hope for the future

The majority of the study participants declared that taking methadone raised their mood and made them feel less depressed. They also stated that, their hopes for recovery amplified, and they became hopeful about their career and life during MMT. As well, they started looking for jobs once again and tried to progress in their careers. One of the participants accordingly believed that:

"I felt that I can reconstruct my life with methadone. I do not feel hopeless and depressed anymore. I have plans for the future now. I am also looking for a new job. I only hope I might be able to build a better life for me and my family." (Male, 45 years old, 10-year history of MMT).

New beginnings in life

All the participants avowed that withdrawal was easier said than done, but it could bring them a new life. Many male participants and all females also acknowledged that MMT had given them and their families a second chance to live a healthy and happy life. In this respect, one of the participants said that:

"In the past, my whole life was worthless. I wanted to commit suicide for a couple of times. I was always running out of money and I wanted to use drugs by all means; but now, I want to live my own life. Sometimes, I think that God has given me a big chance of a new life. I thank God. It is good that science has much progressed, and a cure-all has been found for my pains." (Male, 64 years old, 21-year history of MMT).

Theme 3: positive self-perception

Most of the respondents characterized their feelings as positive and their self-concepts as improved. They reported that long-term MMT helped them to accept themselves with all their defects, to be more confident, to make wiser decisions, and to overcome life difficulties more easily.

Increased confidence and self-acceptance

The respondents explained that with MMT, they have accepted themselves and are confident; therefore, they view themselves differently. According to one participant,

"When I was on drugs, my confidence was very low, and I couldn't accept myself. But now, on methadone, everything's different, and I can be proud of what I have achieved." (Male, 66 years old, 10-year history of MMT).

Positive self-acceptance and improved self-image

Unpleasant physical appearance during substance use was one of the horrible experiences raised by all study participants. The majority accordingly attributed the improvements of appearance to MMT. For example, one of the participants reiterated that:

"I looked much older and exhausted when using opium. I feel much healthier after being on the methadone treatment, and people say I look great, like I have returned to life. Now I get to dress up, take care of myself. I am able to look at myself in the mirror without shame." (Male, 50 years old, 15-year history of MMT).

Another participant also added that:

"When I was on drugs, I never cared about my appearance; I was always ashamed. But since the beginning of the methadone program, I have come back to life: every day getting up, caring about myself, wearing clean clothes, and looking in the mirror with a bit more assurance. Now I dare say that I look better, and I am happy with myself." (Female, 58 years old, 13-year of history of MMT).

Improved decision-making abilities

The improvement of the decision-making process was expressed by 11 participants in this study. They accordingly admitted more stability in their mood after starting MMT. They could also behave more rationally while making decisions. One of the participants said that:

"I feel that since I started methadone, I can think things over and don't. Just act impulsively. Whereas before I would do something, I sit down and think about whether this is a good decision or not for me or my family." (Male, 54 years old, 18-year of history of MMT).

More effective coping with stressful situations

More Effective Coping with Stressful Situations were explored by some participants.

Participants reported that MMT made it easier for them to deal with stressful situations and to find better solutions to their problems. One participant described this:

"In the past, there were times when I couldn't control myself when facing problems. But now, I can think over solutions and solve things calmly." (Female, 48 years old, 11-year history of MMT).

Increased self-confidence and self-acceptance were among the common experiences addressed by the majority of participants. In this line, one of the study participants alleged that:

"My self-confidence was low with opium dependence. I could not accept myself. I used to think negatively. But now, everything has been settled after methadone use. I think they are my achievements." (Male, 66 years old, 10-year history of MMT).

Improved self-esteem followed by self-confidence was also articulated by all participants. One of the participants acknowledged that:

"My working life ruined due to opium dependence. The supervisors and engineers used to remind me that I was an opium-dependent patient. They used to punish me by some distant working missions and did not pay at all. I felt bad as if I was not treated like a human. After withdrawal, everyone understood it and changed their behavior." (Male, 65 years old, 15-year history of MMT).

Theme 4: satisfaction with perceived social capital

Most participants laid much emphasis on their social capital, such as social relationships with family members,

groups, and the society in which they were living. Following MMT, they could receive much support through self-help groups as well as peers and their family. The majority of the participants highlighted the importance of social and environmental support in daily life along with pharmaceutical therapy in order to improve their QoL.

Strong social support

Bolstering and maintaining good social support and coping skills could help MDPs reduce relapse or concurrent substance use with methadone. Most participants replied that their continuous and active presence in the family and the society augmented following MMT and no dependence on drugs. Thanks to their participation in group activities, they were also supported. This social support led to starting work once again and getting a job. One of the participants accordingly believed that:

"It gives me great satisfaction. I could save my face. People did not use to even answer my greetings. They preferred to stay away. Now, we go out together. My sons-in-law ask me if I need money, but, thanks God, I do not need to borrow for now. The fact that everyone is thinking high of me and I do not get disappointed or there are no deficits sounds helpful to me and gives me much strength." (Male, 65 years old, 15-year history of MMT).

Expanding social responsibilities as well as voluntary and charitable activities was another positive experience addressed by the participants. One of the participants admitted that:

"I never had a problem with others. When I was smoking opium, I used to think more about myself and had nothing to do with others. Once I started methadone, others became more important to me and I valued their problems. As much as I could, I even assisted them. I really helped." (Male, 50 years old, 10-year history of MMT).

No worry of the stigma of substance use

All study participants stated that their presence in the society multiplied and they did not experience the stigma of substance use due to no dependence on drugs. One of the participants stated that:

"In terms of price, methadone is much cheaper and much more economical. If you ask me, opium was a disgrace, but methadone is not so." (Male, 55 years old, 10-year history of MMT).

Theme 5: growth in marital satisfaction

Better marital satisfaction was one of the main themes extricated in this study, which was comprised of the categories of increased libido and effective communication with one's spouse.

Increased libido

The majority of the study participants of both genders reported improvements of sexual functioning, particularly libido, thanks to MMT. They also considered better physical appearance, oral and dental hygiene, and grooming as the big reasons for their spouse's satisfaction. One of the participants declared that:

"My sex is better now. I have sexual desire. Now, I just say it is much better. There was nothing at all in the past." (Female, 58 years old, 13-year of history of MMT).

Effective communication with one's spouse

Having better communication with one's spouse was articulated as one of the positive experiences by the study participants. They were feeling very happy with their family, especially their spouse. As an instance, one of the participants said that:

"Well, my wife entrusts me more now. She was very distrustful. Now I wake up on time. My work does not miss a deadline. Of course, I also want to quit methadone. As soon as we go to a party, we have fun. I am less angry. We did not travel at all, but now we travel in good time." (Male, 45 years old, 10-year history of MMT).

Higher QoL and marital satisfaction due to much order in life were also among the points mentioned by 15 males and one female participant. One of the participants added that:

"Methadone gave much order to my life and I do not have the anxiety caused by opium use anymore. I can fulfill my marital duties and my wife feels more satisfied with me." (Male, 66 years old, 10-year history of MMT).

Theme 6: physical-mental exhaustion caused by MMT

Obviously, the first negative impact of substance use could be seen on physical-mental health. Those struggling with OUD were likely to experience sleeping problems, some significant changes in their appetite, and even heart attacks. In the case of MMT, many participants also associated this treatment with a series of physical complications. The main theme of physical-mental exhaustion caused by MMT was accordingly conceptualized from

the categories of fear of physical harm induced by MMT, stigma and discrimination due to MMT, and financial hardship following MMT.

Fear of physical harm induced by MMT

Fear of physical harm such as liver and kidney damage from long-term MMT was reported in this study by all participants. One of the participants stated that:

"Everything is good with methadone. Some say it makes the liver burn and the kidney fail. I am really scared. I think opium would not do so, but I really want to know how to prevent liver damage." (Male, 58 years old, 19-year history of MMT).

Stigma and discrimination due to MMT

MMT could be an effective aid to recovery from OUD; however, its stigma was acknowledged by all participants. It could sometimes even be a barrier to people seeking help in this respect. Unfortunately, all participants responded that they had dealt with the stigma of addiction, but they suffered from the stigmatization of MMT from friends, healthcare providers, and the public, accusing them of using methadone as a substitute. They also expressed their disapproval of the lifelong MMT and admitted that they were taking pills now and felt upset to be called a pill-dependent patient. One of the participants said that:

"I came here to withdraw, but I became a pill-dependent patient. I feel so sad." (Male, 55 years old, 10-year history of MMT).

The majority of the participants reported that they felt ashamed because they could not use only one strategy to quit. One of the participants added that:

"Methadone does not have any complications. It does not cost a lot, but I still think I am dependent, and I want to withdraw." (Male, 66 years old, 10-year history of MMT).

Financial hardship following MMT

Most participants mentioned the high costs of MMT. For example, one of the participants affirmed that:

"Methadone seems to be good, and it is good for me, too. It saved my face and brought my family back to me, but now, the prices have really increased. The government does not support me. I am really worried that it becomes much more expensive, and I cannot afford it." (Male, 60 years old, 10-year history of MMT).

Discussion

With regard to the study findings, exploring perceived QoL among MDPs, six main themes were identified, which could be effective in boosting their QoL. Improved physical and mental efficiency was one of the themes in this study. This was an underlying component in QoL among ODPs and thus highlighted the fact that physical-mental functioning needed to be taken into account during MMT [12]. Furthermore, feeling good about oneself and having a balanced mental well-being could be the basis of a good QoL, which was consistent with the reports in previous qualitative studies on mental health [13].

While MMT improves physical health and functioning, this paper also encompasses a broader discussion of harm-reduction approaches, which are increasingly promoted by states due to their greater cost-effectiveness compared to other forms of medical treatment. These treatments, while beneficial in their many aspects, are not without criticism. Harm reduction, of which MMT is a part, is most often perceived as being a short-term or 'forced' solution rather than a holistic model of recovery. This is an inherent difference in the way the nuances of addiction treatment are identified, particularly in settings where the long-term recovery objectives—such as total abstinence—functionally are not possible for all. Maybe the dissatisfaction of remaining dependent on another substance is lessened in comparison with the satisfaction regarding physical improvements perceived in participants, further complicating what is perceived as QoL.

Like that in similar studies, a purposeful life was further mentioned as one of the core components of a good QoL. In this line, feeling useful and contributing to the society could lead to positive life events and a sense of empowerment, which were associated with a higher QoL. Having a meaning in life was also closely related to personal growth and development. Creating good opportunities in this vein could thus yield promoted QoL and more positive feelings about the effectiveness and benefits of MMT [14, 15]. Although the utmost importance of purposeful life for higher QoL has been confirmed in previous studies [16, 17], it has received limited attention in clinical practice due to its subjective nature, thereby making it difficult to be measured via objective approaches [16]. The study findings accordingly were in line with the relevant literature, laying emphasis on the effects of having a meaning in life as one of the key components in increasing QoL, which was also observed in the study samples undergoing alternative treatments with methadone. In view of that, the interventions that put much focus on future goals and meaningfulness in life and even address the discrepancy between the current situation and someone's hopes and expectations are likely to boost satisfaction in various life domains.

Based the findings of the present study, hope for the future life was marked by the majority of the participants. MMT accordingly increased their hope for recovery as well as future employment and further motivated them to hunt for job opportunities and work toward career advancement. In mental healthcare research, the importance of independence in QoL had been also repeatedly demonstrated [13]. One successful strategy to augment the sense of control and independence was to support ODPs in terms of finding jobs, which could be associated with higher self-esteem and financial autonomy [18]. Providing support through occupational therapy and financial assistance could thus augment their sense of control and mastery over their life, thereby making them feel empowered [19, 20].

Notably, the themes for high QoL were universally relevant among ODPs like those in individuals living with mental health problems and the public [21]. The generality of the given themes was expected because these people had a wide variety of social roles, e.g., partners, parents, and employees, as part of their everyday life [22]. Resembling people with mental illnesses, the ODPs also had a strong desire to be normal [23]. As reported in this study, the themes and the associated effective factors might be specific to particular populations. The study results in this field were consistent with those in the related literature [21, 23].

The thing that kept coming up in the participant narratives was the issue of stigma. While methadone brings much-needed relief from uncomfortable withdrawal symptoms and speeds up daily functioning, the stigma associated with it often exacerbates feelings of dependence. Moreover, ODPs had to deal with numerous limitations, e.g., social isolation, mental problems, and stigma, resulting from their substance use affecting their lifestyle and functioning as barriers to have a normal life [24]. This was not surprising given the high incidence rate of such illnesses in ODPs that could influence their QoL [25]. Accordingly, there was a dire need to address some common biases giving rise to stigmatization and develop integrated treatments for addiction and mental health problems. Healthcare providers, nurses, and social workers are thus suggested to be sensitive to the impact of some long-term restrictions that are beyond the direct consequences of substance use. Addressing this stigma is essential, not only for improving QoL but also for reducing the societal barriers that ODPs. The healthcare systems thus need to move beyond managing addictions as only a clinical issue toward the social outcomes of the treatment processes, such as MMT. Therefore, establishing a comprehensive and continuous care approach, taking account of the strengths and abilities of such individuals, is necessary [26].

This study further exhibited the holistic nature of QoL. The themes identified in this line were often interrelated and could not be evaluated linearly, but an integrated treatment approach with a broader view of QoL was advocated. As well, higher QoL from the perspective of ODPs had little to do with purely health-related issues, which could mark the difference between a person's QoL and health-related QoL, used by experts as a misused synonym. This was clearly reported in the results of previous research in this field, which requires more reflections. Devoting mere attention to the medical and health-related outcomes of MMT, without observing its effects on QoL in ODPs, could thus lead to a one-sided presentation of this intervention. MMT was a social intervention and pharmaceutical therapy, so it was likely to have adverse effects unrelated to its success as a chemical substitute for various narcotic drugs [9]. The study participants' attitudes toward the impact of methadone on QoL were accordingly characterized by contradiction, which showed the complex nature of this type of treatment. The positive impact of methadone on daily life, as mentioned in the interviews, was further confirmed by the findings of previous research [9, 13, 15].

Gaining control over daily life and functioning and not feeling sick when opioids were not available were just some of the most frequently cited benefits of MMT in this study. These findings indicated the potential of this type of treatment to create the preconditions to handle many issues, such as hope for the future, which could increase people's QoL. Taking methadone by itself could not always bring about drastic changes, but it could have positive effects on some life aspects, e.g., marital relationships, and significantly contribute to higher QoL. The given points which were repeatedly raised in the interviews were similar to the findings reported in previous studies [13, 21, 27].

In contrast, some outcomes, such as much concern about kidney and liver damage, stigma, dependence, and financial hardship were cited among the negative impacts of MMT, which could upset QoL. MMT had been already mentioned in some studies, so much care was needed not to underestimate its impact on QoL [14, 22, 27]. MMT was often associated with stigma and discrimination [28], which could be long-term and often prevent ODPs from daily living and reaching a positive identity [29]. Feelings of dependence and stigma could be thus reduced by involving them actively in treatments and empowering them as decision-makers in this process to gain control over their life, as prominent components of a high QoL [9, 23, 28]. These points were also reported in the present study, which could be achieved by providing MMT programs through primary healthcare services, as an effective way to minimize the social consequences of MMT, and improve QoL among ODPs.

Another reflection that emerges in this paper is the dichotomous role that MMT plays between reduction of harm and personal empowerment. There was a wish for self-sufficiency among participants, which MMT facilitated by ensuring physical stability and emotional balance. However, the treatment's role has emerged over and over again as a sort of transition phase toward full recovery. For some, MMT was a crucial stepping-stone to a substance-free life, while for others, it was a long-term solution; withdrawal, they came to realize, is not necessarily an attainable or even desirable goal for all.

In general, ODPs considered MMT as a transition toward withdrawal at some point in their life. Most study participants intended to live a substance-free life without dependence on methadone, but this was not undemanding given the relapsing nature of opioid dependence. Harm reduction particularly through MMT could be thus a link in the recovery process. In place of contrasting harm reduction and abstinence-oriented approaches, both could be within a continuum to enhance QoL in ODPs from a long-term perspective [17, 23, 24]. However, withdrawal might not seem realistic or even desirable for some participants, and alternative treatments could be a long-term aid in increasing QoL and gaining control over substance use and life for other individuals.

Of note, one of the common limitations of qualitative research could be its subjective nature, which was assumed as a great advantage in studies on QoL, as it allowed for much focus on individuals' perceptions. Although the sample size was relatively small in this study, the interviews were rich in content.

The findings also highlight the need to concentrate on more instrumental aspects of MMT, such as financial hardship and long-term health problems due to kidney and liver damage, which are identified as key stressors. Although MMT is a cheaper option than the use of illicit drugs, its increasing costs place further barriers to anyone attempting longer-term recovery. These stresses, coupled with health anxieties, detract from the overall positive value of the treatment. More complete support systems, including financial assistance and comprehensive health monitoring, should be incorporated into MMT programs so as to acquire relief from such burdens and enhance the long-term efficacy of harm-reduction interventions.

Conclusion

Conventional content analysis adopted in this study provided insights into the complex nature of QoL in MDPs. Accordingly, QoL could mean their satisfaction with improvements of physical-mental deterioration, satisfaction with having a meaning in life, positive self-perception, satisfaction with perceived social capital, growth in marital satisfaction, and physical-mental exhaustion

caused by MMT. Consequently, it was suggested to minimize the negative effects of MMT, such as stigmatization, on QoL in ODPs and attempt to increase its benefits in their daily life.

The impact of MMT on physical, mental, and social well-being cannot be quantified in isolation but calls for a more holistic, integrated approach to explain how increased QoL, as was experienced by the ODPs, goes past health benefits to include social reintegration, personal empowerment, and reduction in stigma. Yet, as a social intervention, this treatment modality holds great potential to positively influence these areas. In the meantime, efforts to overcome the complex social, financial, and psychological barriers would have to be so carefully implemented that stand between the patient and his cure. This preserves a clear contradiction of MMT's benefits versus much stigma in association with its use, pointing toward the need for more inclusive, patient-centered modes of care. Accordingly, MMT, tending the clinical and social dimensions of the addiction treatment, will be able to help recovering people in the longer run. Future research and clinical practice should ensure that, while striking a delicate balance between harm reduction and empowerment, interventions reduce harm and offer real improvement in life.

Acknowledgements

This article is entirely original, and all ideas and analyses were conducted by the author. Tools such as ChatGPT-4o and Grammarly were utilized solely to enhance the clarity and grammatical accuracy of the language.

Author contributions

SHH, and FF, contributed to design and execution of the study. FY, SHH, ZH, FF, contributed to the interpretation of findings. FY wrote the first draft of the paper, which was revised by all authors. All the authors approved the final version of the paper for submission.

Funding

None of the funders had any role in the study design and the collection, analysis and interpretation of data or in the writing of the article and the decision to submit it for publication.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Competing interests

The authors declare no competing interests.

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Received: 14 March 2024 / Accepted: 4 December 2024

Published online: 21 December 2024

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