VISUOMENĖS SVEIKATA

Outpatient methadone maintenance treatment program
Quality of life and health of opioid-dependent persons in Lithuania

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Key words: *opioid dependence; methadone; maintenance treatment; health; quality of life.*

Summary. *Background. The evaluation of quality of life and self-perceived health represents an assessment of the impact of treatment on patient functioning and well-being.*

Objective. Our aim was to explore the impact of methadone maintenance treatment on quality of life and self-perceived health of opioid-dependent persons in Lithuania.

Methods. A total of 102 opioid-dependent patients were recruited in the study. A prospective follow-up study design was used. To assess quality of life, the WHOQOL-BREF 26-item version was used. The impact of methadone maintenance treatment on self-perceived health was assessed by Opiate Treatment Index (OTI).

Results. Following 6 months of methadone maintenance treatment, significant improvements in physical (P=0.004), psychological (P=0.004), and environmental (P=0.048) components of quality of life were observed; no statistically significant improvements were found in social component of quality of life. Study participants reported lower rates of medical morbidity associated with injection (P<0.001), cardiorespiratory (P=0.034), musculoskeletal (P<0.001), neurological (P=0.013), gastrointestinal (P<0.001), and general health (P<0.001).

Conclusions. Methadone maintenance treatment substantially reduces morbidity associated with opioid dependence and improves the quality of life of patients.

Introduction

Opioid dependence is a cluster of physiological, behavioral, and cognitive phenomena in which the use of opioid takes on a much higher priority for a given individual than other behaviors that once had greater value. A central descriptive characteristic of the dependence syndrome is a strong desire, sometimes overpowering, to take opioid which may or may not have been medically prescribed (1).

It was estimated that the prevalence of opioid use among population aged 15–64 years in Western European countries ranged between 2 (in Germany and Finland) and more than 6 cases (in Italy and Luxembourg) per 1000 population (2). In Lithuania, prevalence rate of substance abuse rose from 0.34 per 1000 population in 1995 to 1.45 in 2004; in 2004, 79.7% of all drug dependencies were opioid dependencies. Opioid dependence also is associated with the number of symptoms and problems (3–6). Experiences gained in many Northern and Western European countries

demonstrated that methadone maintenance treatment is an effective treatment for opioid dependence (7–9) and decreases the incidence of HIV- and injection-related problems; it also positively affects the general health of opioid-dependent patients (6, 10).

There are variations among countries in the balance between maintenance and detoxification approaches. Some countries placed a greater emphasis on detoxification, but the overall trend was towards greater use of maintenance treatment. Over the past five years, general consensus has emerged in Western Europe regarding the role of substitution therapy as an essential component of treatment options available to opioid-dependent individuals (2), but substitution treatment facilities in Lithuania are limited and still under discussion about its effectiveness (11).

In general, individual differences may moderate the manner in which patients respond to the treatment (12, 13). One of the most important criteria for the evaluation of program effectiveness is changes in

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quality of life (QoL) and health during the treatment (14–16). It is recognized that the concept of QoL should be applied to the studies on drug dependence in terms of social functioning, physical, and psychological well-being and environment and life satisfaction. QoL evaluation should represent an assessment of the impact of treatment on patient functioning and well-being. The QoL has also been acknowledged as an important tool in the evaluation of drug programs (17, 18).

We aimed to explore the impact of methadone maintenance treatment on quality of life and self-perceived health of opioid-dependent persons in Lithuania.

Material and methods
Setting
The study was implemented in substance abuse clinics of Vilnius, Kaunas, and Klaipėda cities; data were collected on subjects participating in outpatient methadone maintenance program.

Participants
All opioid-dependent persons who were involved for the first time in the outpatient methadone maintenance program from January 1 to June 30, 2004, and met eligibility criteria were enrolled into the study.

Inclusion criteria:
1. ICD-10 diagnosis of current opioid dependence;
2. Age of 18 to 65 years;
3. Mental competence (as judged by a clinician) to give informed consent;
4. Physical feasibility to participate in study assessment;
5. Informed consent to participate in study;
6. Permanent residence within commuting distance from participating clinic;
7. Willingness to undergo follow-up assessments at 3 and 6 months.

Exclusion criteria:
1. Severe cognitive impairment or mental retardation;
2. Severe behavior disturbances or psychotic symptoms;
3. Inability to attend the treatment during study period (*e.g.* those with pending criminal charges or current medical condition that might require hospitalization, *etc.*)
4. Other treatment for opioid dependence;
5. Pregnancy/lactation.

Study design
The study was carried out in the framework of World Health Organization (WHO) Collaborative Study on Substitution Therapy of Opioid Dependence and HIV/AIDS. All the information was gathered through the validated questionnaires at baseline and 3- and 6-month follow-ups.

Ethical considerations
Study protocol has been approved by the decision of the Lithuanian Bioethics Committee meeting held on June 3, 2003 (Case No. 53).

Quality of life
The WHOQOL-BREF questionnaire (19, 20), which is a shorter 26-item version of the WHOQOL-100, was used to assess QoL at baseline and both 3- and 6-month follow-ups. The questionnaire assesses a 1-month period before study. At baseline, this refers to the month before commencement of the treatment.

The WHOQOL-BREF defines QoL as participants' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. QoL refers to a subjective evaluation which is embedded in a cultural, social, and environmental context. This definition of QoL focuses upon respondents' "perceived" QoL and reflects the effects of disease and health interventions on QoL. The recognition of the multidimensional nature of QoL in the WHOQOL-BREF is based on a four-domain structure:
1. Physical health activities of daily living;
2. Psychological bodily image and appearance;
3. Social and personal relationships;
4. Environmental-financial resources.

Summation and calculation of the mean score for each domain was done. The item scores ranged from 1 to 5, with a higher score indicating a better QoL on the corresponding item. Because the numbers of items are different for each domain, the domain scores were calculated by multiplying the average of the scores of all items in the domain by the same factor of 4. Thus, the domain scores would have the same range from 4 to 20. According to methodology, we made transformation of domain scores to a 0 to 100-point scale by using the WHOQOL transformation table (19, 20).

Self-perceived health
The impact of methadone maintenance treatment on self-perceived health was assessed by Opiate Treatment Index (OTI). The OTI is a structured interview designed to provide a measure of the effectiveness of drug treatments (21–25). The literature shows the same reliability and validity of self-reported evaluation of quality of life as compared to biomarkers, analysis of medical records, and collateral interviews (24, 26).

The assessment of physical health is an essential component of treatment evaluation, given the medical morbidity associated with injection drug use, and maintenance treatment has been shown to result in significant health improvements.

The health scale is a symptom checklist that has been designed to give an indication of the subject's current state of health, especially in relation to those areas within which opioid users, particularly those who inject, usually develop problems. The scale is divided into items addressing symptoms and signs associated with general health, injection-related problems, and each of the major organ systems as follows: cardiorespiratory, genitourinary, gynecological, musculoskeletal, neurological, and gastrointestinal. The items allow the calculation of a score, when a higher score shows a higher rate of symptoms associated with opioid dependence reported (23).

Statistical analysis

Anticipating relatively small sample and given that the scores would not necessarily be normally distributed, nonparametric statistics was used. The Friedman test, also known as Friedman two-way analysis of variance, tests the null hypothesis when k-dependent samples are from the same population (27, 28). The Friedman test allows showing the difference among more than two measurements in the same population. It is based on the rationale that if the groups do not differ on the criterion variable, then the rankings of each subject will be random, and there will be no difference in mean ranks between groups on the criterion variable. The Friedman test statistics is distributed approximately as chi square with k–1 degrees of freedom, where k is the number of groups in the criterion variable, from i=1 to k. Let n be the number of subjects and let T_i be the sum of ranks for each group. Friedman chi-square is then computed using SPSS-12 according to this formula:

$$\text{Chi-square}_{\text{Friedman}} = ([12/nk(k+1)] \times [\text{SUM}(T_i^2) - 3n(k+1))$$

If the significance of Friedman chi square is less than $P<0.05$, it means that the groups do not differ on the criterion variable (28).

Results

A total of 102 opioid-dependent patients were recruited in the study. During the follow-up period, 30.4% of participants dropped out (N=31). The mean age of study participants was 32.6±9.2 years (±standard deviation). The mean age at onset of regular use was 19.9±4.5 years. The mean frequency of opioid use during the last 30 days was 26.6±3.7 days. The average dose of methadone for substitution treatment from the beginning of methadone maintenance treatment was 52±18 mg. No significant differences were found between groups regarding all sociodemographic characteristics (Table 1).

Table 1. **Descriptive characteristics of the study participants**

Variable	Completed study (N=71)		Dropped out (N=31)	
	N	%	N	%
Gender 　Male 　Female	55 16	77.5 22.5	27 4	87.1 12.9
Age, years 　<24 　25–32 　33–40 　41>	21 20 11 19	29.6 28.2 15.5 26.7	7 7 12 5	22.6 22.6 38.7 16.1
Marital status 　Married 　Cohabiting 　Widowed 　Divorced 　Never been married	8 11 4 16 32	11.3 15.5 5.6 22.5 45.1	2 5 – 6 18	6.4 16.1 – 19.4 58.1
Education completed, years 　≤10 　11–12 　13 and >	30 29 12	42.3 40.8 16.9	10 11 10	32.3 35.4 32.3

A 6-month follow-up survey showed that methadone maintenance treatment improved QoL and health of opioid-dependent study participants (Table 2). Patients under methadone maintenance treatment had statistically significant improvements in physical (χ^2=11.0; P=0.004), psychological (χ^2=11.0; P=0.004), and environmental components (χ^2=6.1; P=0.048) of QoL; no statistically significant improvements (χ^2=2.0; P=0.362) were found regarding social component of WHOQOL-BREF.

After 3- and 6-month follow-up, study participants reported lower rates of the medical morbidity associated with injecting drug use, cardiorespiratory, genitourinary, gynecological, musculoskeletal, neurological, gastrointestinal, and general health. Patients under methadone maintenance treatment indicated statistically significant health improvements and reductions in injection-related (χ^2=55.7; P<0.001), musculoskeletal (χ^2=25.5; P<0.001), gastrointestinal (χ^2=16.1; P<0.001), neurological (χ^2=8.7; P=0.013), and cardiorespiratory (χ^2=6.8; P=0.034) problems. Our results did not demonstrate statistically significant improvements in genitourinary and gynecological health during 3- and 6-month methadone maintenance treatment (Table 3).

Discussion

The assessment of QoL is now acknowledged as a central component of health care and healthcare research. QoL measures are needed to be more routinely included in the evaluation of treatments. Self-reported information obtained from QoL questionnaires enables us to understand the total burden of treatment experienced by drug-dependent persons (29).

One must always be sensitive to individual condition and circumstances of drug-dependent person and acknowledge that some of them may influence QoL scores. Deciding to involve a patient to the study presupposes that he or she is able into assess his or her own QoL and complete a QoL questionnaire. Some drug-dependent patients in some conditions are unable to do this because of cognitive impairments, communication deficits, severe distress caused by their symptoms, or because the QoL measure is too burdensome physically or emotionally (30). In our study, we met this requirement because of our inclusion and exclusion criteria.

The assignment of QoL values to different health problems can be viewed as a classic problem of measurement involving the construction of a scale with a continuous unit of measurement. It is not surprisingly that people attach different QoL values to different

Table 2. **Quality of life changes during follow-up of methadone maintenance treatment (N=71)**

Variable	Friedman mean rank			χ^2	P value
	baseline	3-month follow-up	6-month follow-up		
Physical QoL	1.71	2.19	2.10	11.0	0.004
Psychological QoL	1.71	2.10	2.19	11.0	0.004
Social QoL	1.89	2.06	2.06	2.0	0.362
Environmental QoL	1.91	1.88	2.21	6.1	0.048

QoL – quality of life.

Table 3. **Self-perceived health changes during follow-up of methadone maintenance treatment (N=71)**

Variable	Friedman mean rank			χ^2	P value
	baseline	3-month follow-up	6-month follow-up		
Injection problems	2.56	1.69	1.75	55.7	<0.001
Cardio-respiratory	2.21	1.85	1.94	6.8	0.034
Genito-urinary	2.08	1.96	1.96	2.0	0.368
Gynecological	2.06	1.97	1.97	3.6	0.166
Musculo-skeletal	2.35	1.85	1.80	25.5	<0.001
Neurological	2.25	1.91	1.84	8.7	0.013
Gastrointestinal	2.30	1.94	1.76	16.1	<0.001
Total health problems	2.63	1.72	1.65	45.7	<0.001

health states. In our study, positive changes in QoL were observed during 3- and 6-month follow-ups. Only in social component of WHOQOL-BREF there were no significant differences. Some authors have suggested that earlier experiences and nowadays stigmatization may influence QoL values (31). It could be that changes in living environment, societal opinion, and social life of opioid-dependent persons can be seen in long-term follow-up studies. There are other factors that may affect QoL (32–34).

It is recognized that methadone maintenance is an effective treatment for opioid abuse (6, 35). Our study indirectly confirmed results of many studies (36–38) that methadone maintenance treatment substantially reduces risk-taking behavior such as injection drug use; during a short period, our patients reported lower numbers of health-related problems associated with injection. Some studies showed that drug dependence negatively influences the major organ systems (39, 40). Our results highlighted that methadone maintenance treatment significantly improved self-perceived health of major organ systems. In general, patients participating in methadone maintenance treatment program experienced fewer symptoms associated with opioid dependence.

Our findings should be considered in the light of several methodological limitations: the measurement of health outcomes was based on self-reports, not objective measures of health status; we did not measure differences in patient's characteristics and extraneous factors that may be confounding to our results. Limitations notwithstanding, the data reported here may be useful to policy makers, program administrators, and program evaluators as benchmarks, or comparisons of QoL and self-perceived health outcomes for the management of methadone maintenance treatment programs that serve to drug-dependent individuals improving their QoL.

Conclusions

The results of this study showed that methadone maintenance treatment had a positive and statistically significant effect on drug-dependent patients' quality of life, especially on physical, psychological, and environmental components.

Methadone maintenance treatment substantially reduced symptoms associated with abuse of opioids by injection and significantly improved the status of all major organ systems such as cardiorespiratory, musculoskeletal, neurological, and gastrointestinal in a short period as indicated by subjective patient's experience.

Pakaitinio gydymo metadonu ambulatorinė programa Lietuvoje
Asmenų, sergančių priklausomybe opioidams, gyvenimo kokybė ir sveikata

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Raktažodžiai: metadonas, pakaitinis gydymas, sveikata, gyvenimo kokybė.

Santrauka. *Įvadas.* Gyvenimo kokybės ir savo sveikatos įvertinimas padeda nustatyti profilaktikos programų ir gydymo įtaką paciento savijautai bei funkcionalumui kasdienėse gyvenimo situacijose.

Tyrimo tikslas. Nustatyti šešių mėnesių pakaitinio gydymo metadonu poveikį asmenų, sergančių priklausomybe opioidams, gyvenimo kokybei ir savo sveikatos įvertinimui.

Metodai. Atliktas perspektyvusis stebėjimo tyrimas. Tyrime dalyvavo 102 asmenys, sergantys priklausomybe opioidams. Gyvenimo kokybei įvertinti naudota PSO rekomenduojamo WHOQOL-BREF klausimyno (26 klausimų) versija. Sveikatai vertinti naudotas priklausomybės opioidams gydymo indeksas OTI (angl. *Opiate Treatment Index*).

Rezultatai. Nustatyta, kad po šešių mėnesių pakaitinio gydymo metadonu statistiškai reikšmingai pagerėjo fizinė (p=0,004), psichologinė (p=0,004) ir aplinkos (p=0,048) gyvenimo kokybė. Socialinio gyvenimo kokybės komponento rodiklių statistiškai reikšmingo skirtumo nenustatyta. Tyrimo dalyviams nustatytas bendras sveikatos būklės pagerėjimas (p<0,001), rečiau pasireiškė įvairių su narkotikų vartojimu susijusių simptomų daugelio organų sistemose: neurologinių (p=0,013), širdies ir kraujagyslių (p=0,034), kaulų raumenų (p<0,001),

virškinimo organų (p<0,001) bei liguistų simptomų, susijusių su injekcijomis (p<0,001).

Išvados. Pakaitinis gydymas metadonu statistiškai reikšmingai sumažina įvairių liguistų simptomų skaičių bei pagerina programos dalyvių gyvenimo kokybę.

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