

THE EFFECTIVENESS OF METHADONE THERAPY IN REDUCING CRIMINOGENIC ACTS IN HEROIN ADDICTS

Aneta Spasovska Trajanovska

Psychiatric hospital Skopje, Faculty of Medicine, Skopje, North Macedonia, anetaspas@gmail.com

Danijela Janicevic Ivanovska

University Institute of Clinical Biochemistry, Skopje, Faculty of Medical Sciences, "Goce Delcev"
University, Stip, North Macedonia, djanicevic@yahoo.com

Abstract: Heroin addiction is a widespread disease and represents a significant medical as well as social problem. It is known that the use of heroin, in addition to health problems (somatic and mental), also leads to the occurrence of criminal acts. According to certain studies, adequate methadone therapy as part of substitution therapy leads to a reduction in the use of heroin among heroin addicts, that is, it enables their stabilization and thus to a reduction in criminal acts. The aim of this study is to assess the effectiveness of methadone therapy in the treatment of heroin addicts in terms of reducing heroin use and criminal acts. **MATERIJLS AND METHODS:** The prospective study included groups of male patients on methadone therapy (N=30) between 20-51 years evaluated in Day hospital of heroin addicts-department of Psychiatric Hospital Skopje with Dg F11.22. The study was conducted for 3 years. All participants gave written consent. The patients were assessed using sociodemographic information by semi-structured questionnaire specially designed for the study. The sociodemographic data was: marital status, education status, employment and criminal activities. The frequency of use of heroin was determined through anamnesis, hetero anamnesis, somatic examination (intravenous examination) as well as through screening of urine for the presence of heroin. The results of this study were analyzed using descriptive methods, and the Chi-square test. The quantitative data was expressed in number and percentage. The p value of statistical significance was set at $p < 0.05$. Results: The obtained results indicated that there is a significant statistical difference in heroin abuse before treatment and after 3 years of treatment with methadone therapy ($p=0.01$). Also in our study we got that the level of education ($p=0.003$), marital status ($p=0.02$); employment ($p=0.03$) and criminal activities ($p=0.04$) were statistically significantly higher in patients before methadone therapy. **Conclusion:** The results obtained in our study indicated the effectiveness of methadone therapy in reducing heroin use as well as in reducing criminal activities through the stabilization of heroin addicts.

Keywords: heroin addiction, methadone therapy, criminal activities.

1. INTRODUCTION

Heroin addiction is a widespread disease worldwide, right after cancer and malignant diseases. The disease leads to the appearance of many somatic ailments such as the appearance of hepatitis C, HIV, sexually transmitted diseases, tuberculosis, skin inflammatory processes, thrombophlebitis, thromboembolism (pulmonary and cerebral) (Norway G et al, 2024). According to certain studies, it is known that the long-term use of opiates is accompanied by the appearance of psychiatric conditions: neuroses, depression and psychotic disorders. Criminal acts are also present in this population, namely addicts are forced to commit thefts, robberies and other types of crime in order to obtain funds for the purchase of heroin. According to the knowledge in addictionology, the application of substitution treatment enables the stabilization of heroin addicts and thus the reduction of somatic and psychological difficulties as well as the reduction of criminogenic acts (Bente W. et al, 2024; Gatti F. et al, 2020). As one of the most effective substitution therapy is the use of methadone therapy. According to certain researches, it is known that the application of methadone therapy in an adequate dose of Sol Methadone and 80-120 mg /day over a longer period of time over 3 years leads to the stabilization of the individual. This will enable the reduction of criminogenic acts among the addicted population, and thus the reduction of costs in the judiciary as well as in prison institutions. Stabilization of heroin addicts also enables their normal functioning in the community in which they live. That is, they complete their education, manage to find a job and form marriage unions (Norway G et al, 2023; Jovanovic M et al, 2022; Jake-Schoffman D et al 2020). The **AIM** of this study is to assess the effectiveness of methadone therapy in the treatment of heroin addicts in terms of reducing heroin use and criminal acts.

2. MATERIALS AND METHODS

The prospective study included groups of male patients on methadone therapy (N=30) with Sol. Methadone 80-120mg/day dose between 20-51 years evaluated in Day hospital of heroin addicts-department of Psychiatric

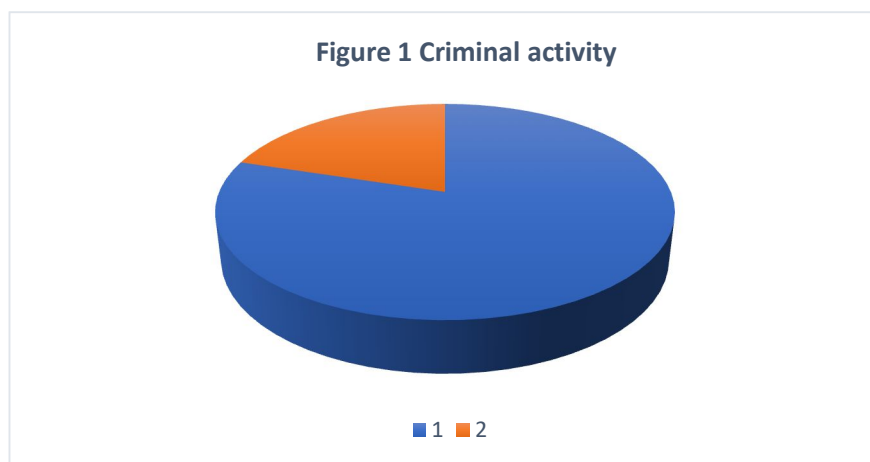
Hospital Skopje with Dg F11.22 . The study was conducted for 3 years. The exclusion criteria was another somatic and psychiatric diseases. All participants gave written consent. The patients were assess using sociodemographic information by semi-structured questionnaire specially designed for the study. The sociodemographic data was: , marital status, education status, employment and criminal activities .The frequency of use of heroin was determined through anamnesis, hetero anamnesis, somatic examination (intravenous examination) as well as through screening of urine for the presence of heroin. The results of this study were analyzed using descriptive methods, and the Chi-square test. The quantitative data was expressed in number and percentage. The p value of statistical significance was set at $p < 0,05$.

3. RESULTS

The obtained results indicated that there is a significant statistical difference in heroin abuse before treatment and after 3 years of treatment with methadone therapy ($p=0.01$). Also in our study we got that the level of education ($p=0,003$), marital status ($p=0,02$); employment ($p=0, 03$) and criminal activities ($p=0,04$) were statistical significantly higher in patients before methadone therapy. Table1, Figure1, Figure2.

Table 1. Sociodemographic characteristics and frequency of heroin use between examination groups

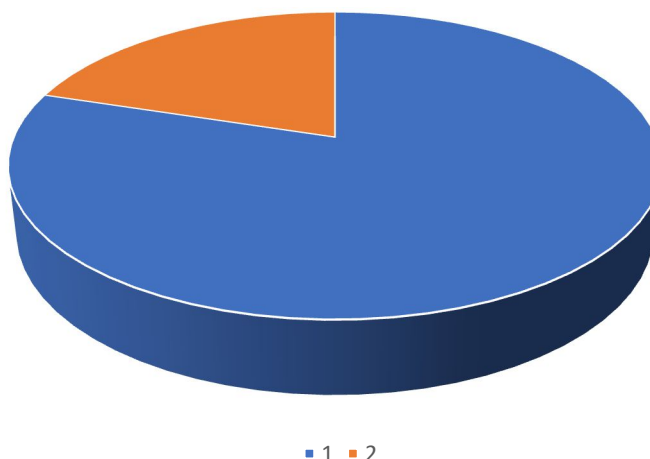
parameter	before treatment (means $\pm$ SD) %	After treatment (means $\pm$ SD)	χ^2	P level
The level of education (years)	8.5 $\pm$ 6.4	12.3 $\pm$ 6.2	8,00	0,003
Marital status (married/unmarried)	27.3% / 72.7%	67,3%/32,7%	10,66	0,02
Employment Y/N	34,5%/65,5%	64,3%/35,7%	7,12	0,03
Criminal activities Y/N	95,5%/0,5%	34,6%/65,4%	11,20	0,04
Heroin use Y/N	100%/0%	12,5%/87,5%	8,12	0,01



1. Before treatment
2. After treatment

Source: The authors

Figure 2 Frequency of heroin use



1. Before treatment
2. After treatment

Source: The authors

4. DISCUSSION

According to the results obtained in our study, among patients with methadone treatment, a significant reduction in the use of heroin was possible, which was statistically significant. Also, the obtained results indicated that after three years of treatment with methadone therapy, stabilization was achieved in the patients and it was possible to continue with a normal life. That is, they managed to complete their education, get a job, and form marriage unions. What is particularly important is the reduction in the rate of criminal acts. The results obtained in our study confirmed the effectiveness of methadone therapy in the stabilization of heroin addicts, which results coincide with results obtained in other studies in the field of addictionology. What should be noted is that all patients in the study were on longer treatment and high methadone doses were used. This confirms the thesis that long-term therapy with high (adequate) doses of methadone leads to stabilization of the patient (Crowley D et al, 2024; Jørgensen L et al 2022). Certain scientific research reports that if inadequate (low doses) are applied to methadone therapy and in a shorter period of time, as well as in conditions where methadone treatment is not carried out in continuity, many relapses occur (bad response to methadone treatment) (Jake-Schoffman D et al 2020; Moore K all 2019). But it should also be emphasized that in a small percentage of heroin addicts, despite adequate treatment with methadone therapy, they still show a poor response to the treatment, because it is considered that they have a defect in D2 receptors (Lennart N et al 2024). The benefits of methadone therapy treatment have been described in many studies. According to them, the application of methadone therapy also increases somatic complications such as infectious diseases: hepatitis B, C, HIV, sexually transmitted diseases, skin infectious diseases, which result in thrombophlebitis changes and the appearance of thromboembolism with the possibility of heart attacks (Moore K..et al 2019; Gatti F et al 2020). There are data in the literature according to which heroin addicts have numerous comorbid psychiatric diseases such as anxiety states, depressions, psychotic diseases (Norway G et al, 2023; Jovanovic M et al, 2022; Jake-Schoffman D et al 2020). Taking into account the fact that methadone applied in high doses has an antipsychotic and antidepressant effect, so its application would lead to stabilization in this type of patients. When the patients are stabilized, they have no need to buy heroin or other psychoactive substances, so criminogenic acts (thefts, prostitution, robberies) also decrease. In this way, costs in the judiciary as well as in prison institutions are reduced (Moore K et al, 2019). The greatest benefit, according to certain researches, is the prevention of overdose and death among heroin addicts, who are mostly represented by the young population.

5. CONCLUSION

The results obtained in our study indicated that the long-term application of an adequate dose of methadone leads to the stabilization of heroin addicts and thus to the reduction of criminal acts among them

REFERENCES

- Bente ,W., Ann, T. K. , Kristin ,K. S., & John-Kåre, V. (2024) . Using genetic parameters to predict somatisation in females with heroin dependence. *Heroin Addict Relat Clin Probl* 26, 16 <https://doi.org/10.62401/2531-4122-2024-16>
- Bente ,W., Ann, T. Karlsson ., Kristin, K. Solli. , &John-Kåre, V. (2023). Characteristics of opioid-dependent patients choosing antagonist treatment with extended-release naltrexone compared with patients in opioid maintenance treatment in Norway *Heroin Addict Relat Clin Probl* 2023; 25(4): 5-14
- Crowley, D., Jake-Schoffman, D., & Thomas, C.(2024). Physical activity and mental health among people in opioid maintenance treatment: A prospective, observational study. *Heroin Addict Relat Clin Probl* , 26, 11 <https://doi.org/10.62401/2531-4122-2024-11>
- Gatti, F., Walderhaug, E., Kern-Godal, A., Lysell, J., &Arnevik, E. A. (2020): Complementary Horse-Assisted Therapy for Substance Use Disorders: A Randomized Controlled Trial. *Addict Sci Clin Pract.* 15(1): 7-7
- Jovanovic, M. , Bozovic, N. , Rancic, N. , Pjevac, A., Rascanin, S. , & Stojkovic, M. (2022) CYP genetic polymorphism, pharmacokinetics of methadone, and the biggest risks. *Heroin Addict Relat. Clin Probl* Published Ahead of Print November 28,
- Jake-Schoffman, D. E., Berry, M. S., Donahue ,M. L., Christou ,D. D., Dallery, J., &Rung J. M. (2020): Aerobic Exercise Interventions for Patients in Opioid Maintenance Treatment: A Systematic Review. *Subst Abuse.* 14: 1178221820918885-1178221820918885. <https://doi.org/10.1177/1178221820918885>
- Jørgensen ,L. B., Bricca, A., Bernhardt ,A., Juhl, C. B., Tang, L. H., Mortensen, S. R., Eriksen ,J. A., Walløe, S., &Skou, S. T. (2022): Objectively Measured Physical Activity Levels and Adherence to Physical Activity Guidelines in People with Multimorbidity-a Systematic Review and Meta-Analysis. *PLoS One.* 17(10): e0274846-e0274846. <https://doi.org/10.1371/journal.pone.0274846>
- Lennart .N., Mayer,E. , Ole, G. , Maximilian, M. , Katharina, R. , Kenneth M, D. , & Marc, V .(2024). Somatic and mental health among older patients in opioid agonist therapy: a cross-sectional geriatric, *Heroin Addict Relat Clin Probl* 26, 2 <https://doi.org/10.62401-2531-4122-2024-2>
- Moore, K. E., Roberts ,W., Reid, H. H., Smith, K. M. Z., Oberleitner, L. M. S.,& McKee S. A. (2019): Effectiveness of Medication Assisted Treatment for Opioid Use in Prison and Jail Settings: A Meta-Analysis and Systematic Review. *J Subst Abuse Treat.* 99: 32-43. <https://doi.org/10.1016/j.jsat.2018.12.00>
- Norway ,G. K., Welle, S. , Marianne, P. , Ida, K. O. , Ronny, B., & McDonald, R.(2024). Life feels better with the right medication. *Heroin Addict Relat Clin Probl* 26, 19 <https://doi.org/10.62401/2531-4122-2024-19>