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ORIGINAL ARTICLE

A Comparison of Buprenorphine/Naloxone and Extended-Release Naltrexone Treatments in Terms of Sleep Quality, Sexual Life, Eating Behavior, and Quality of Life in Patients with Opiate Use Disorder

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Main Points

- Buprenorphine/Naloxone (B/N) and Extended-Release Naltrexone (XR-NTX) are the most commonly used treatments for opiate use disorder.
- A lower quality of life was found in the B/N group compared to the XR-NTX group in the areas of physical health, social relations and general health.
- Better sleep quality was found in the XR-NTX group than the B/N group.
- Better sex life was found in the XR-NTX group than the B/N group.
- There was no difference between the two groups in terms of eating behavior.

Abstract

The aim of this study was to compare the sleep quality, sex life, eating behavior, and quality of life of patients using sublingual buprenorphine/naloxone and extended-release naltrexone implant for the treatment of opiate use disorder. A total of 100 patients, 50 patients using sublingual buprenorphine/naloxone and 50 patients using extended-release naltrexone implant, who were diagnosed with opiate use disorder according to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition diagnostic criteria and were in remission for at least 1 month, were included. A Sociodemographic Data Form, World Health Organization Quality of Life Scale-Short Form, Pittsburgh Sleep Quality Index, Arizona Sexual Experiences Scale, and Dutch Eating Behavior Questionnaire were administered to all participants. The median duration of treatment was 12 months in the sublingual buprenorphine/naloxone group and 3 months in the extended-release naltrexone implant group ($p < .001$). World Health Organization Quality of Life Scale-Short Form physical health, social relations, and general health scores were found to be significantly higher in the extended-release naltrexone implant group than in the sublingual buprenorphine/naloxone group ($p < .001$, $p = .027$, and $p = .007$, respectively). Pittsburgh Sleep Quality Index, Arizona Sexual Experiences Scale-female, and Arizona Sexual Experiences Scale-total scores in the extended-release naltrexone implant group were significantly lower than the sublingual buprenorphine/naloxone group ($p = .008$, $p = .008$, and $p = .023$, respectively). Findings in our study show that extended-release naltrexone implant treatment in opiate use disorder may provide a better quality of life, sleep, and sexual life than sublingual buprenorph ine/naloxone treatment.

Keywords: Buprenorphine/naloxone, extended-release naltrexone implant, opioid use disorder, quality of life, sleep

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Introduction

Substance use is a significant public health problem. According to the 2021 World Drug Report of the World Health Organization, approximately 275 million people worldwide used drugs last year, among which opioids occupied an important place. It is estimated that approximately 10 million people in the United States abused opioids in 2019. Opioids are reported to impose an enormous burden of disease associated with substance use (Abuse, 2020; World Drug Report, 2021). Opioids are also an important problem in our country. Opiate use disorder (OpUD) was diagnosed in 55.1% of patients receiving treatment for substance use disorder in 2020 (Türkiye Uyuşturucu Raporu, 2021).

OpUD is a chronic disorder with remission and relapses. Therefore, as in other chronic disorders, long-term treatment strategies should be developed (Vogel et al., 2017). There are several options in the treatment of OpUD. One of these is the combination of mu receptor partial agonist buprenorphine and mu receptor antagonist naloxone, i.e., buprenorphine-naloxone (B/N) therapy. Extended-release subcutaneous implant forms of NTX have been developed (XR-NTX) (Larney et al., 2014; Lee et al., 2016).

Recurrence rates are pretty high in OpUD (Smyth et al., 2010). The length of stay in treatment in OpUD with high recurrence rates is accepted as the primary criterion for treatment success. Some side effects related to maintenance treatments may occur during treatment and may cause discontinuation (Erdoğan et al., 2021; Hallinan et al., 2008; Shulman et al., 2019). A study conducted with patients using B/N reported that sexual problems increased, whereas weight gain and sleep-related problems decreased after 6 months of follow-up (Baykara & Alban, 2019). In another study in which patients using B/N and XR-NTX were compared in terms of depression, anxiety, and insomnia, both drug treatments were found to be equally effective in reducing anxiety and depression symptoms. However, it has been reported that insomnia symptoms significantly improved with XR-NTX treatment (Latif et al., 2019). All these results show that there may be changes in quality of life with maintenance treatments. There is no study comparing patients receiving B/N and XR-NTX in terms of sleep quality, sexual experiences, eating attitudes, and quality of life in our country.

Thus, this study aimed to compare the sleep quality, sexual life, eating behavior, and quality of life of patients using sublingual B/N tablets with those using XR-NTX 3-month maintenance therapy.

Methods

Study Groups

Our study is a cross-sectional study conducted at Akdeniz University Alcohol and Substance Addiction Research and Application Center between November 2020 and April 2021. A total of 100 patients were included, 50 using B/N sublingual tablets and 50 using XR-NTX. Inclusion criteria for the study were as follows: being diagnosed with OpUD according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition diagnostic criteria, being between the ages of 18 – 50, having completed detoxification treatment, and being in remission for at least 1 month. Patients with mental retardation, psychiatric disease other than substance use disorder, severe physical and neurological disease, and alcohol use disorder that might interfere with their performance completing the scales were excluded from the study. The groups are outpatient groups. Urine toxicology is routinely evaluated at least once a month in patients receiving XR-NTX and B/N therapy in our outpatient clinic. Patients with negative urine toxicology for all substances during the entire treatment period were included in our study. Thus, the effect of substance use on these parameters during the treatment was tried to be minimized.

Sociodemographic Data Form, World Health Organization Quality of Life Scale-Short Form (WHOQOL-BREF) (Whoqol Group, 1998), Pittsburgh Sleep Quality Index (PSQI) (Buysse et al., 1989), Arizona Sexual Experiences Scale (ASES) (McGahuey et al. 2000), and Dutch Eating Behavior Questionnaire (DEBQ) (Van Strien et al., 1986) were given to all participants. Ethics committee approval for the study, dated November 24, 2020, with decision number 847, was received from Akdeniz University School of Medicine Clinical Research Ethics Committee. Each patient participating in the study was informed about the study, and those who volunteered by signing the consent document for participation were included in the study. This study was conducted in accordance with the Declaration of Helsinki.

Statistical Analysis

Statistical analyses were performed using International Business Machines Statistics Package Program for Social Sciences software version 22.0 (IBM SPSS Corp., Armonk, NY, USA). Normality analyses of continuous variables were performed with the Kolmogorov – Smirnov Goodness of Fit Test. Continuous variables were expressed as mean ± standard deviation and median (min-max), whereas categorical data were given as numbers and percentages. *t*-Test was used to analyze data with normal distribution, and Mann – Whitney *U* – test was used to analyze data that did not comply with normal distribution. A Chi-square test was used to compare categorical data. The linear relationship between the scales was evaluated using Spearman's correlation analysis. The statistical significance level was accepted as $p < .05$.

Results

In our study, 92% ($n = 46$) of the B/N group and 84% ($n = 42$) of the XR-NTX group were male ($p = .357$). The mean age of the B/N group was 31.32 ± 5.67 years and of the XR-NTX group was 29.00 ± 5.67 years ($p = .044$). Other sociodemographic data are summarized in Table 1.

The characteristics of the study groups regarding the substance use profiles are summarized in Table 2.

World Health Organization Quality of Life Scale-Short Form physical health, social relations, and general health scores in the B/N group were found to be significantly lower than the XR-NTX group ($p < .001$, $p = .027$, and $p = .007$, respectively). Pittsburgh Sleep Quality Index scores in the B/N group were found to be significantly higher than in the XR-NTX group ($p = .008$). Arizona Sexual Experiences Scale female and total scores were also significantly higher in the B/N group than in the XR-NTX group ($p = .008$ and $p = .023$, respectively) (Table 3).

Table 1.
Comparison of Patients Using Buprenorphine-Naloxone and Patients Using Extended-Release Naltrexone Implants in Terms of Sociodemographic Data

		Buprenorphine-Naloxone ($n = 50$)		Extended-Release Naltrexone ($n = 50$)		
		n	**%**	***n***	**%**	***p***
Sex	Female	4	8	8	16	.357
	Male	46	92	42	84	
Marital status	Married	20	40	15	30	.284
	Unmarried	27	54	34	68	
	Widowed	3	6	1	2	
Education	Literate	2	4	0	0	.132
	Primary education	23	46	20	40	
	High school	18	36	27	54	
	University	7	14	3	6	
Employment	Employed	25	50	32	64	.157
	Unemployed	25	50	18	36	
Infectious disease (HBV, HCV, HIV)	Yes	1	2	11	22	**.004**
	No	49	98	39	78	
History of forensic case	Yes	20	40	23	46	.545
	No	30	60	27	54	
Age (years) (mean ± SD)		31.32 ± 5.67		29.00 ± 5.67		**.044**

HBV = hepatitis B virus; HCV = hepatitis C virus; HIV = human immunodeficiency virus.
Bold values in all tables are statistically significant values.

Correlation analyses in the B/N group showed a negative and significant correlation between WHOQOL-BREF physical health scores and PSQI scale scores ($r = -.431$, $p = .002$), whereas a significant negative correlation was found between WHOQOL-BREF mental health scores and PSQI scale scores ($r = -.493$, $p < .001$). A significant negative correlation was found between WHOQOL-BREF general health scores and PSQI scale scores ($r = -.585$, $p < .001$).

Table 2.
Comparison of Substance Use Characteristics of Patients Using Buprenorphine-Naloxone and Patients Using Extended-Release Naltrexone Implants

		Buprenorphine-Naloxone ($n = 50$)		Extended-Release Naltrexone ($n = 50$)		
		n	**%**	***n***	**%**	***p***
Method of opiate use	Folio method	41	82	37	74	.334
	Intravenous	9	18	13	26	
Substance use profile	Only opiate	15	30	17	34	.830
	Multidrug	35	70	33	66	
History of inpatient treatment	None	24	48	15	30	**.013**
	Once	11	22	16	32	
	Twice	8	16	2	4	
	Three and more times	7	14	17	34	
Age at onset of heroin use (years) [median (min-max)]		22 (12 – 40)		20 (14 – 40)		.270
Heroine dose (g) [median (min-max)]		1 (.3 – 5)		1 (.5 – 5)		.254
Duration of heroin use (years) [median(min-max)]		6 (1 – 20)		5 (1 – 14)		.238
Duration of treatment (months) [median (min-max)]		12 (1 – 72)		3 (1 – 56)		**<.001**
The longest abstinence (months) [median (min-max		14.5 (1 – 72)		12 (2 – 60)		.411

Table 3.
Comparison of Scale Ratings of Patients Using Buprenorphine-Naloxone and Extended-Release Naltrexone Implants

	Buprenorphine-Naloxone (n = 50) [Median (Min-Max)]	**Extended-Release Naltrexone (n = 50) [Median (Min-Max)]**	***p***
WHOQOL-BREF physical health	14 (6 – 18)	16 (7 – 20)	**<.001**
WHOQOL-BREF mental health	14 (5 – 19)	15 (7 – 20)	.180
WHOQOL-BREF social relations	12 (4 – 20)	13 (5 – 20)	**.027**
WHOQOL-BREF environmental	14 (7 – 20)	16 (8 – 20)	.122
WHOQOL-BREF general health	12 (4 – 20)	16 (4 – 20)	**.007**
Pittsburgh Sleep Quality Index	8.5 (2 – 17)	5.5 (0 – 15)	**.008**
DEBQ restrictive eating	1.7 (1 – 4.3)	2 (1 – 4)	.498
DEBQ emotional eating	1.4 (1 – 4.6)	1.3 (1 – 5)	.706
DEBQ external eating	2.6 (1 – 4.7)	2.9 (1 – 5)	.282
Arizona Sexual Experiences Scale-female	22.5 (16 – 30)	13 (10 – 17)	**.008**
Arizona Sexual Experiences Scale-male	13.5 (6 – 20)	12 (5 – 20)	.052
Arizona Sexual Experiences Scale-total	14 (6 – 30)	12 (5 – 20)	**.023**

WHOQOL-BREF = WHO Quality of Life-Bref; DEBQ = Dutch Eating Behavior Questionnaire.

Correlation analyses were also performed in the XR-NTX group. A negative and significant correlation was found between WHOQOL-BREF physical health scores and PSQI scale scores (r = –.455, p = .001). PSQI scale scores correlated negatively with both WHOQOL-BREF mental health scores and WHOQOL-BREF general health scores (r = –.518, p < .001 and r = .402, p = .004, respectively).

Discussion

In our study, a higher quality of life was found in the XR-NTX group in physical health, social relations, and general health. Eating behavior was similar between the study groups, and sex life and sleep quality were better in the XR-NTX group.

Evidence shows that the quality of life increases with treatment in patients with opUD (Balcı et al., 2022). A study examining 13 opioid agonist treatment programs in five low- and middle-income countries reported that agonist treatment was associated with a decrease in the severity of addiction and an increase in all aspects of quality of life (Feelemyer et al., 2014). In another study, significant improvements were reported in four WHOQOL-BREF domains (physical, psychological, social relationships, and environment) in patients using B/N during 9 months of treatment (Dhawan & Chopra, 2013). There are limited studies in the literature comparing both treatments in terms of quality of life. In a study conducted with 100 patients to find predictors of maintenance therapy (B/N therapy and NTX therapy), significant improvements in quality of life were reported, especially in the B/N group (Shouan et al., 2021). In our study, a better quality of life was found in the XR-NTX group in physical health, social relations, and general health. Indeed, many factors can affect the quality of life. Poor sleep quality and impaired sexual functions have especially been shown to negatively affect the quality of life (Nazarpour et al., 2018; Sella et al., 2021). Thus, the better sex life and sleep quality in the XR-NTX group in our study might be associated with the better quality of life observed in this group.

Most patients on opioid maintenance therapy suffer from sleep disorders. Studies report that mu receptor agonists directly inhibit rapid eye movement sleep and slow-wave sleep (Cronin et al., 1995; Dunn et al., 2018). It has been reported that the opioid antagonist NTX may have detrimental effects on sleep by causing insomnia and/or oversleeping (Panin & Peana, 2019). In one study where 80 patients were randomized to receive XR-NTX and 79 patients to receive B/N, the insomnia score throughout the clinical trial was reported to be significantly lower in the XR-NTX group (Latif et al., 2019). Similarly, more sleep disorders were found in our study with opioid agonist treatment B/N.

Another important finding of our study is that more sexual dysfunction was observed in the B/N group compared to the XR-NTX group. In a study, 30 patients with opioid addiction were divided into 2 groups. After detoxification, NTX was given to the first group and B/N to the second group. The findings of this study suggested that NTX might have a beneficial effect on the sexual function when compared with B/N (Datta, 2018). Opioids are thought to cause sexual dysfunction due to their effects on the gonadal – hypothalamic – pituitary axis. It has been reported that this effect is mediated by a direct agonist effect on mu receptors (Brown & Zueldorff, 2007; Demarest et al., 2015). There is limited data on NTX treatment and sexual dysfunction (Xu et al., 2020). Considering that buprenorphine is also a partial mu-opioid receptor agonist, results obtained from our study might suggest that agonist treatments cause more sexual side effects.

No statistically significant difference was found between the B/N and XR-NTX groups in the areas of restrictive eating, emotional eating, and external eating. There is no study in the literature that compares both groups concerning their eating behaviors.

As a result, we can say that there is less sexual dysfunction, better sleep quality, and a better quality of life with XR-NTX treatment. There is a need for prospective randomized controlled studies comparing drugs such as XR-NTX and B/N in terms of other

factors which might keep patients on treatment for a longer period in OpUD.

Limitations and Directions/Suggestions for Future Research

An important feature of our study is that it is the first study in our country to compare XR-NTX and B/N treatments in OpUD in terms of sexual functions, quality of life, sleep quality, and eating behavior, and it is also one of the limited number of studies in the literature. The limitations of our study are that it is cross-sectional and the duration of treatment was different between the two groups. In addition, the lack of information on how many times XR-NTX was applied to each patient is another limitation. We suggest a prospective comparison of these two treatments in terms of different psychiatric parameters.

Ethics Committee Approval: Ethical committee approval was received from the Clinical Research Ethics Committee of Akdeniz University School of Medicine, dated November 24, 2020, with decision number 847.

Informed Consent: Verbal and written consent form was obtained from the participants who agreed to participate in the study.

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References

Abuse, S. (2020). Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health.

Balcı, M. M., Pak, Ş. C., Erdoğan, A. & Eryılmaz, M. M. (2022). The relationship of remission with functionality, quality of life and craving in patients with opiate use disorder (tur). *Journal of Clinical Psychiatry*, *25*(1), 67 – 74. [CrossRef]

Baykara, S., & Alban, K. (2019). The effects of buprenorphine/naloxone maintenance treatment on sexual dysfunction, sleep and weight in opioid use disorder patients. *Psychiatry Research*, *272*, 450 – 453. [CrossRef]

Brown, R. T., & Zueldorff, M. (2007). Opioid substitution with methadone and buprenorphine: Sexual dysfunction as a side effect of therapy. *Heroin Addiction and Related Clinical Problems*, *9*(1), 35 – 44.

Buysse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, *28*(2), 193 – 213. [CrossRef]

Cronin, A., Keifer, J. C., Baghdoyan, H. A., & Lydic, R. (1995). Opioid inhibition of rapid eye movement sleep by a specific mu receptor agonist. *British Journal of Anaesthesia*, *74*(2), 188 – 192. [CrossRef]

Datta, A. (2018). *Effect of naltrexone and buprenorphine-naloxone on sexual function and bone mineral density in patients with opioid dependence syndrome: A comparative study* [Doctoral dissertation]. Central Institute of Psychiatry.

Demarest, S. P., Gill, R. S., & Adler, R. A. (2015). Opioid endocrinopathy. *Endocrine Practice*, *21*(2), 190 – 198. [CrossRef]

Dhawan, A., & Chopra, A. (2013). Does buprenorphine maintenance improve the quality of life of opioid users? *Indian Journal of Medical Research*, *137*(1), 130 – 135.

Dunn, K. E., Finan, P. H., Andrew Tompkins, D. A., & Strain, E. C. (2018). Frequency and correlates of sleep disturbance in methadone and buprenorphine-maintained patients. *Addictive Behaviors*, *76*, 8 – 14. [CrossRef]

Erdoğan, A., Topcuoğlu, M., Coşkun, M. N., Cinemre, B., Kulaksızoğlu, B., & Kuloğlu, M. M. (2022) Comparison of naltrexone implant and oral buprenorphine-naloxone in the treatment of opiate use disorder. *Human Psychopharmacology*, *37*(2), e2813. [CrossRef]

Feelemyer, J. P., Des Jarlais, D. C. D., Arasteh, K., Phillips, B. W., & Hagan, H. (2014). Changes in quality of life (WHOQOL-bref) and Addiction Severity Index (ASI) among participants in opioid substitution treatment (OST) in low and middle income countries: An international systematic review. *Drug and Alcohol Dependence*, *134*, 251 – 258. [CrossRef]

Hallinan, R., Byrne, A., Agho, K., McMahon, C., Tynan, P., & Attia, J. (2008). Erectile dysfunction in men receiving methadone and buprenorphine maintenance treatment. *Journal of Sexual Medicine*, *5*(3), 684 – 692. [CrossRef]

Larney, S., Gowing, L., Mattick, R. P., Farrell, M., Hall, W., & Degenhardt, L. (2014). A systematic review and meta-analysis of naltrexone implants for the treatment of opioid dependence. *Drug and Alcohol Review*, *33*(2), 115 – 128. [CrossRef]

Latif, Z. E., Šaltyte Benth, J., Solli, K. K., Opheim, A., Kunoe, N., Krajci, P., Sharma-Haase, K., & Tanum, L. (2019). Anxiety, depression, and insomnia among adults with opioid dependence treated with extended-release naltrexone vs buprenorphine-naloxone: A randomized clinical trial and follow-up study. *JAMA Psychiatry*, *76*(2), 127 – 134. [CrossRef]

Lee, J. D., Nunes, E. V., Bailey, G. L., Brigham, G. S., Cohen, A. J., Fishman, M., Fishman, M., Ling, W., Lindblad, R., Shmueli-Blumberg, D., Stablein, D., May, J., Salazar, D., Liu, D., & Rotrosen, J. (2016). NIDA Clinical Trials Network CTN-0051, extended-release naltrexone vs. buprenorphine for opioid treatment (X: Bot): study design and rationale. *Contemporary Clinical Trials*, *50*, 253 – 264. [CrossRef]

McGahuey, C. A., Gelenberg, A. J., Laukes, C. A., Moreno, F. A., Delgado, P. L., McKnight, K. M., & Manber, R. (2000). The Arizona sexual experience scale (ASEX): Reliability and validity. *Journal of Sex and Marital Therapy*, *26*(1), 25 – 40. [CrossRef]

Nazarpour, S., Simbar, M., Ramezani Tehrani, F., & Alavi Majd, H. (2018). Quality of life and sexual function in postmenopausal women. *Journal of Women and Aging*, *30*(4), 299 – 309. [CrossRef]

Panin, F., & Peana, A. T. (2019). Sleep and the pharmacotherapy of alcohol use disorder: Unfortunate bedfellows. A systematic review with meta-analysis. *Frontiers in Pharmacology*, *10*, 1164. [CrossRef]

Retrieved from http://www.narkotik.pol.tr/kurumlar/narkotik.pol.tr/TUB%C4%B0M/2021-Turkiye Uyusturucu-Raporu.pdf

Sella, E., Miola, L., Toffalini, E., & Borella, E. (2021). The relationship between sleep quality and quality of life in aging: A systematic review and meta-analysis. *Health Psychology Review*, 1 – 23. [CrossRef]

Shouan, A., Ghosh, A., Singh, S. M., Basu, D., & Mattoo, S. K. (2021). Predictors of retention in the treatment for opioid dependence: A prospective, observational study from India. *Indian Journal of Psychiatry*, *63*(4), 355 – 365. [CrossRef]

Shulman, M., Wai, J. M., & Nunes, E. V. (2019). Buprenorphine treatment for opioid use disorder:an overview. *CNS Drugs*, *33*(6), 567 – 580. [CrossRef]

Smyth, B. P., Barry, J., Keenan, E., & Ducray, K. J. I. M. J. (2010). Lapse and relapse following inpatient treatment of opiate dependence. *Irish Medical Journal*, *103*(6), 176 – 179.

Retrieved from https://www.unodc.org/unodc/en/data-and-analysis/wdr2021.html

Van Strien, T., Frijters, J. E. R., Bergers, G. P. A., & Defares, P. B. (1986). The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *International Journal of Eating Disorders*, *5*(2), 295 – 315. [CrossRef]

Vogel, M., Dürsteler, K. M., Walter, M., Herdener, M., & Nordt, C. (2017). Rethinking retention in treatment of opioid dependence—The eye of the beholder. *International Journal on Drug Policy*, *39*, 109 – 113. [CrossRef]

Whoqol Group (1998). Development of the World Health Organization WHOQOL-bref quality of life assessment. The WHOQOL Group. *Psychological Medicine*, *28*(3), 551 – 558. [CrossRef]

Xu, P., Choi, E., El-Khatib, F. M., Choe, E., & Yafi, F. (2020). Sexual dysfunction in persons receiving opioid substitution therapy. *Current Sexual Health Reports*, *12*(4), 371 – 380. [CrossRef]