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Review

SOCIALLY DANGEROUS SEXUAL PARAPHILIAS: DESCRIPTION OF THE PROBLEM

Anatolijs Požarskis[1,2,#] and Rita Požarska[2]

[1] Daugavpils University, 13 Vienības Str., Daugavpils, LV-5401, LATVIA

[2] Rīga Stradiņš University, 16 Dzirciema Str., Rīga, LV-1038, LATVIA

[#] Corresponding author: drpozarskis@inbox.lv

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This article deals with the study of the prevalence, aetiology, pathogenesis, and treatment of paraphilias such as sexual sadism, exhibitionism, voyeurism, and autoerotic asphyxiation. The aim of this study was to summarise all available literature on socially dangerous paraphilias. Based on the PRISMA guidelines, the current review brings together all the existing literature on socially dangerous paraphilias. Socially dangerous paraphilias may be caused by biological, psychological, and social factors and are treated with antiandrogens, gonadotropin-releasing hormone analogues, and selective serotonin reuptake inhibitors as well as psychotherapy. High-quality placebo-controlled studies on the treatment of socially dangerous paraphilias are lacking. Clinicians should be aware that the prevalence of socially dangerous paraphilias is not negligible and that people with deviant sexual urges should be encouraged to seek professional help before committing a crime or a self-injurious act. More extensive epidemiological studies are required to clarify the actual prevalence of socially dangerous paraphilias in the population and methods of their treatment alongside with destigmatisation of patients with paraphilias.

Keywords: *BDSM, sexual sadism, exhibitionism, voyeurism, autoerotic asphyxiation.*

INTRODUCTION

The concept of sexual paraphilias was first mentioned in the literature by Richard von Krafft-Ebing in *Psychopathia Sexualis* (Krafft-Ebing, 1907). According to the International Classification of Diseases, 10th Revision (ICD-10), sexual paraphilias are disorders of sexual preference and include conditions such as fetishism, fetishistic transvestism, exhibitionism, voyeurism, paedophilia, sadomasochism, and multiple disorders of sexual preference (World Health Organization, 2021). Currently, sexual behavioural patterns are being depathologised, and only those sexual behaviours that are associated with violence and sexual actions against minors, i.e. socially dangerous behaviours, are viewed as diseases. In the meantime, for example, a special subculture emerged, where people engage in BDSM (Bondage, Discipline, Sadism, and Masochism) practices. These changes are reflected in the International Classification of Diseases, 11th Revision (ICD-11), where sexual paraphilias are defined as disorders characterised by persistent and intense patterns of atypical sexual arousal, manifested by sexual thoughts, fantasies, urges, or behaviours, the focus of which involves others whose age or status renders them unwilling or unable to consent and on which the person has acted or by which he or she is markedly distressed. Thus, socially dangerous paraphilias include paedophilia, exhibitionism, voyeurism, sexual sadism, autoasphyxiation, frotteurism, and necrophilia. Paedophilia is excluded from our review, since there is a considerable amount of data on this pathology in the literature. Necrophilia and frotteurism are rare sexual paraphilias. This article is devoted to an overview of the epidemiology, aetiology and pathogenesis as well as the possible treatment of sexual sadism, exhibitionism, voyeurism and autoerotic asphyxiation.

SELECTION OF SOURCES

The current review was conducted according to PRISMA-P (preferred reporting items for systematic review and meta-analysis protocols) guidelines (Moher *et al.*, 2015).

Terminology. According to ICD-10, exhibitionism is a recurrent or persistent tendency to expose the genitalia to strangers (usually of the opposite sex), commonly followed by sexual arousal and masturbation. Voyeurism is a recurrent or persistent tendency to look at people engaging in sexual or intimate behaviour such as undressing. This is done without the observed people being aware, and usually leads to sexual arousal and masturbation. Sadism is a preference for sexual activity which involves the infliction of pain or humiliation, or bondage. In the case of extreme manifestations of sadism, sexual satisfaction is achieved by torturing and maltreating the victim, often leading to the murder of the victim. Autoasphyxiation (or autoerotic asphyxiation) is a form of sexual activity associated with the use of devices or materials that restrict the oxygen supply to the lungs and/or the brain to enhance the sensations associated with sexual discharge. Often, loss of control over the degree of exposure results in death (World Health Organization, 2021).

Inclusion criteria. A literature search was performed using the following inclusion and exclusion criteria: research articles with a focus on sexual sadism, autoerotic asphyxiation, exhibitionism, and voyeurism generating original data were included; case reports on sexual sadism, autoerotic asphyxiation, exhibitionism and voyeurism, were included; opinion articles, (comment) letters were excluded.

Information sources. A PubMed database search (1960–April 2021) for all language articles was conducted using the following search terms: sexual sadism, or exhibitionism, or voyeurism, or autoerotic asphyxiation.

Study selection. Titles and abstracts were screened to eliminate irrelevant articles. Full texts of potentially relevant articles were read and screened for further eligibility; the final selection was made in consensus by PRISMA-P (preferred reporting items for systematic review and meta-analysis protocols) guidelines (Moher *et al*, 2015). The PubMed database search initially generated 1640 records. Cross-referencing further led to inclusion of one book chapter. Preliminary screening of titles and abstracts resulted in 106 remaining articles to be read in full. Eight articles were found irrelevant for the current review (opinion articles and articles related to socially non-dangerous sexuality), resulting in a final selection of 98 articles to be included.

SEXUAL SADISM

Sexual fantasies about inflicting pain, humiliation, or subjugation of another person are quite common in the population. 39% of men have fantasies about bondage and 30% about raping women. Among male college students, 51% indicated that they would rape a woman if they knew they would not be punished for it. According to 25% of respondents, male and female college students, and women would enjoy rape, provided that it was kept secret (Fedoroff, 2008). According to the literature, interest in sadism and masochism as well as the use of various sadomasochistic practices in sexual life varies broadly. For example, a review article by De Neef *et al*., refers to an Australian study with 19,307 respondents, where it was found that 2.2% of men and 1.3% of women aged between 16–59 had engaged in sadomasochistic activity during the previous year (De Neef *et al*., 2019). Another study with 1027 respondents in Belgium found that 46.8% of the population had an interest in sadomasochism: this number of respondents reported participating in sadomasochistic acts at least once. People who practice sadomasochism have created a special subculture, BDSM (Bondage, Discipline, Sadism and Masochism), within which they communicate, get to know each other and engage in their sexual practices. Sexual interaction within this subculture is performed on a voluntary basis, respecting the principles of safety. But even in this case, the death of a partner — a masochist — sometimes occurs during BDSM activities. Between 1986 and 2020, 14 case reports and one study on non-natural death associated with sexual activities including BDSM play were published (Schori *et al.*, 2022). The authors describe 17 deaths of one of the partners during BDSM play. Four women aged 26 to 32 and one man aged 32 died from strangulation by hand; two women aged 25 and 31 and four men aged 41 to 46 died from strangulation with ropes and belts when tied up; four died from strangulation as a result of tying up and hanging, one man aged 49 died as a result of blocking his airways by hand (by stopping his mouth and nose); and one woman died from severe bleeding caused by placing foreign bodies in her vagina (Schori *et al.*, 2022). As can be seen from the above, even voluntary BDSM play is sometimes dangerous for a masochistic partner, especially if the play takes place in a state of alcoholic or drug intoxication (in eight of the cases described above, at least one of the participants in the BDSM play had alcohol or drugs in the blood, and in three cases such an examination was not carried out) (Schori *et al.*, 2022). Sexual sadism leads to even more severe consequences. This happens when the sadistic interaction is carried out without the consent of the partner, when it is the resistance and helplessness of the victim that causes the greatest sexual arousal, and when the death of the victim is often the goal that the sexual sadist seeks. According to a Canadian study conducted in 2004, the prevalence of sexual violence is 74 cases per 100,000 population (Fedoroff, 2008). Prevalence rates of sexual sadism disorder vary from less than 10% of convicted sex offenders in the United States, to anywhere from 37–75% of individuals who have committed sexually motivated homicide (American Psychiatric Association, 2013). According to U.S. authors, the proportion of murders of sexual nature is 1% of all registered murders per year (Reavis, 2011). Until now, the aetiology of sexual sadism, like other paraphilias, is considered unknown. It is thought that a combination of neurobiological, interpersonal, and cognitive processes all play a role (Fisher and Marwaha, 2022).

Neurotransmitters and hormonal status. A recent study examining the role of neurotransmitters in the development of paraphilias revealed the important role of dopamine, serotonin, and norepinephrine in this process. The results of

this study revealed increased levels of serotonin and norepinephrine, with a decreased concentration of 3,4-dihydroxyphenylacetic acid in urine samples of the test population diagnosed with paraphilic disorders (Fisher and Marwaha, 2022). Science is actively studying the role of testosterone in aggression, sexual violence, and antisocial behaviour. In a study that looked at testosterone levels in 501 sex offenders, it was found that only 89 participants with higher testosterone levels had more invasive sex crimes (with penetration), and they also had a higher rate of criminal recidivism. In a sample of 4462 veterans, the association of testosterone levels with antisocial behaviour was studied. It was found that a high level of testosterone correlated with the presence of more than ten sexual partners per year. The association between high testosterone levels and antisocial behaviour was moderate. An association between high salivary-free testosterone levels and aggression was also shown in a sample of 89 prison inmates. In another study of 692 prison inmates, those with high testosterone levels were found to be more confrontational. Although a higher number of sex offenders were found among the respondents with high testosterone levels, the majority of men with high testosterone levels (86%) are not sex offenders (Fedoroff, 2008). Data on the association of testosterone levels with sexual abuse is conflicting. While the evidence supports some association between testosterone and aggression, a causal relation between testosterone and sexual violence has not been shown (Fedoroff, 2008).

Neuroimaging. In a study with 79 participants, it was found that sadists had pathology in the temporal lobe of the brain. This study included 22 sadistic offenders, 21 nonsadistic sex offenders, and 36 nonviolent, nonsex offenders. Sadistic offenders were more likely than nonsadistic offenders or the control group to have right-sided temporal horn abnormalities (41%, compared with 11% and 13%, respectively) (Fedoroff, 2008). It is known that the temporal-limbic neural pathways are involved in the process of sexual arousal and are also associated with aggression (Fedoroff, 2008). The data from the above study confirm this fact. Temporal lobe dysfunction has also been described in two PET scan studies that diagnosed differences in cerebral circulation in the temporal lobe in one sex offender and one sexual sadist compared to healthy subjects. A study using computed tomography and MRI scan in patients with organic brain syndrome who were violent also found dysfunction of the temporal lobe. In addition, neuroimaging studies showed selective frontal lobe dysfunction in murderers and sex offenders including rapists (Fedoroff, 2008). In a study of 15 sex offenders, of whom eight were sexual sadists and seven were non-sadists, it was found that sadists had more pronounced amygdala activation when viewing images of pain infliction. Sexual sadists, but not non-sadists, showed a positive correlation between pain severity ratings and activity in the anterior insula (Harenski *et al.*, 2012). Unfortunately, all of these studies were based on a small number of subjects.

Psychological factors. The study of the psychological constitution of sexual abusers found that the following facts were more common in their anamnesis in comparison with nonsadistic offenders: sexual abuse suffered in childhood, cross-dressing; voyeurism, and obscene phone calls or indecent exposure (Fedoroff, 2008). According to some authors, 80% of those who suffer sexual abuse in childhood develop compulsive sexual behaviour and sexual addiction in adulthood. These authors also note that poor family relationships in childhood lead to the development of uncontrolled sexual behaviour in adulthood (Saladino *et al.*, 2021). Sex offenders were found to have problems with empathy and perception of other people's emotions. According to the literature, sex offenders have difficulty interpreting emotions expressed by facial expressions or voice. Many sex offenders exhibit cognitive distortions which justify moral transgressions. There is a common belief among sex offenders that the victims themselves want abuse and that they enjoy abuse (Harenski and Kiehl, 2011). In a small study of 46 adolescent sex offenders, six of them demonstrated the triad of enuresis, repeated fire setting, and extreme cruelty to animals (Wax and Haddox, 1974). The study was conducted without a control group.

EXHIBITIONISM

According to some authors, about one-third of all violent sex offenses are related to exhibitionism (Roper, 1966). Out of 112 male adults hospitalised in the psychiatric unit with various diagnoses, 15 (13.4%) patients had symptoms of at least one paraphilia. The most common paraphilias were voyeurism (n = 9 [8.0%]), exhibitionism (n = 6 [5.4%]), and sexual masochism (n = 3 [2.7%]). Patients who screened positive for a paraphilia had significantly more psychiatric hospitalisations and were more likely to have attempted suicide. In addition, patients with paraphilias were significantly more likely to report having been sexually abused than patients without a paraphilia (Marsh *et al.,* 2010). In a Turkish study, the authors report that among 307 male patients accused of sex offenses and examined at the Forensic Medicine Institute, exhibitionism was found in 8.1% of patients, and exhibitionism and paedophilia in 7.5% (Taktak *et al*, 2016). In a Swedish study of 2450 randomly selected respondents aged 18 to 60, 76 (3.1%) respondents reported at least one incident of being sexually aroused by exposing their genitals to a stranger (Långström and Seto, 2006).

Biological factors. Exhibitionism may be a symptom of various diseases of the central nervous system. There are single case reports in the literature of the presence of symptoms of exhibitionism in those suffering from diseases of the basal ganglia. Thus, the Rich and Ovsiew report diagnosed exhibitionism in a patient with Huntington's disease (Rich and Ovsiew, 1994). Zheng with co-authors reported symptoms of exhibitionism in an 11-year-old boy with X-linked adrenoleukodystrophy (X-ALD). It is a rare (1:17,000) metabolic disorder caused by mutations in the ABCD1 gene that encodes the peroxisomal membrane adrenoleukodystrophy protein, which is involved in transmembrane transport of very long-chain fatty acids. The common cerebral forms (childhood, adolescent, and adult) manifest

with hyperactivity or inattention, followed by progressive deterioration in cognition, hearing, vision, and motor function (Zheng *et al.,* 2017). Exhibitionism, along with mental retardation, was also observed in eight Danish men suffering from X-linked nondysmorphic mild mental retardation, a rare genetic disease. The cause of the disease is a genetic defect that leads to a malfunction of the enzyme monoamine oxidase and manifests itself clinically as aggressive behaviour, a tendency to sexual violence and exhibitionism (Brunner *et al*, 1993). Symptoms of exhibitionism can be observed in patients with epilepsy (Devinsky and Vazquez, 1993). Comings and Comings reported the presence of hereditary exhibitionism in patients with Tourette's syndrome — a father and son (Comings and Comings, 1982). Adolescents with autism can also demonstrate compulsive sexual behaviour, such as hypermasturbation, public masturbation, inappropriate romantic gestures, inappropriate arousal, and exhibitionism (Beddows and Brooks, 2016). Exhibitionism symptoms may appear as a side effect of antipsychotic medications. Thus, Thomson *et al.* describe a case of exhibitionism and hyperactive sexual behaviour in a 45-year-old patient with schizoaffective disorder induced by the use of clozapine (Thomson *et al.,* 2018). Exhibitionism can be iatrogenic and develop as a result of brain surgeries. Simpson *et al.* describe a study with 507 patients who underwent major brain surgeries. They studied data from 11 rehabilitation centres where those patients received rehabilitation. Inappropriate sexual behaviour was found over the previous three months in 8.9% of patients, of which 10.5% demonstrated exhibitionism (Simpson *et al*, 2013).

Psychological factors. Psychoanalytically oriented authors note that exhibitionists come from families with puritanical, very strict views on sexuality. It is not uncommon for exhibitionists to also have puritanical ideas about sexuality. Their fathers were often strong, unapproachable, and uncompromising individuals, which could cause feelings of weakness and impotence. As adults, individuals who grew up in such families feel inadequate, inferior, and impotent. At the same time, they experience an urgent need to demonstrate their masculinity and potency. Often, they choose very young girls and not adult women as their victims, as they expect more surprise and response to the sight of their penis from young girls than would be expected from adult women. Exhibitionists want to convince women of their masculinity, which they themselves strongly doubt (Podolsky, 1960). Also, among the aetiological factors of exhibitionism, psychoanalysts mention phallic worship, narcissism and infantile regression, regression to an infantile level of sexual development, and fear of castration (Bond and Hutchison, 1960; Roper, 1966).

Some studies have shown the presence of psychopathological personality traits in exhibitionists. For example, Saunders and Awad studied 19 adolescent sexual abusers who practiced exhibitionism and telephone scatologia. Most of them were maladjusted, had committed numerous sexual offenses and came from multi-problem families. Anti-social traits, sexual deviance in the family, homosexual conflicts, and repressed sexuality were considered to be contributory factors (Saunders and Awad, 1991). An epidemiological study with 2450 respondents in Sweden found an association of exhibitionism and voyeurism with being male and having more psychological problems, lower satisfaction with life, heavier alcohol and drug use, and greater sexual interest and activity in general, including more sexual partners, greater sexual arousability, higher frequency of masturbation, higher frequency of pornography use, and greater likelihood of having had a same-sex sexual partner (Långström and Seto, 2006).

VOYEURISM

A combination of neurobiological, interpersonal, and cognitive processes plays a role in the aetiology of voyeurism as well as other paraphilias (Harenski *et al.*, 2012). Voyeurism was described in the literature already in the 19th century (Krafft-Ebing, 1907). In the modern world the so-called technology-facilitated sexual violence (TFSV) has become widespread, with video voyeurism being one of its types (Fisico and Harkins, 2021). An act of video voyeurism can be broadly defined as when someone films or photographs an individual without their consent, in circumstances whereby a person would have a "reasonable expectation of privacy". This can be taking pictures or recording videos of the victim in a fitting room, gym, or WC and taking pictures or filming underneath a person's clothing. Often, acts of video voyeurism go unnoticed by the victims as offenders use modern technology such as hiding small cameras in their shoes, in pens, and backpacks (Fisico and Harkins, 2021). The prevalence of video voyeurism has increased dramatically over recent years. In Korea a study found the number of cases involving spycams to have grown within a short period of time, from 564 cases in 2007 to 7730 cases in 2015; notably, these numbers decreased moderately in 2016 (n = 5249) and rose again in 2017 (n = 6615). In a sample of Australian participants (n = 4274, 16–49 years old), one-fifth (20%) of participants reported having experienced this form of video voyeurism, such that someone had taken a nude or sexual image of them without their consent (Fisico and Harkins, 2021). Another type of technology-facilitated voyeurism is visiting "Slutpages" on the Internet. "Slutpages" are a pernicious form of online image-based evaluative voyeurism (OIBEV), whereby (sexualised) images of women are posted on webpages for (predominantly) male groups to rate and comment (Clancy *et al.,* 2021). Visiting such websites is quite common. A study with 1148 respondents aged 18–29 in Australia and the U.S. (53% women, 47% men) demonstrated that 23% of respondents from the U.S. and 16% from Australia visited such websites. The reasons for visiting these websites were described differently by men and women. Men (80%) were most likely to visit these websites to "check them out", while women were equally likely to check them out (41%) or to see if they were depicted (36%). For women, OIBEV site visitation was uniquely associated with sext dissemination victimisation, receipt of disseminated sexts, and higher lev-

els of anxiety but reduced stress. For men, unique predictors of OIBEV site visitation were having requested, disseminated and received disseminated sexts, lower levels of anxiety and reduced likelihood of cyberbullying perpetration (Clancy *et al.,* 2021). In general, voyeurism is quite common. In a Swedish study conducted in 1996, 2450 randomly selected respondents aged 18 to 60 were interviewed, and 7.7% percent of them reported that at least once they experienced sexual arousal while watching other people have sex (Långström and Seto, 2006). In a study conducted in India among 61 respondents, 41% of them reported that they practiced voyeurism (Kar and Koola, 2007).

Biological factors. Voyeurism may develop after an organic brain lesion. Miller *et al.* describe a case of developed hypersexuality and voyeuristic interests in a 75-year-old man who had herpetic encephalitis complicated by hydrocephalus and ventriculo-peritoneal shunting. During the period of recovery from encephalitis, the man developed hypersexual behaviour, such as obscene public statements, sexual harassment of nurses, and public masturbation. After the placement of the ventriculo-peritoneal shunt, the patient started to have voyeuristic desires: he requested that his wife have sex with another partner while he watched (Miller *et al.,* 1986).

Psychological factors. Voyeurism, like other paraphilias, is associated with more frequent sexual abuse suffered previously (Marsh *et al.,* 2010). There is also an association of voyeurism with male gender, lower life satisfaction, greater alcohol and drug use, and greater sexual interest and activity in general, including more sexual partners, greater sexual arousability, higher frequency of masturbation, higher frequency of pornography use, and greater likelihood of having had a same-sex sexual partner (Långström and Seto, 2006). Ramadas describes a case of voyeurism in a 19-year-old man with cyclothymia in the absence of any other mental or physical illness. The patient performed acts of voyeurism while in a depressed state (Ramadas, 2017).

AUTOEROTIC ASPHYXIATION

In Western countries, the mortality rate from autoerotic asphyxiation is 0.5 cases per million population per year. In the U.S., the victims of this practice are mostly white males aged 14 to 59 years (Ha *et al.,* 2017). Typically, this paraphilia involves using ligature compressing the neck or a plastic bag placed over the head to restrict oxygen to the respiratory tract and enhance sexual pleasure during masturbation or sexual intercourse. Death occurs without suicidal intent and results from a lost balance between a sense of security and increased erotic stimulation (Ha *et al.,* 2017). In a retrospective study conducted in Hamburg, 25 cases of autoerotic fatalities were identified over a period of 15 years (2004–2018). Autopsies were carried out on 23 of these cases. 16 (64%) of the cases involved autoerotic accidents and seven (28%) from internal causes of death during an autoerotic act. Two cases had not undergone an autopsy. On average, those who were involved in autoerotic accidents had been younger in age (average age: 37 years) than the individuals who died from internal disease (average age: 61 years). Only one woman was involved. The most common cause of death in autoerotic accidents was strangulation (hanging: 8 cases, ligature strangulation: 1 case), followed by smothering of the respiratory tract (4 cases). Fatal intoxication was diagnosed in three of the cases. Fatalities with natural cause of death solely involved cardiovascular causes of death (Lohner *et al,* 2020). Sauvageau and Racette report in a review article that they analysed all Medline publications on autoerotic asphyxiation from 1954 to 2004 and found a total of 408 fatalities described in 57 articles. Autoerotic death practitioners were predominantly Caucasian males. Victims were aged from 9 to 77 years and were mainly found in various indoor locations. Most cases were asphyxiation by hanging, ligature, plastic bags, chemical substances, or a mixture of these (Sauvageau and Racette, 2006).

Psychological factors. Friedrich and Gerber describe a study with five adolescents practicing autoerotic asphyxiation. Their life histories suggested an early history of choking, in combination with physical or sexual abuse. Each boy appeared to have paired choking with sexual arousal. The authors suggest that the development of autoerotic asphyxiation is associated with suffocation suffered in childhood in combination with other physical or sexual abuse (Friedrich and Gerber, 1994).

We could find no information in the literature describing specific biological factors characteristic of autoerotic asphyxiation.

TREATMENT OF SOCIALLY DANGEROUS PARAPHILIAS

The description of treatment of sexual paraphilias in literature is limited to articles on small studies without a control group, or on individual clinical cases. Historically, methods such as psychoanalysis, cognitive behavioural therapy, and aversion therapy have been used to treat paraphilias. Inhumane and ludicrous methods were sometimes used to treat paraphilias. Thus, Jones and Frei describe the successful treatment of 15 exhibitionists who were forced to strip naked in front of an audience of men and women. During the period of nakedness, the subject described in detail the events, his expectations and attitudes, and those attributed to his victim during exposure. During the phase of increased patient's anxiety in this process, cognitive changes occurred, which, according to the authors, led to recovery (Jones and Frei, 1977). Roper reports successful treatment of three exhibitionists with hypnosis (Roper, 1966). A small study summarising six case reports refers to the successful use of leuprolide acetate (leuprolide), a luteinising hormone-releasing-hormone (GnRH) agonist, in the treatment of paraphilias. All six study subjects were diagnosed with at least one of the following paraphilias: paedophilia, sexual sadism, frotteurism, and paraphilia not otherwise specified. All six subjects reported a reduction in sexually

deviant symptoms following treatment with leuprolide (Saleh *et al,* 2004). Rich and Ovsiew also describe successful treatment of exhibitionism with leuprolide acetate in a patient with Huntington's disease (Rich and Ovsiew, 1994). Terao and Nakamura describe a case of successful treatment of an exhibitionist with trazodone. The patient received trazodone for two years. After stopping trazodone, he had one episode of pathological desire, which he reversed by taking trazodone. After that, no pathological impulses were observed in the patient for two years without medication (Terao and Nakamura, 2000). There is a publication on the treatment of a 32-year-old exhibitionist with Tourette's syndrome using haloperidol. Low doses of haloperidol eliminated all exhibitionistic urges in that patient (Comings and Comings, 1982). Ramadas reports the successful treatment of a 19-year-old patient with voyeurism and underlying cyclothymia using sodium valproate. The patient received 600 mg of the medication per day, and during the 11 months of follow-up, he had no mood fluctuations and no urges of voyeurism (Ramadas, 2017). In general, antiandrogens, GnRH analogues and selective serotonin reuptake inhibitors (SSRIs) are used in the pharmacological treatment of paraphilias. GnRH analogue treatment constitutes the most promising treatment for sex offenders at high risk of sexual violence, such as paedophiles or serial rapists. SSRIs remain an interesting option in adolescents, in patients with depressive or obsessive compulsive disorders (OCD), or in mild paraphilias such as exhibitionism (Thibaut, 2012). It is believed that paraphilic sexual behaviour has much in common with obsessive-compulsive disorder: in both cases there is a violation of the exchange of serotonin in the central nervous system, so SSRIs are effective in both cases. Most judgments about their effectiveness were made on the basis of a small number of studies or case reports. Thus, Abouesh and Clayton report the use of paroxetine in the successful treatment of one patient with exhibitionism and one with voyeurism (Abouesh and Clayton, 1999). Kafka and Prentky used fluoxetine (30 mg/d–12 weeks) in ten patients with paraphilias and ten patients with hypersexual disorder and obtained a significant reduction in unconventional sexual behaviour (Kafka and Prentky, 1992). Another trial obtained 70% remission of paraphilias (n = 13) and paraphilia related disorders (n = 11) after a two-stage treatment programme of sertraline followed by fluoxetine (Kafka, 1994). One more study described 50% remission of paraphilic symptoms in an open label study using 100 mg of sertraline during a mean follow up of 17 weeks (Kafka and Hennen, 2000). The effectiveness of the treatment of patients with paraphilia increases with the addition of psychotherapy. For example, GnRH analogues in combination with psychotherapy have been shown to be highly effective in the treatment of paedophilia, exhibitionism, and voyeurism (Rösler and Witztum, 2000). The treatment of paraphilias with antiandrogens uses medroxyprogesterone acetate or cyproterone acetate. There are small studies found in the literature on the effectiveness of these medications in the treatment of paedophiles and sex offenders (Thibaut, 2012). It should be noted that the use of these medications can cause side effects such as osteoporosis, gynecomastia, depression, thromboembolism, and liver dysfunction, which limits their use. GnRH analogues have fewer side effects. GnRH analogues act initially at the level of the pituitary to stimulate luteinising hormone (LH) release, resulting in a transient increase in serum testosterone levels. After an initial stimulation, GnRH analogues cause rapid desensitisation of GnRH receptors, resulting in reduction of LH and testosterone to castrate levels. Thibaut *et al.* report successful treatment with GnRH analogue triptoreline, using a dose of 3.75 mg once a month in six patients with severe paraphilias. In five cases, the disappearance of deviant sexual fantasies and behaviour was observed (Thibaut *et al.*, 1993). Rösler and Witztum describe a study of 30 men with severe paraphilia who also received triptoreline 3.75 mg once a month and supportive psychotherapy for eight to 42 months. All patients reported the disappearance of paraphilic fantasies and behaviours (Rösler and Witztum, 1998). Another GnRH analogue, leuprorelin, also demonstrated its effectiveness in the treatment of paraphilias. Briken *et al.* report the successful treatment of 11 patients with paedophilia and sadism using leuprorelin. Patients received the medication for 12 months. All participants in the study reported the disappearance of deviant fantasies, and no recurrences of deviant behaviour were observed (Briken *et al.,* 2001). Another study reported the successful treatment of 12 patients with paraphilias using the above medication (Krueger and Kaplan, 2001). Overall, it should be noted that at present there are no high-quality placebo-controlled studies on the treatment of socially dangerous paraphilias. The studies presented in the literature cannot provide reliable scientific information about the best treatment for this pathology.

ETIOLOGY OF PARAPHILIAS

Socially dangerous paraphilias in the population are quite common. Biological, social, and psychological factors play a role in their development. Among the biological factors, the link between the level of neurotransmitters, such as serotonin, epinephrine, and norepinephrine, and the presence of paraphilias has been established, but the mechanism of the impact of these substances on the development of paraphilias remains unclear (Fisher and Marwaha, 2022). The results of studies of the relationship between testosterone levels and paraphilias are conflicting: an unambiguous relationship between high testosterone levels and the presence of paraphilias has not been established (Fedoroff, 2008). In some paraphilias, structural changes in various regions of the brain have been established, but it remains unclear whether these changes are the cause of paraphilias or a consequence of the psychological characteristics of people engaging in socially dangerous paraphilic practices (Fedoroff, 2008; Fisher and Marwaha, 2022). Undoubtedly, people with paraphilic behaviour experience different emotions in connection with their practices. Despite the fact that a number of studies of the BDSM community have demonstrated that people who practice BDSM are more free and unselfconscious and have a lower level of anxiety, if para-

philia is criminally liable or poses a danger to the health or life of one of the partners, people who practice it cannot but experience fear, anxiety, guilt, and other strong feelings. Thus, a Swedish study found that exhibitionists have more psychological problems, are less satisfied with life, and are more prone to the use of psychoactive substances (Långström and Seto, 2006). These emotions, in turn, may cause changes in hormonal status and neurotransmitter levels, and, if repeated for a long time, they may lead to structural changes in the central nervous system. The cause of paraphilias can also be brain tumours, epilepsy, previous neuroinfections, and traumatic brain injuries. Speaking about psychological and social factors, it should be noted that some paraphilias have been associated with personality traits and mental disorders. For example, sexual sadism is more common in people with psychopathic personality traits and diseases such as schizophrenia, schizoaffective disorder, bipolar disorder, and depression (Gurvinder, 2013). Some studies show that sexual sadists grew up in families with antisocial behaviour and with parents who were alcoholics, and suffered physical or sexual abuse in childhood (Fedoroff, 2008; Saladino *et al.*, 2021). Other studies found no relationship between the development of sadomasochism and the abuse suffered. The role of social factors has not been fully explored. Psychoanalysts and psychodynamically oriented psychotherapists explain the development of paraphilias by various unresolved conflicts in early childhood (Oedipus complex, fear of castration, repressed incestuous desires, etc.). With the help of modern scientific methods, it is not possible to confirm or refute these theories. The treatment of sexually dangerous paraphilias is still a formidable challenge. Most often, people suffering from them do not seek medical help on their own, and turn to a specialist only when they come to the attention of law enforcement bodies. As a rule, treatment is carried out either by a court order, or the patient seeks help during the investigation in the hope of receiving a lighter sentence for the crime committed. Treatment is often received in detention facilities. Patients undergo treatment either in a compulsory manner or in the hope of obtaining a secondary benefit, such as early release on parole. At the same time, conclusions about the effectiveness of a particular treatment method in studies are usually made on the basis of an assessment of the patients themselves. It can be expected that patients report the disappearance of paraphilic symptoms even when this is not the case. Therefore, the studies are at risk of error. Paraphilias are treated with medications, psychotherapy, and a combination of the two methods. Cognitive-behavioural therapy is currently the most commonly used psychotherapeutic method. Its advantage is its short duration, low cost and relative ease of use (there is no need to train specialists for many years or require personal psychotherapy of specialists, as is necessary for psychodynamic therapy). Most often, cognitive-behavioural therapy is provided by specially trained prison staff or probation officers. The results of this treatment are ambiguous and contradictory. Some studies demonstrate that the recurrence rate of sex offenses decreases in individuals who have completed a special treatment programme for sex offenders, whereas other studies report that the relapse incidence increases (Tyler *et al,* 2021). The qualifications and experience of the therapist are of great importance. It is difficult to establish the effectiveness of psychodynamic psychotherapy in the treatment of sexually dangerous paraphilias. This type of psychotherapy is more in-depth and focuses on changing the structure of the personality and personality traits, and a long-term change in social functioning. One would expect high effectiveness from this type of therapy. Yet, the medical literature has no data on studies on this method of treatment for socially dangerous paraphilias. Psychodynamic psychotherapy is a long-term treatment (taking several years) and, therefore, expensive. As a result, it is not funded by the state for the treatment of sexual abusers in most countries. The patients themselves, as a rule, are not motivated to undergo treatment and have a low level of income. Due to the lack of a sufficient number of patients and the long duration of therapy, it is difficult to conduct scientific studies on its effectiveness. Modern pharmacological treatment of paraphilias has many ethical restrictions and side effects. Effective are medications that suppress the secretion of testosterone, which include antiandrogens and GnRH analogue. The result of this treatment is the suppression not only of paraphilic interests, but of all sexuality. The patient becomes unable to be sexually active. This leads to complications in relations with a partner, if any, as well as to many psychological problems. In addition, these medications cause a number of side effects, such as osteoporosis, obesity, liver dysfunction, depression, insomnia, etc. In this regard, their use is very limited and they can only be used with the consent of the patient. The limitations of our review are the small amount of scientific data on socially dangerous paraphilias. There are also no studies on the psychodynamic causes of the development of paraphilias, as well as on the possibility of their treatment using psychodynamic psychotherapy. The available literature mainly refers to the treatment of sex offenders who are handed over to judicial bodies, which limits the possibilities to measure the actual spread of socially dangerous paraphilias, their aetiology, pathogenesis, and effective methods of treatment. Until now, the stigmatisation of people suffering from paraphilias has been widespread in society. Therefore, they are afraid to seek help even when their paraphilic desires exist at the level of fantasies and masturbation, without committing a crime.

CONCLUSIONS

More extensive epidemiological studies are needed to clarify the true prevalence of socially dangerous paraphilias in the population. The medical community needs to promote the notion "thoughts do not mean actions," i.e. to encourage people to be aware of, and discuss, their various sexual desires, but learn to control those urges that are an offense or pose a danger to the patient himself or herself (such as autoasphyxiation), thereby encouraging these people to seek help before committing a crime or a self-injurious act, which can reduce the number of sex offenses and deaths by

negligence. More research is needed on the treatment of sexually dangerous paraphilias, including on the effectiveness of psychodynamic psychotherapy. Extensive research is also needed on the medical, psychological, and social anamnesis of individuals suffering from paraphilias, which will provide a more accurate understanding of the aetiology of these socially dangerous conditions. If paraphilia develops suddenly in adulthood, an MRI scan of the brain should be performed to rule out a tumour.

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SOCIĀLI BĪSTAMAS SEKSUĀLAS PARAFĪLIJAS: PROBLĒMAS APRAKSTS

Rakstā apskatīti sociāli bīstamo seksuālo parafīliju: seksuāla sadisma, ekshibicionisma, vuajērisma un autoerotiskās asfiksijas izplatības, etioloģijas, patoģenēzes un ārstēšanas jautājumi. Tika apkopota visa pieejama literatūra par sociāli bīstamām parafīlijām, pamatojoties uz PRISMA vadlīnijām. Sociāli bīstamo parafīliju iemesli var būt bioloģiski, psiholoģiski un sociāli faktori, parafīlijas ārstē ar antiandrogēniem, gonadotropīnu atbrīvojošo hormonu analogiem un selektīviem serotonīna atpakaļsaistes inhibitoriem, kā arī ar psihoterapiju. Trūkst augstas kvalitātes placebo kontrolētu pētījumu par sociāli bīstamu parafiliju ārstēšanu. Sociāli bīstamo parafīliju izplatība ir liela, cilvēkus ar sociāli bīstamām seksuālām tieksmēm ir jāmudina meklēt profesionālu palīdzību pirms nozieguma vai paškaitējuma izdarīšanas. Mūsu pārskata ierobežojums ir nepietiekamais literatūras daudzums par sociāli bīstamu parafīliju tēmu. Nepieciešami plašāki epidemioloģiskie pētījumi, lai noskaidrotu sociāli bīstamo parafīliju faktisko izplatību populācijā un to ārstēšanas metodes.