

Lifelong Premature Ejaculation and Attention-Deficit Hyperactivity Disorder: A Controlled Study

ABSTRACT

Background: In males, one of the most common sexual dysfunction is lifelong premature ejaculation. Sexual dysfunctions, including premature ejaculation, are highly prevalent in adults with attention-deficit hyperactivity disorder. This study aimed to examine the prevalence and symptoms of attention-deficit hyperactivity disorder in patients with lifelong premature ejaculation.

Methods: In this study, 48 patients diagnosed with lifelong premature ejaculation and 40 controls were included. All patients and controls were asked to fill out Wender-Utah Rating Scale-25 and Adult Attention-Deficit Hyperactivity Disorder Self-Report Scale. Patients also filled out the Arabic Index of Premature Ejaculation and Premature Ejaculation Diagnostic Tool.

Results: Totally 20 patients (41.66%) with lifelong premature ejaculation and 2 (5%) controls were diagnosed with attention-deficit hyperactivity disorder. The mean scores of the Wender-Utah Rating Scale-25, Adult Attention-Deficit Hyperactivity Disorder Self-Report Scale, and Adult Attention-Deficit Hyperactivity Disorder Self-Report Scale-hyperactivity-impulsivity subscale were higher in the case group ($P = .001$, $P = .001$, and $P < .001$, respectively). No difference was found between the 2 groups in terms of the Adult Attention-Deficit Hyperactivity Disorder Self-Report Scale-Inattention subtype ($P = .492$). In the lifelong premature ejaculation group, 13 patients (65%) diagnosed with attention-deficit hyperactivity disorder were found to be attention-deficit hyperactivity disorder-predominantly hyperactivity/impulsivity subtype.

Conclusions: The findings of the current study reveal that patients with lifelong premature ejaculation should be assessed carefully in terms of attention-deficit hyperactivity disorder, especially hyperactive and impulsive characteristics, and the relationship between lifelong premature ejaculation and attention-deficit hyperactivity disorder should be examined by further studies with large samples.

Keywords: Premature ejaculation, attention-deficit hyperactivity disorder, sexual dysfunction, impulsivity

Introduction

Premature ejaculation (PE) is defined as a persistent or recurrent condition in which ejaculation occurs within about 1 minute after vaginal penetration, contrary to one's wishes. It is the most common sexual dysfunction among males in all age groups.^{1,2} Premature ejaculation is considered to be primary if it starts from the first sexual experience, happens almost every time during sex, and takes less than 60 seconds (lifelong PE); it is considered to be secondary if it occurs after a relatively normal period of sexual function (acquired PE).¹ The prevalence of PE and lifelong PE among the general male population of Turkey is similar to other countries and was found to be 9.2% and 2.3%, respectively.³ The psychopathology of lifelong PE is not completely understood and theories about this do not provide an adequate explanation.^{4,5} It is thought that in addition to psychological factors, genetic and neurobiological features also affect the occurrence of lifelong PE.⁶⁻⁹ Very few males with PE apply for the treatment.¹⁰ Thus, it causes stress, anxiety, depression, frustration, decreased self-esteem, relationship

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problems, and other sexual dysfunctions, unless treated.^{11,12} As a result, the treatment of PE becomes difficult.¹¹

Attention-deficit hyperactivity disorder (ADHD) is a childhood-onset mental disorder including symptoms of inattention, hyperactivity, and impulsivity.¹ In childhood, it is one of the most seen psychiatric disorders, and nearly half of the cases can persist into adulthood and adolescence. The prevalence of ADHD was estimated to be 2%-5% in the general adult.^{13,14} Attention-deficit hyperactivity disorder has 3 different clinical subtypes: subtype of inattentive (ADHD-IA), a subtype of hyperactive/impulsive (ADHD-HI), and a subtype of combined (inattentive and hyperactivity) (ADHD-C). The percentage of these subtypes has been reported to be 18.3%, 8.3%, and 70% for ADHD-IA, ADHD-HI, and ADHD-C, respectively.¹⁵ Adult ADHD is often unrecognized, underdiagnosed, and undertreated if it is not specifically evaluated.¹⁶ Thus, sexual dysfunctions in addition to many psychiatric disorders are often seen in patients who do not receive treatment.^{17,18} Most adults with ADHD have been reported to have a higher prevalence of sexual dysfunctions, including PE, compared to the control group.¹⁸⁻²⁰ Bijlenga et al¹⁸ reported that males with ADHD suffer from PE and negative emotion during or after sexual intercourse.¹⁸

Several studies have been conducted about the etiology of acquired PE.²¹⁻²⁴ However, to our knowledge, studies on the development of lifelong PE, especially structural psychopathologies related to lifelong PE, and the co-occurrence of PE and ADHD are insufficient. Regarding the high prevalence of PE,³ the high incidence of sexual dysfunctions in patients with ADHD,¹⁸ and the scarce literature on adults with lifelong PE, it becomes important to evaluate ADHD during the assessment of patients with lifelong PE. Therefore, in the present cross-sectional case-control study using clinical evaluation and self-reporting scales, our purpose was to examine the symptoms and prevalence of adult ADHD in patients with lifelong PE compared to a control group.

Methods

This study included 48 consecutive patients who applied to the psychiatric outpatient clinic between December 2019 and August 2020 and were diagnosed with lifelong PE based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders-fifth Edition (DSM-5) as the patient group. For the control group, 40 healthy males were selected carefully from the general population with similarities to the patient group in terms of age, education, socioeconomic, and marital status. Self-estimated intravaginal ejaculation latency time (IELT) of the patients with lifelong PE was less than 60 seconds.¹ The control group was selected from healthy volunteers with IELT over 60 seconds and without complaints of ejaculation time.

MAIN POINTS

- A high prevalence of attention-deficit hyperactivity disorder (ADHD) has been found in patients with lifelong premature ejaculation (PE).
- A high proportion of patients with ADHD in the lifelong PE group (65%) was diagnosed with the subtype of ADHD-hyperactivity-impulsivity.
- Hyperactivity and impulsivity may be risk factors of lifelong PE.

All participants were at least primary school graduated, above 18 years of age, married, and heterosexual. Patients with physical and psychiatric disorders that may explain the presence of lifelong PE such as diabetes mellitus, erectile dysfunction, sexual aversion, endocrinological, neurological and cardiopulmonary disorders, psychotic and mood disorders, obsessive-compulsive disorder, or any other anxiety disorder were not included. Patients who used psychotropic drugs, topical penile or other medications, as well as patients whose spouses have sexual function disorders were excluded. Based on these criteria, 8 patients were not included in the study and 7 refused to participate in the study.

All participants were evaluated according to the criteria of DSM-5 and a form including sociodemographic characteristics made by the authors. Accordingly, all participants were asked to fill out the Wender-Utah Rating Scale-25 (WURS-25) and Adult ADHD Self-Report Scale (ASRS), and in addition, patients also filled out the Premature Ejaculation Diagnostic Tool (PEDT) and Arabic Index of Premature Ejaculation (AIPE). The Ethical Committee of Necmettin Erbakan University, Konya, Turkey, approved the study protocols (Approval Date: 16.12.2019; Approval Number: 2019/2210). All participants gave verbal and written informed consents.

Measurements

Arabic Index of Premature Ejaculation: The frequency of sexual desire, the presence of hard erection for sexual intercourse, IELT, sexual satisfaction, and anxiety, as well as depression or stress owing to PE, were evaluated with this scale. The scale includes 7 questions each scored from 1 to 5 points. Score of 7-13 indicates severe PE, 14-25 moderate PE, 26-30 mild PE, and 31-35 indicates the absence of PE. The validated Turkish version of AIPE was used in the current study. A high Cohen's kappa value (0.85) was found in the reliability analysis.²⁵ In our study, we determined the Cronbach's alpha as 0.79.

Premature Ejaculation Diagnostic Tool: This scale is used for the diagnosis of PE. It includes 5 questions, each is scored from 0 to 4, related to control of PE, frequency, stimulation, frustration, and relationship problems with the sexual partner. The total score is between 0 and 20. A total score of ≤ 8 indicates the absence of PE, 9-10 indicates the likelihood of PE, and ≥ 11 indicates a diagnosis of PE. The internal consistency was calculated as 0.77 in the validated Turkish version of PEDT^{26,27} and 0.76 in the current study.

Adult ADHD Self-Report Scale (v1.1): This self-reported scale evaluates adult ADHD and includes 18 questions. Each question is scored from 0 to 4. The 9 items in the scale evaluate inattention (ASRS-IA); the other 9 items evaluate hyperactivity/impulsivity (ASRS-HI). The cut-off score of the scale was 45 points (ASRS-T). In the validity and reliability analysis performed in Turkish, the internal consistency was found as 0.88 for the scale, 0.82 for "attention deficit" subscale, and 0.78 for "hyperactivity/impulsivity" subscale.²⁸ The Cronbach's alpha of the scale was 0.89 and for the subscales "attention deficit" and "hyperactivity/impulsivity" were 0.79 and 0.88, respectively, in the present study.

Wender-Utah Rating Scale-25: This is a self-reporting scale. It evaluates the symptoms of ADHD in the childhood period in adult patients. It has 25 items scored between 0 and 4 with a cut-off score of 36 points. The internal consistency was found as 0.93 in the studies of reliability and validity performed for the Turkish population.²⁹ We calculated the Cronbach's alpha as 0.90 in the current study.

Statistical Analysis

Statistical Package for the Social Sciences (SPSS) version 18.0 (IBM SPSS Corp.; Armonk, NY, USA) was used to perform statistical analysis. We used Shapiro–Wilk and Kolmogorov–Smirnov tests to determine the normality of the variables. In categorical variables, descriptive statistics were expressed as frequency and percentages and as median (min-max) in those that were not normally distributed. Chi-square test was used to compare the categorical variables. Mann–Whitney *U* test was used to evaluate the difference between the continuous variables. Correlation between the clinical characteristics and the scores of the scales were evaluated using the Spearman correlation coefficient. A *P*-value less than .05 was accepted as statistically significant.

Results

In this study, 48 patients diagnosed with lifelong PE and 40 healthy males were included. All participants were between 26 and 50 years of age. The ages of participants were all between 26 and 50 years. The mean age of the cases and controls was 36.90 ± 5.59 and 38.88 ± 4.89 years, respectively. All participants were married and employed (Table 1).

According to cut-off scores of the ASRS and WURS-25 scales, ADHD was detected in 22 (45.83%) patients with lifelong PE and 3 (7.50%) participants in the control group. Based on the psychiatric clinical interview, childhood history, and cut-off scores of the ASRS and WURS-25, 20 (41.66%) patients with lifelong PE and 2 (5%) controls were diagnosed with ADHD ($P < .001$). According to clinical interviews and scale scores in the lifelong PE group, the distribution of ADHD subtypes was as follows: 4 (20%) with ADHD-C, 13 (65%) with ADHD-HI, and 3 (15%) with ADHD-IA.

The mean scores of the PEDT and AIPE in the case group were 15.10 (3.33) and 17.43 (5.32), respectively. The mean scores of WURS-25, ASRS-T, and ASRS-HI were higher in the patient group compared to the controls ($P = .001$, $P = .001$, $P < .001$, respectively). However, no difference was found regarding ASRS-IA ($P = .492$) (Table 2). The mean score of WURS-25, ASRS-T, and ASRS-HI was positively correlated with PEDT ($r = 0.512$, $P < .001$; $r = 0.555$, $P < .001$; $r = 0.628$, $P < .001$, respectively) and negatively correlated with AIPE ($r = -0.457$, $P < .001$; $r = -0.440$, $P < .001$; $r = -0.509$, $P < .001$, respectively) in the case group. The mean scores of PEDT and AIPE were not correlated with ASRS-IA ($r = 0.307$, $P = .004$; $r = -0.204$, $P = .057$, respectively) (Table 3).

Table 1. The Comparison of the Groups According to the Age, Education, and Presence of ADHD

	Patient Group, Median (Min-Max) (n = 48)	Control Group, Median (Min-Max) (n = 40)	<i>P</i>
Age (year)*	37.0 (24-46)	40.0 (26-50)	.134
Education (year)*	8.5 (5-16)	12.0 (5-16)	.138
ADHD (%)**			<.001
Yes	20 (41.66)	2 (5.00)	
No	28 (58.34)	38 (95.00)	

*Mann–Whitney *U* test; **Chi-square.

ADHD, attention deficit and hyperactivity disorder; min, minimum; max, maximum.

Table 2. Comparison of the Groups According to Scores of the Scales

	Patient Group, Median (Min-Max) (n = 48)	Control Group Median (Min-Max) (n = 40)	<i>P</i>
WURS-25	23.5 (1-86)	12.5 (1-41)	.001
ASRS-T	27.5 (1-65)	15.0 (2-39)	.001
ASRS-IA	9.0 (1-21)	9.0 (1-19)	.492
ASRS-HI	20.0 (1-54)	7.0 (1-22)	<.001

Mann–Whitney *U* test: WURS, Wender–Utah Rating Scale-25; ASRS-T, Adult ADHD Self-Report Scale-Total; ASRS-IA, Adult ADHD Self-Report Scale-Inattention; ASRS-HI, Adult ADHD Self-Report Scale-Hyperactivity/Impulsivity; min, minimum; max, maximum.

Discussion

Although acquired PE is considered to be due to anxiety, depressive disorders, relationship problems, and physical disorders such as prostatitis or thyroid disorders,²²⁻²⁴ the etiology of lifelong PE has remained unclear.^{4,5} Psychopharmacological studies have suggested that lifelong PE does not develop due to psychiatric disorders; rather, lifelong PE is a neurobiological phenomenon, genetic characteristics or neurotransmitters such as serotonin, dopamine, and oxytocin have functions in the occurrence.^{9,30,31} Thus, it is thought that multiple factors cause lifelong PE, and still, there is no definite consensus on its etiology.

Although our knowledge is still limited, it is thought that ADHD has complex pathogenesis, and abnormalities in neurotransmitter systems (dopamine, noradrenaline, and serotonin) may play a role in its etiology.^{32,33} Soydan et al³⁴ have reported that the percentage of the participants diagnosed with ADHD was significantly higher (42.1%) in the lifelong PE group compared to the control group (3.7%). In another study, nearly half of the adults with ADHD (45.8%) were also found to have PE.²⁰ In addition, sexual dysfunctions, including PE, are more prevalent in patients with ADHD, and it has even been suggested that ADHD should be considered as a risk factor for sexual dysfunctions.^{18,35} According to the data of the current study and previous results, the possible explanation of the comparatively higher prevalence of adult ADHD in the lifelong PE group may be the presence of a central neurotransmitter pathway that is common to both ADHD and lifelong PE.^{20,34} Although it is thought that there are abnormalities in the serotonergic and dopaminergic systems in both disorders, the results are not still clear.^{4,32,33}

Although the prevalence of psychiatric disorders, especially anxiety disorders, are known to be high in PE, the causal role of anxiety in PE has not been clarified.³⁶⁻³⁸ Anxiety, in particular, has been suggested as a cause of lifelong PE; however, the number of studies addressing this is insufficient.³⁶ In the current study, unlike previous studies, patients with major psychopathology or a history of psychiatric treatment were not included in the study. In this way, we reduced the possible negative impact of other comorbid psychiatric disorders (such as anxiety) on sexual functions.

The most remarkable finding of our study is that the prevalence of ADHD-HI subtype was found to be higher (65%) in the patients diagnosed with ADHD in the case group compared to the general adult population (8.3%).¹⁵ In contrast to studies on the effects of anxiety on PE, studies on the effects of hyperactivity and impulsivity

Table 3. The Correlations Between WURS-25, ASRS, PEDT and AIPE Scores, Age, and Education Level in the Case Group

	Age	Education	WURS-25	ASRS-T	ASRS-IA	ASRS-HI	PEDT
Education	0.017						
WURS-25	-0.147	-0.060					
ASRS-T	-0.202	0.028	0.758**				
ASRS-IA	-0.232	0.014	0.662**	0.846**			
ASRS-HI	-0.178	0.034	0.760**	0.964**	0.715**		
PEDT	-0.080	0.101	0.512**	0.555**	0.307*	0.628**	
AIPE	0.016	0.063	-0.457**	-0.440**	-0.204	-0.509**	-0.829**

Spearman correlation coefficients: * $P < .05$, ** $P < .01$; WURS, Wender–Utah Rating Scale-25; ASRS-T, Adult ADHD Self-Report Scale-Total; ASRS-IA, Adult ADHD Self-Report Scale-Inattention; ASRS-HI, Adult ADHD Self-Report Scale-Hyperactivity/Impulsivity; PEDT, Premature Ejaculation Diagnostic Tool; AIPE, Arabic Index of Premature Ejaculation.

are relatively scarce.^{36,39} Soydan et al³⁴ reported that the hyperactivity and impulsivity score of patients with PE was significantly higher compared to controls. Altunoluk et al³⁹ (2013) have been reported that temperament characteristics, which have structural and biological basis such as impulsivity, novelty seeking, risk-taking, and excitement, were higher in the patients with PE than in the controls. This suggests that psychological and neurobiological factors may play a role in PE.³⁹ Impulsivity is generally defined as acting without forethought, impatience, taking risk, difficulty in waiting for their turn, inability to focus, difficulty in delaying gratification, and novelty seeking.^{40,41} Considering the fact that learning control of ejaculation is a developmental and structural process and most males learn to delay ejaculation spontaneously, characteristics such as hyperactivity/impulsivity may negatively affect this motor learning process.^{36,42} Based on the current and previous findings, the development of PE as a consequence of hyperactivity/impulsivity symptoms of ADHD can be suggested. Since patients do not present abnormalities in the phases of ejaculation, emission, and expulsion, PE is considered to be a symptom rather than a disease.⁴³

Soydan et al³⁴ suggested that there may be a relationship between PE and ADHD. In the current study, contrary to the findings of Soydan et al³⁴, (2013), there was no difference between the 2 groups in regards to ADHD-IA. To our knowledge, the relation between structural attention deficiency and PE was investigated in a very limited number of studies. One study³¹ reported that anxiety and depressive symptoms may distract the individual in the process of controlling his ejaculation. Patients with PE are regarded to be preoccupied with the thought of controlling their orgasm during sexual intercourse; therefore, awareness of their bodily sensations was insufficient.²⁴ However, in order to reduce the negative effects of psychiatric comorbidities on attention, we excluded the patients with significant psychiatric symptoms from the study.

Small sample size and inclusion of only married males that restrict any generalization of the findings are the limitations of this study. We cannot explain the causality between ADHD and lifelong PE because of the cross-sectional design of the study. Participants may have given socially acceptable and uncriticized answers to some private questions. Another limitation is that temperament and personality traits, including impulsivity, were not evaluated separately. We did not evaluate the mean score of IELT as those with IELT under 60 seconds were included in the study. So that IELT scores and ADHD scales could not be compared. In addition, re-evaluation of patients with both lifelong PE and ADHD for PE after treatment for hyperactivity and impulsivity should be carried out in future studies.

In conclusion, this study is important as it emphasizes the high rate of ADHD in patients with lifelong PE and especially the relationship between lifelong PE and hyperactivity and impulsivity. Therefore, ADHD should be recognized as an important factor when considering lifelong PE. Symptoms of hyperactivity and impulsivity in ADHD may contribute to the persistence of lifelong PE. As adult ADHD often remains unidentified by clinicians,¹⁶ ADHD should be assessed carefully in adults particularly in patients with lifelong PE. However, comprehensive further studies should be conducted to support these findings, as previous studies on this issue are rare.

Ethics Committee Approval: Ethics committee approval was received from the Ethics Committee of Necmettin Erbakan University (Approval Date: December 16, 2019; Approval Number: 2019/2210).

Informed Consent: Informed consent was obtained from the patients and controls.

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