*The Journal of Sexual Medicine*, 2024, 1–9
https://doi.org/10.1093/jsxmed/qdae040
**Original Research**

# Repeated sexual intercourse as a coping strategy for men with premature ejaculation

**Chunlin Wang, MD, PhD[1,2], Elena Colonnello, MD[2], Andrea Sansone, MD, PhD[2], Hui Zhang, MD, PhD[2], Emmanuele A. Jannini, MD[2,*], Yan Zhang, MD[1,*]**

[1]Department of Infertility and Sexual Medicine, The Third Affiliated Hospital of Sun Yat-sen University, Guangzhou 510630, China
[2]Endocrinology and Medical Sexology, Department of Systems Medicine, University of Rome Tor Vergata, Rome 00133, Italy

*Corresponding author: Department of Infertility and Sexual Medicine, The Third Affiliated Hospital of Sun Yat-Sen University, Guangzhou 510630, China. Email: zhxml@sina.com; Endocrinology and Medical Sexology, Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy. Email: eajannini@gmail.com

## Abstract

**Background:** Patients with premature ejaculation (PE) are often concerned and distressed about their sexual performance. Hence, they may be more willing to exploit their refractory period to employ sexual coping strategies in order to improve their unsatisfactory sexual intercourse compared with patients without PE.
**Aim:** The study sought to verify the sexual coping strategies of patients with PE in the daily sexual activities.
**Methods:** We included both patients with PE and individuals without PE and analyzed their sexual behaviors and attitudes by means of detailed interviews and questionnaires.
**Outcomes**: The main outcomes were perceived intravaginal ejaculatory latency time recording, Premature Ejaculation Diagnostic Tool score, and sexual frequency, attitudes, and behavior log.
**Results:** A total of 182 young patients with PE (age 31.2 ± 6.2 years) and 92 individuals without PE (age 30.7 ± 5.1 years) were included in the study. A total of 53.3% of patients with PE vs 17.4% of individuals without PE reported engaging in multiple sexual intercourse sessions within a single day in the past 4 weeks. PE patients who engaged in multiple intercourse sessions displayed better performance during the second attempt but performed poorly compared with individuals without PE. Scores for the first attempt in PE vs second attempt in individuals with PE vs without PE were the following: intravaginal ejaculatory latency time, 2.4 ± 1.6 vs 4.8 ± 5.7 vs 9.9 ± 9.4 ($P < .001$); Premature Ejaculation Diagnostic Tool, 14.9 ± 3.1 vs 12.7 ± 4.8 vs 5.2 ± 2.5 ($P < .001$); satisfaction, 2.9 ± 1.0 vs 3.1 ± 0.8 vs 3.7 ± 1.4 ($P < .001$). A total of 57.1% of patients held a negative attitude toward precoital masturbation, for reasons such as a reduced sexual desire (21.2%), the belief that masturbation is harmful (17.6%), concerns about erectile function (15.7%), fatigue (9.8%), and other mixed reasons (35.3%).
**Clinical Implications:** Engaging in multiple intercourse sessions within a day is more common among the young PE population, and using precoital masturbation as a coping strategy is not universally applicable among patients with PE.
**Strengths and Limitations:** This is the first study to explore symptom-coping strategies in patients with PE compared with individuals without PE. However, the conclusions cannot be generalized to the entire male population.
**Conclusion:** Patients with PE, compared with individuals without PE, are more inclined to engage in multiple sexual intercourse sessions within a single sexual session, likely in an attempt to compensate for their first unsatisfactory sexual encounter. Moreover, the majority of patients with PE here studied hold a negative attitude toward using precoital masturbation as a coping strategy for symptoms.

**Keywords:** premature ejaculation; multiple intercourse; precoital masturbation; coping strategies.

## Introduction

Premature ejaculation (PE) is a common male sexual dysfunction, with an estimated prevalence ranging from 5% to 30%.[1–7] The substantial variation in prevalence is primarily attributed to the adoption of different definitions in epidemiological research.[8–11] As of now, a widely accepted definition of PE involves 3 dimensions[7,12]: (1) a lack of control over ejaculation, (2) a short ejaculatory latency period, and (3) distress to the individual and/or sexual partner.[13] However, due to a lack of targeted research on these criteria, the definition of PE has remained substantially stagnant, without significant updates in the recent years.[14]

Normal ejaculatory function is the foundation for ensuring that males can successfully complete sexual intercourse and that both partners can achieve a satisfactory sexual experience.[15] The presence of PE significantly diminishes the intensity of pleasure[16] and the patient's sexual satisfaction[17] and sexual self-esteem, and it increases the focus on the patient's own sexual performance and increases the sexual distress experienced by the partner.[18,19] Interestingly, unexplored anecdotal observations of clinical practice suggest that some patients with PE engage in multiple sexual intercourse sessions within a single day. Indeed, following ejaculation, males experience a refractory period during which the responsiveness to sexual stimulation diminishes.[20–22] This manifests as a reversible reduction in both central drivers, such as sexual interest and desire, and peripheral receptivity, such as the responsiveness of the penis to sexual stimulation. In fact, theoretically, after the first ejaculation, if a male engages in a second sexual intercourse within a relatively short time frame, an extended intravaginal ejaculation latency time (IELT) usually occurs: this is likely due to a heightened control over ejaculation, attributed to a decreased responsiveness to sexual stimulation compared with the first intercourse.

**Received:** November 24, 2023. **Revised:** February 15, 2024. **Accepted:** March 8, 2024

Therefore, we pose the first scientific question: do patients with PE, in comparison with men with normal ejaculatory control, exhibit a greater inclination toward engaging in multiple sexual encounters within a single sexual session or a single day?

Furthermore, because a refractory period also occurs after ejaculation through masturbation, some doctors and peers recommend precoital masturbation as a coping strategy for symptoms of early ejaculation.[23] However, it is worth noting that there has been no prior research exploring whether patients with PE would be willing to implement this coping strategy.

Therefore, the second scientific question we propose is the following: what is the attitude of patients with PE toward precoital masturbation as a coping strategy? This scientific question is of utmost importance because the patients' perception determines whether this coping strategy can be successfully promoted within the PE population. If patients have a strong negative attitude toward this strategy, forcibly implementing it may lead to adverse effects on the patients, such as the generation of negative emotions and erroneous beliefs that may also possibly worsen their sexual function. Anxiety may ensue, due to concerns about sexual performance, leading to reduced reception of sexual stimuli and, ultimately, resulting in a comorbid erectile dysfunction (ED), a condition often referred to as the loss of control over erection and ejaculation.[12]

In summary, to address the 2 scientific questions posed previously, we studied patients with PE and individuals with normal ejaculation function, analyzing their sexual activity characteristics. Moreover, we explored the attitudes of patients with PE toward precoital masturbation.

## Methods

### Sample size calculation

We used PASS 15 (NCSS) to calculate the sample size. Based on our clinical practice, we preliminarily estimated that approximately 50% of individuals with PE and 30% of those without PE had engaged in multiple sexual intercourse in the past 4 weeks. The target power and alpha are 0.9 and 0.05, respectively, with a ratio of 2:1 for the PE group to the non-PE group. Ultimately, our calculations determined that a minimum of 176 individuals with PE and at least 88 individuals without PE would be required.

### Participants

This study was approved by the Ethics Committee of the Third Affiliated Hospital of Sun Yat-sen university (trial registration number: II2023-196-02). Both patients with PE and controls subjects were recruited from the outpatient clinic of infertility and sexual medicine. Inclusion criteria for patients with PE were (1) age ≥18 years; (2) at least 1 attempt of vaginal intercourse in the past 4 weeks; (3) self-reported PE; (4) Premature Ejaculation Diagnostic Tool (PEDT) score ≥11; (5) no abuse of alcohol and no use of medications and illegal drugs that affect ejaculation and erection in the past 4 weeks; (6) no ED; (7) self-reported normal sexual desire; and (8) being in a stable, heterosexual sexual relationship. Exclusion criteria for patients with PE were (1) having significant mental or psychological issues, (2) diseases affecting sexual activity (ie, diabetes, spinal cord lesions, immobilization, prostatic inflammation/infection, hypo- and hyperthyroidism, hypogonadism, etc.), (3) having external genitalia developmental abnormalities; and (4) other ejaculation disorders besides PE.

Conversely, as in other studies,[24] patients from the control group were mainly recruited among those who visited the department for the preconception reproductive and sexual health screening. In this case, the inclusion criteria were (1) age ≥18 years; (2) at least 1 instance of vaginal intercourse in the past 4 weeks; (3) self-reported absence of PE; (4) PEDT score ≤8; (5) having not taken any medication that affects ejaculation function in the past 4 weeks; (6) no ED; (7) self-reported normal sexual desire; and (8) having a stable, heterosexual relationship. Exclusion criteria for the control group were the same as those for the PE group.

### Procedure

All participants gave their informed consent and underwent comprehensive and detailed interviews and physical examinations to ensure that they met the inclusion and exclusion criteria, followed by the completion of questionnaires. The questionnaires included (1) clinical basic information; (2) PEDT (for patients with PE who engaged in multiple sexual intercourse within a sexual session/day, we separately assessed their first time and second time within the past 4 weeks using the PEDT); (3) Erection Hardness Score (EHS); (4) IELT; (5) sexual satisfaction rating (self-reported on a 5-point Likert-type scale from very unsatisfying [1] to very satisfying [5]); (6) information related to frequency of sexual intercourse; and (7) a clinical colloquium exploring and recording the reasons for not engaging in multiple sexual intercourse within a day (specifically for patients with PE who did not attempt the second sexual intercourse within a day in the past 4 weeks), the willingness to ejaculate through masturbation before sexual intercourse to prolong the subsequent duration of intercourse, and the reasons for not wanting to ejaculate through masturbation before intercourse.

### Statistical analysis

Continuous variables are presented as mean ± SD, while categorical variables are presented as percentages.[25] The comparison of the continuous variables was performed using the independent sample $t$ test and the paired $t$ test.[25] The comparison of categorical variables was performed using the chi-square test. We utilized binary logistic regression analysis to examine the relationship between the number of days attempted intercourse after controlling for PE status and whether there were instances of engaging in multiple sexual intercourse sessions within a day in the past 4 weeks. All statistical tests were carried out using the statistical software R (version 4.2.2; R Foundation for Statistical Computing); statistical significance was set at $P < .05$.

## Results

A total of 274 participants (mean age 31.0 ± 5.9 years) were ultimately included in this study, comprising 182 patients with PE (mean age 31.2 ± 6.2 years) and 92 individuals with normal ejaculation function (mean age 30.7 ± 5.1 years). As shown in Table 1, there were no statistically significant differences between the 2 groups in terms of age, education level, and lifestyle. In comparison with the PE group, the non-PE group exhibited a higher body mass index (BMI) and a lower

**Table 1.** Demographic characteristics.

| | All (N = 274) | PE (n = 182) | Non-PE (n = 92) | *P* value |
|---|---|---|---|---|
| Age, y | 31.0 ± 5.9 | 31.2 ± 6.2 | 30.7 ± 5.1 | .548 |
| BMI, kg/m$^2$ | 24.8 ± 3.8 | 24.4 ± 3.6 | 25.5 ± 4.0 | <.05 |
| Marital status | | | | <.001 |
| Married | 170 (62.0) | 93 (51.1) | 77 (83.7) | |
| Unmarried | 102 (37.2) | 88 (48.4) | 14(15.2) | |
| Divorced | 2 (0.7) | 1 (0.5) | 1 (1.1) | |
| Educational level | | | | .958 |
| Junior high school and below | 62 (22.6) | 42 (22.7) | 20 (21.7) | |
| Senior school or technical secondary school | 78 (28.5) | 51 (28.0) | 27 (29.3) | |
| Junior college and university | 134 (48.9) | 89 (48.9) | 45 (48.9) | |
| Sexual orientation | Heterosexual | Heterosexual | Heterosexual | |
| Lifestyle | | | | |
| Smoking | 57 (20.8) | 41 (22.5) | 16 (17.4) | .323 |
| Drinking | 77 (28.1) | 55 (30.2) | 22 (23.9) | .273 |

Values are mean ± SD or n (%). Abbreviations: BMI, body mass index; PE, premature ejaculation.

**Table 2.** Characteristics of sexual intercourse between the two groups.

| | PE | Non-PE | *P* value |
|---|---|---|---|
| Individuals who attempted sexual intercourse over the past 4 wk | 182 (100) | 92 (100) | |
| The number of days attempted intercourse | | | <.001 |
| 1-2 d | 40 (22.0) | 6 (9.2) | |
| 3-4 d | 46 (25.3) | 8 (12.3) | |
| 5-6 d | 34 (18.7) | 37 (56.9) | |
| 7-10 d | 35 (19.2) | 8 (12.3) | |
| 11 d | 27 (14.8) | 6 (9.2) | |
| Individuals who had multiple sexual intercourse attempts in 1 d | 97 (53.3) | 16 (17.4) | <.001 |
| The number of days with multiple intercourse | 4.9 ± 3.7 | 5.5 ± 5.2 | .541 |
| Refractory period (the time between first and second attempts, minutes) | 58.7 ± 106.0 | 221.1 ± 253.5 | <.05 |

Values are n (%) or mean ± SD. Abbreviation: PE, premature ejaculation.

proportion of married individuals. The higher proportion of married men in the non-PE group can be attributed to the inclusion of individuals undergoing preconception examinations in this group. Although there was a statistically significant difference in BMI between the 2 groups, the calculated Hedges' g effect size is approximately 0.294, which can be considered small, and in terms of clinical significance, the BMI difference between the 2 groups was so small that it can be considered negligible.

All participants engaged in sexual intercourse within the past 4 weeks (Table 2). Non-PE individuals attempted sexual intercourse on more days in the past 4 weeks compared with patients with PE. A higher proportion of patients with PE, in comparison with individuals without PE, attempted multiple sexual intercourse sessions within a single day in the past 4 weeks ($P < .001$). The relationship between the number of attempted intercourse days after controlling for PE status and whether there were instances of engaging in multiple sexual intercourse sessions within a day in the past 4 weeks did not reach statistical significance ($P > .05$). Among patients with PE and individuals without PE who attempted multiple sexual intercourse sessions within a single day, there was no statistically significant difference in the number of days with multiple sexual encounters ($P = .541$). Patients with PE had a shorter time interval between their first and second sexual encounters ($P < .05$).

In patients with PE who engaged in multiple sexual intercourse sessions, the IELT was longer and the PEDT score was lower during the second sexual encounter compared with the first (Table 3, Figure 1). The EHS showed no statistically significant difference between the first and second sexual encounters. Although the difference did not reach statistical significance (Table 3), patients with PE reported a trend toward higher sexual satisfaction during the second sexual encounter. For individuals without PE who engaged in multiple sexual intercourses within a day in the past 4 weeks, their IELTs for the first and second intercourses was10.3 ± 7.8 minutes and 15.2 ± 10.0 minutes, respectively ($P < .001$).

Patients with PE who engaged in multiple sexual intercourse sessions had a longer perceived IELT during the second sexual encounter within the same sexual session or day compared with those who did not engage in multiple sexual intercourse sessions, and their PEDT scores were lower (Table 4, Figure 2). There were no significant differences in EHS and sexual satisfaction (Table 4).

Patients with PE who engaged in multiple sexual intercourse sessions had significantly shorter IELT during the second sexual encounter compared with individuals without PE, and their PEDT scores were also significantly higher than those of individuals without PE (Table 5, Figure 3). EHS and sexual satisfaction scores were also significantly lower than those of individuals without PE (Table 5).

The reasons for patients with PE not engaging in multiple sexual intercourse sessions include decreased sexual desire (62.4%), estimated insufficient erection hardness (12.9%), partner refusal (10.6%), and other reasons (5.9%) (Table 6).

Among patients with PE, 57.1% refused to use precoital masturbation as a coping strategy for early ejaculation symptoms. Among the 104 patients with PE unwilling to masturbate, 51 patients provided reasons for their reluctance,

**Table 3.** Comparison of sexual characteristics between patients with PE during their first and second sexual attempt.

| | PE (multiple intercourse) (n = 97) | | |
|---|---|---|---|
| | First attempt | Second attempt | *P* value |
| IELT, min | 2.4 ± 1.6 | 4.8 ± 5.7 | <.001 |
| PEDT | | | |
| Total score) | 14.9 ± 3.1 | 12.7 ± 4.8 | <.001 |
| Question 1 | 3.9 ± 1.2 | 3.1 ± 1.7 | <.001 |
| Question 2 | 2.6 ± 1.1 | 2.8 ± 1.2 | .268 |
| Question 3 | 2.4 ± 1.0 | 1.8 ± 1.3 | <.001 |
| Question 4 | 3.0 ± 1.0 | 2.5 ± 1.3 | <.01 |
| Question 5 | 3.1 ± 1.3 | 2.5 ± 1.1 | <.001 |
| EHS | 3.1 ± 0.3 | 3.1 ± 0.5 | .453 |
| Satisfaction | 2.9 ± 1.0 | 3.1 ± 0.8 | .223 |

Values are mean ± SD. Abbreviations: EHS, Erection Hardness Score; IELT, intravaginal ejaculatory latency time; PE, premature ejaculation; PEDT, Premature Ejaculation Diagnostic Tool.

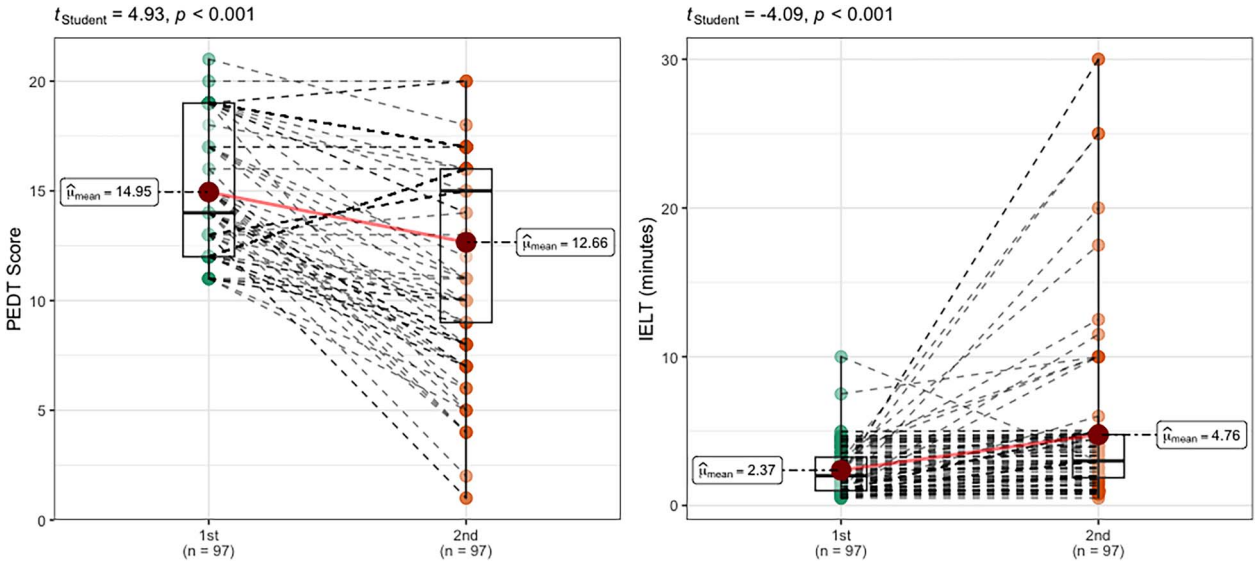


**Figure 1.** In patients with premature ejaculation (PE) who engaged in multiple sexual intercourse sessions within a single day in the past 4 weeks, a comparison of Premature Ejaculation Diagnostic Tool (PEDT) scores and self-reported perceived intravaginal ejaculatory latency time (P-IELT) between their first and second sexual encounters.

**Table 4.** Comparison of sexual characteristics between patients with PE during the second sexual attempt and patients without multiple intercourse.

| | PE (second attempt, n=97) | PE (without multiple intercourse, n=85) | *P* value |
|---|---|---|---|
| IELT (min) | 4.8 ± 5.7 | 1.7 ± 0.8 | <.001 |
| PEDT | 12.7 ± 4.8 | 15.9 ±2.7 | <.001 |
| EHS | 3.1 ± 0.5 | 3.2 ±0.4 | 0.374 |
| Satisfaction | 3.1 ± 0.8 | 3.0 ± 1.2 | 0.441 |

Values are mean ± SD. Abbreviations: EHS, Erection Hardness Score; IELT, intravaginal ejaculatory latency time; PE, premature ejaculation; PEDT, Premature Ejaculation Diagnostic Tool.

including decreased sexual desire (21.2%), belief that masturbation is harmful to health (17.6%), concerns about erectile function (15.7%), perceived fatigue (9.8%), and other mixed reasons (35.3%) (Table 7).

## Discussion

In this study, compared with a group of aged-matched individuals without PE, young patients with PE exhibited poor sexual performance, which subsequently led to lower sexual satisfaction, consistent with previous research findings.[15,17,26] Our results demonstrated that a higher proportion of patients with PE engaged in multiple sexual intercourse sessions within a single day in the past 4 weeks compared with individuals without PE. Furthermore, among patients with PE who engaged in multiple sexual intercourse sessions within a single day, their second sexual performance was significantly better than the first, characterized by a significant prolongation of IELT and a significant decrease in PEDT scores and in subscores obtained from the specific questions dealing with the personal feeling of control over the mechanism of ejaculation. This suggests that patients with PE exhibited enhanced control over ejaculation during the second sexual encounter. Previous studies have indicated that patients with PE tend to pay

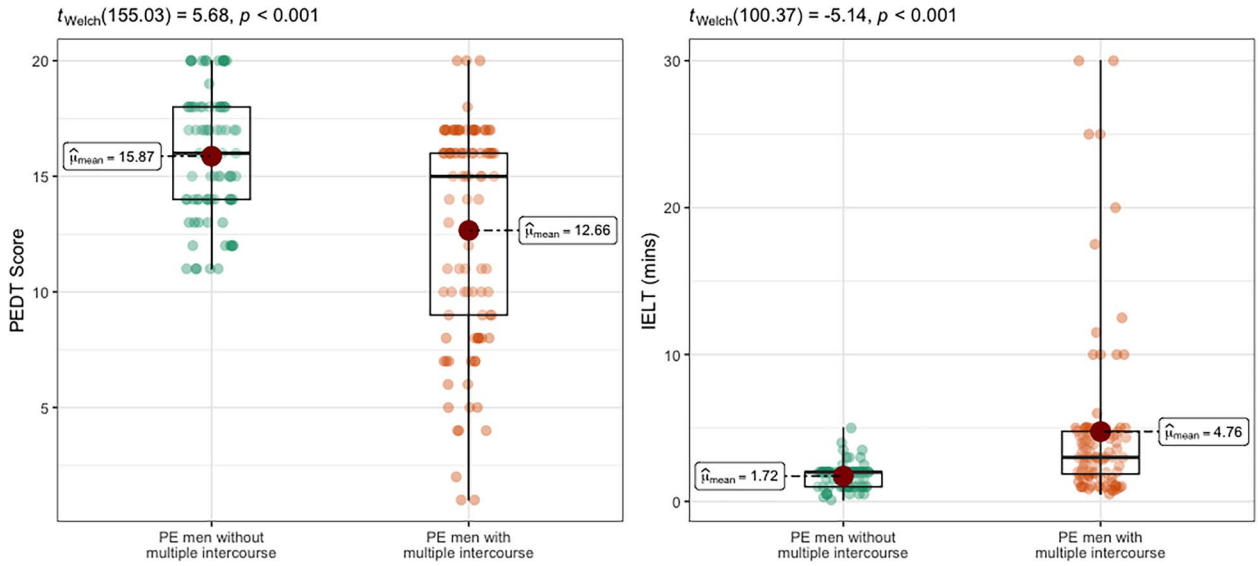


**Figure 2.** Comparison of Premature Ejaculation Diagnostic Tool (PEDT) scores and self-reported perceived intravaginal ejaculatory latency time (P-IELT) between patients with premature ejaculation (PE) during the second sexual attempt and PE patients without multiple intercourse.

**Table 5.** Comparison of sexual characteristics between patients with PE during the second attempt and individuals without PE.

| | PE (second attempt, n=97) | Non-PE (n=92) | *P* value |
|---|---|---|---|
| IELT (min) | 4.8 ± 5.7 | 9.9 ± 9.4 | <.001 |
| PEDT | 12.7 ± 4.8 | 5.2 ± 2.5 | <.001 |
| EHS | 3.1 ± 0.5 | 3.5 ± 0.5 | <.001 |
| Satisfaction | 3.1 ± 0.8 | 3.7 ± 1.4 | <.001 |

Values are mean ± SD. Abbreviations: EHS, Erection Hardness Score; IELT, intravaginal ejaculatory latency time; PE, premature ejaculation; PEDT, Premature Ejaculation Diagnostic Tool.

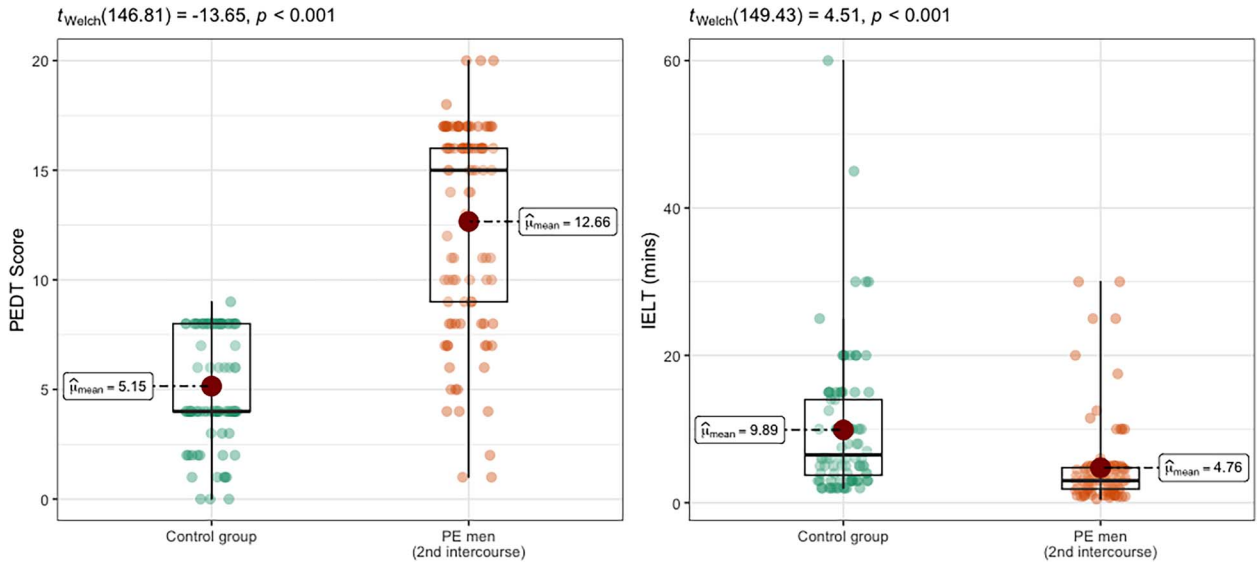


**Figure 3.** Comparison of Premature Ejaculation Diagnostic Tool (PEDT) scores and self-reported perceived intravaginal ejaculatory latency time (P-IELT) between patients with premature ejaculation (PE) during the second attempt and individuals without PE.

excessive attention to their own sexual performance, that sexual dignity is of utmost importance to them, and that early ejaculation symptoms often lead to feelings of shame.[17–19] Therefore, we demonstrated that, when engaging in sexual activities, patients with PE are more inclined to have multiple sexual encounters within a single day, possibly using it as a coping strategy to address early ejaculation symptoms as an attempt to compensate for their first unsatisfactory sexual experience and improve their sexual performance (Figure 4). In contrast to the viewpoint expressed by Li et al,[27] we contend that, despite a slight increase in satisfaction during the second sexual encounter for patients with PE, there still exists a significant disparity in sexual satisfaction when compared with individuals without PE. Additionally, the IELT was significantly lower, and PEDT scores were significantly higher, indicating that although patients with PE exhibit better sexual

**Table 6.** The reasons for patients with PE not engaging in multiple sexual intercourse sessions in 1 day.

| Reasons why patients with PE did not have multiple attempts of sexual intercourse within the same day | n (%) |
|---|---|
| "I haven't thought about trying to have sex for a second time." | 7 (8.2) |
| "The hardness of the erection after the first ejaculation is insufficient for a second round of sexual intercourse." | 13 (12.9) |
| "After the first ejaculation, there's an absence of sexual desire or urge on the same day." | 53 (62.4) |
| "My spouse is not interested in or refuses to engage in a second round of sexual intercourse." | 9 (10.6) |
| Other reasons | 5 (5.9) |

Abbreviation: PE, premature ejaculation.

**Table 7.** The attitudes of PE patients toward ejaculating through masturbation before sexual intercourse.

| | No | Yes |
|---|---|---|
| All patients with PE (n = 182) | | |
| "Are you willing to masturbate and ejaculate before sexual intercourse, in order to prolong the duration of vaginal intercourse?" | 104 (57.1) | 78 (42.9) |
| Reasons that they are not willing to masturbate (n = 51) | | |
| Sexual desire decreases after ejaculation | 11 (21.2) | |
| Masturbation is harmful | 9 (17.6) | |
| Worry about erectile function | 8 (15.7) | |
| It's tiring | 5 (9.8) | |
| Other reasons | 18 (35.3) | |

Values are n (%). Abbreviation: PE, premature ejaculation.

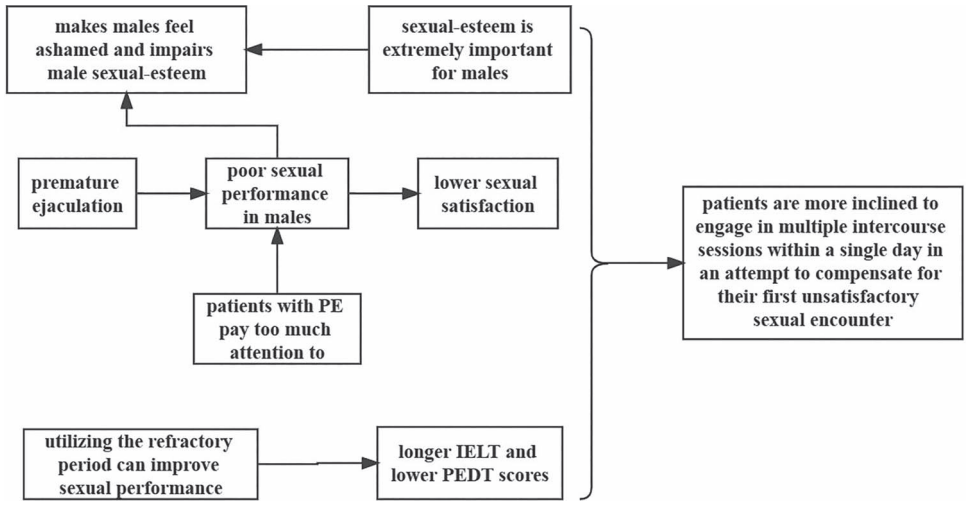


**Figure 4.** Analysis and logical relationships regarding the sexual behavior characteristics of patients with premature ejaculation (PE).

performance during the second sexual encounter, they still fail to fully compensate their first unsatisfactory sexual experience. Satisfactory sexual intercourse is influenced not only by one's own performance but also by the sexual performance of the partner and the dynamics within the relationship.[28] Furthermore, we speculate that for patients with PE, the first unpleasant sexual experience may have a strongly negative impact on subsequent sexual encounters. Therefore, future research should investigate why the second sexual encounter of patients with PE cannot fully compensate for the first unsatisfactory sexual experience.

In comparison with individuals without PE, patients with PE attempted sexual intercourse on fewer days in the past 4 weeks, indicating that patients with PE engage in sexual intercourse less frequently than individuals without this condition, consistent with prior research findings.[29] This could be attributed to patients' concerns about their sexual performance, leading to avoidance of sexual activity,[30] or it may be because sexual partners are unwilling to engage in sexual intercourse, as they cannot derive satisfactory sexual experiences from their male partners.[15] Additionally, it could be a consequence of poor relationship dynamics resulting from PE,[31] subsequently reducing opportunities for sexual activity. On the other hand, in our study, among individuals without PE, the proportion of married individuals is higher compared with PE patients. Therefore, if cohabitation were more common among individuals without PE in our cohort, they would likely have more opportunities for sexual intercourse. Both patients with PE and individuals without PE who engaged in multiple daily sexual intercourse sessions did not significantly differ in number of days with multiple sexual encounters; this indicates that, while patients with PE are more likely to engage in multiple sexual encounters within a single day, there is no difference in the frequency of engaging in multiple sexual encounters compared with individuals without PE. Our results demonstrate that the time interval between the 2 sexual encounters of patients with PE is shorter than that of individuals without PE,

contradicting previous observations.[32] However, Waldinger's research[33] has indicated that patients with PE not only exhibit symptoms of rapid ejaculation, but also experience premature erections and a hypererotic state during sexual activity or when exposed to erotic situations, an interesting observation that supports our findings. A study conducted in 2019 revealed that the refractory period following ejaculation in patients with PE averaged $330 \pm 296.63$ minutes.[32] Conversely, a study conducted in 2021 demonstrated that the refractory period following ejaculation in PE patients averaged $20.16 \pm 8.93$ minutes.[27] These studies underscore the considerable variability in refractory periods following ejaculation. Moreover, it is noteworthy that research on the refractory period is very limited, and future studies should delve deeper into this phenomenon and its underlying mechanisms.

The primary reasons why patients with PE did not have multiple sexual intercourse sessions within a day include a decrease in sexual desire or drive following the first ejaculation and insufficient erection, consistent with common features of the refractory period.[21] Additionally, it is essential not to overlook the influence of the sexual partner's attitude, which plays a crucial role in determining whether patients with PE can participate in multiple sexual intercourse sessions. The poor sexual performance of patients with PE lead to sexual dissatisfaction, a sense of something disappearing from the partner relationship, and a diminished feeling of intimacy.[15] After ejaculation, patients with PE often experience embarrassment and shame, while their female partners may express feelings of frustration and anger[15] and subsequent sexual dysfunctions.[34] In this context, when the female partner is in a negative emotional state, it becomes challenging for the male partner to have another opportunity for sexual intercourse. Therefore, effective communication between both partners becomes particularly vital, and patients with PE should receive early diagnosis and treatment. Some patients with PE refrained from having multiple sexual intercourse sessions due to a lack of desire for a second sexual encounter, while a small portion cited other reasons for abstaining from multiple sexual encounters.

Despite popular beliefs proposing precoital masturbation as a coping approach for early ejaculation symptoms, as of now, no study has explored patients' attitudes toward this strategy, which are crucial in determining the feasibility and potential adoption of this approach within the PE population. We found that 57.1% of patients with PE hold a negative attitude toward this strategy, indicating their unwillingness to masturbate before sexual intercourse. A number of our patients have been able to identify the reasons for their reluctance to implement this coping strategy, with the decrease in sexual desire after ejaculation being the most frequent one. This reluctance could be explained by cultural and, likely, biological reasons, as the drive to engage in sexual intercourse could be reduced after the postmasturbatory release of sexual tension, which, in turn, in this particular set of patients, decreases satisfaction during sexual intercourse. Moreover, 17.6% of patients with PE refrained from masturbation before intercourse because they consider it harmful. Perceptions of masturbation are influenced by social backgrounds and cultural contexts.[35] Abstinence from masturbation is related to attitudes toward it, especially the belief that it is unhealthy.[36,37] Previous research has suggested that the feeling of guilt after masturbation is quite common, and individuals who experience culpability after masturbation tend to have more problems about attaining an erection, higher levels of depressive symptoms, and poorer interpersonal relationships.[35,38] Moreover, the partner may play a role in this mechanism. Women in partnered relationships may perceive male masturbation as a form of cheating and believe that such behavior can have negative implications on their relationship, potentially leading to a decreased interest in sexual activities.[39,40] Therefore, recommending precoital masturbation as a coping strategy for early ejaculation symptoms to patients who perceive it as unhealthy may potentially harm their erectile function and negatively impact their interpersonal relationships. In fact, 15.7% of our patients with PE abstain from masturbation before intercourse due to concerns about erectile function. Excessive preoccupation with erection significantly increases the risk of an anxiety-driven ED.[41] Once either the male or female partner is concerned about ED, a vicious cycle ensues, and the negative attitude toward ED from the female partner further harms erectile function,[41] intertwining with the negative effects of PE on the partner's relationship. In summary, the majority of patients with PE in our cohort hold negative attitudes toward using precoital masturbation as a coping strategy for early ejaculation symptoms. Therefore, our results suggest that, in the PE population, precoital masturbation may be not a universally applicable strategy for managing PE symptoms.

This is the first study that compares patients with PE with individuals without PE, exploring the use of multiple sexual intercourse sessions as coping strategy for early ejaculation symptoms. Additionally, to our knowledge, it is the first study to investigate the acceptance of using precoital masturbation as a coping strategy for early ejaculation symptoms. However, our protocol is not without limitations. This study primarily included a young demographic; therefore, further research is needed to investigate whether the conclusions drawn apply to all age groups. Moreover, our conclusions could only be applied to patient with PE who are capable of engaging in a second encounter with a day. Additionally, attitudes toward PE are potentially influenced by cultural factors,[42] and attitudes toward masturbation may vary alike. Future research from other countries should explore whether education and designed therapeutic plans would impact this natural behavior. While the attitude of individuals without PE toward precoital masturbation is not the primary focus of this study, investigating their perspective on precoital masturbation can enhance understanding of this coping strategy, and it is hoped that future research will further explore this issue. Moreover, in this real-life research, we utilized perceived IELT, which, while being less precise than stopwatch-measured IELT, is more practical in the clinical setting. In fact, interchangeability between self-reported IELT and stopwatch-measured IELT in defining PE has been demonstrated.[43] Last, evaluating all instances of the second sexual intercourse with PEDT in patients with PE engaging in multiple sexual encounters in a day may introduce a recall bias.

## Conclusion

Patients with PE are more inclined than individuals without PE to engage in multiple sexual intercourse sessions within a single sexual section or a day, likely attempting to compensate for the unsatisfactory experience of the first intercourse. For PE patients who do not perform multiple intercourse within

a day, the main reasons include decreased sexual desire after the first intercourse, insufficient penile erection hardness for the second intercourse, refusal from the sexual partner for a second intercourse, and the lack of intention to engage in multiple intercourse. Although theoretically, ejaculating through masturbation before intercourse can prolong the subsequent duration of sexual intercourse, a significant 57.1% of patients are unwilling to accept this approach as a coping strategy for PE symptoms. The primary reasons for patients with PE holding negative attitudes toward this method include decreased sexual desire after masturbation, concerns about the detrimental effects of masturbation on health, worries about erectile function, and perceived physical fatigue.

## Author contributions

C.W. (Conceptualization-Equal, Formal analysis-Equal, Funding acquisition-Equal, Investigation-Equal, Methodology-Equal, Writing - original draft-Lead), E.C. (Conceptualization-Equal, Formal analysis-Equal, Investigation-Equal, Methodology-Equal, Writing - original draft-Equal), A.S. (Formal analysis-Equal, Funding acquisition-Equal, Methodology-Equal, Software-Equal, Writing - original draft-Equal), H.Z. (Formal analysis-Equal, Investigation-Equal, Methodology-Equal, Software-Equal), E.A.J. (Conceptualization-Equal, Funding acquisition-Equal, Methodology-Equal, Supervision-Equal, Writing - review & editing-Equal), Y.Z. (Conceptualization-Equal, Methodology-Equal, Supervision-Equal, Writing - review & editing-Equal).

## Funding

For the present research, AS and EAJ have been partially supported for this work by the Italian Ministry of University PRIN grant # 2017S9KTNE_002. This work is also supported by # NEXTGENERATIONEU (NGEU) and funded by the Ministry of University and Research (MUR), National Recovery and Resilience Plan (NRRP), project MNESYS (PE0000006) – A Multiscale integrated approach to the study of the nervous system in health and disease (DN. 1553 11.10.2022) (Recipient: EAJ). CLW is supported by the China Scholarship Council (CSC, No.202307820010).

## Conflicts of interest

None.

## References

1. Montorsi F. Prevalence of premature ejaculation: a global and regional perspective. *J Sex Med*. 2005;**2**(Suppl 2):96–102. https://doi.org/10.1111/j.1743-6109.2005.20369.x
2. McCabe MP, Sharlip ID, Lewis R, *et al.* Incidence and prevalence of sexual dysfunction in women and men: a consensus statement from the Fourth International Consultation on Sexual Medicine 2015. *J Sex Med*. 2016;**13**(2):144–152. https://doi.org/10.1016/j.jsxm.2015.12.034
3. Jannini EA, Lenzi A. Ejaculatory disorders: epidemiology and current approaches to definition, classification and subtyping. *World J Urol*. 2005;**23**(2):68–75. https://doi.org/10.1007/s00345-004-0486-9
4. Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: prevalence and predictors. *JAMA*. 1999;**281**(6):537–544. https://doi.org/10.1001/jama.281.6.537
5. Porst H, Montorsi F, Rosen RC, Gaynor L, Grupe S, Alexander J. The Premature Ejaculation Prevalence and Attitudes (PEPA) survey: prevalence, comorbidities, and professional help-seeking. *Eur Urol*. 2007;**51**(3):816–823 discussion 824. https://doi.org/10.1016/j.eururo.2006.07.004
6. Giuliano F, Patrick DL, Porst H, *et al.* Premature ejaculation: results from a five-country European observational study. *Eur Urol*. 2008;**53**(5):1048–1057. https://doi.org/10.1016/j.eururo.2007.10.015
7. Althof SE, McMahon CG, Waldinger MD, *et al.* An update of the International Society of Sexual Medicine's guidelines for the diagnosis and treatment of premature ejaculation (PE). *J Sex Med*. 2014;**11**(6):1392–1422. https://doi.org/10.1111/jsm.12504
8. Saitz TR, Serefoglu EC. The epidemiology of premature ejaculation. *Transl Androl Urol*. 2016;**5**(4):409–415. https://doi.org/10.21037/tau.2016.05.11
9. El-Hamd MA, Saleh R, Majzoub A. Premature ejaculation: an update on definition and pathophysiology. *Asian J Androl*. 2019;**21**(5):425–432. https://doi.org/10.4103/aja.aja_122_18
10. Serefoglu EC, Saitz TR. New insights on premature ejaculation: a review of definition, classification, prevalence and treatment. *Asian J Androl*. 2012;**14**(6):822–829. https://doi.org/10.1038/aja.2012.108
11. Salonia A, Bettocchi C, Boeri L, *et al.* European Association of Urology guidelines on sexual and reproductive health-2021 update: male sexual dysfunction. *Eur Urol*. 2021;**80**(3):333–357. https://doi.org/10.1016/j.eururo.2021.06.007
12. Colonnello E, Ciocca G, Limoncin E, Sansone A, Jannini EA. Redefining a sexual medicine paradigm: subclinical premature ejaculation as a new taxonomic entity. *Nat Rev Urol*. 2021;**18**(2):115–127. https://doi.org/10.1038/s41585-020-00417-1
13. Rowland DL, McNabney SM, Hevesi K. Does bother/distress contribute to the diagnosis of premature ejaculation. *Sex Med*. 2022;**10**(5):100548. https://doi.org/10.1016/j.esxm.2022.100548
14. Rowland DL, Althof SE, McMahon CG. The unfinished business of defining premature ejaculation: the need for targeted research. *Sex Med Rev*. 2022;**10**(2):323–340. https://doi.org/10.1016/j.sxmr.2021.11.003
15. Graziottin A, Althof S. What does premature ejaculation mean to the man, the woman, and the couple. *J Sex Med*. 2011;**8**(Supplement_4):304–309. https://doi.org/10.1111/j.1743-6109.2011.02426.x
16. Limoncin E, Lotti F, Rossi M, *et al.* The impact of premature ejaculation on the subjective perception of orgasmic intensity: validation and standardisation of the 'Orgasmometer'. *Andrology*. 2016;**4**(5):921–926. https://doi.org/10.1111/andr.12220
17. Sotomayor M. The burden of premature ejaculation: the patient's perspective. *J Sex Med*. 2005;**2**(Suppl 2):110–114. https://doi.org/10.1111/j.1743-6109.2005.20371.x
18. Phillips R. Sexual dysfunction: premature ejaculation and female sexual satisfaction. *Nat Rev Urol*. 2014;**11**(6):304. https://doi.org/10.1038/nrurol.2014.114
19. Burri A, Giuliano F, McMahon C, Porst H. Female partner's perception of premature ejaculation and its impact on relationship breakups, relationship quality, and sexual satisfaction. *J Sex Med*. 2014;**11**(9):2243–2255. https://doi.org/10.1111/jsm.12551
20. Turley KR, Rowland DL. Evolving ideas about the male refractory period. *BJU Int*. 2013;**112**(4):442–452. https://doi.org/10.1111/bju.12011
21. Seizert CA. The neurobiology of the male sexual refractory period. *Neurosci Biobehav Rev*. 2018;**92**:350–377. https://doi.org/10.1016/j.neubiorev.2018.06.011
22. Levin RJ. Revisiting post-ejaculation refractory time-what we know and what we do not know in males and in females. *J Sex Med*. 2009;**6**(9):2376–2389. https://doi.org/10.1111/j.1743-6109.2009.01350.x
23. Raveendran AV, Agarwal A. Premature ejaculation- current concepts in the management: a narrative review. *Int J Reprod Biomed*. 2021;**19**(1):5–22. https://doi.org/10.18502/ijrm.v19i1.8176
24. Lotti F, Corona G, Rastrelli G, Forti G, Jannini EA, Maggi M. Clinical correlates of erectile dysfunction and premature ejaculation

in men with couple infertility. *J Sex Med*. 2012;**9**(10):2698–2707. https://doi.org/10.1111/j.1743-6109.2012.02872.x
25. Kwak SG, Kim JH. Central limit theorem: the cornerstone of modern statistics. *Korean J Anesthesiol*. 2017;**70**(2):144–156. https://doi.org/10.4097/kjae.2017.70.2.144
26. Revicki D, Howard K, Hanlon J, Mannix S, Greene A, Rothman M. Characterizing the burden of premature ejaculation from a patient and partner perspective: a multi-country qualitative analysis. *Health Qual Life Outcomes*. 2008;**6**(1):33. https://doi.org/10.1186/1477-7525-6-33
27. Zhang J, Su H, Ma C, Li H. Premature ejaculation, true or false? Clinical evaluation of PE patients with multiple intercourse in one day. *Andrologia*. 2021;**53**(7):e14097. https://doi.org/10.1111/and.14097
28. Mulhall J, King R, Glina S, Hvidsten K. Importance of and satisfaction with sex among men and women worldwide: results of the global better sex survey. *J Sex Med*. 2008;**5**(4):788–795. https://doi.org/10.1111/j.1743-6109.2007.00765.x
29. McMahon CG. Premature ejaculation. *Indian J Urol*. 2007;**23**(2):97–108. https://doi.org/10.4103/0970-1591.32056
30. Symonds T, Roblin D, Hart K, Althof S. How does premature ejaculation impact a man s life. *J Sex Marital Ther*. 2003;**29**(5):361–370. https://doi.org/10.1080/00926230390224738
31. Rowland DL, Patrick DL, Rothman M, Gagnon DD. The psychological burden of premature ejaculation. *J Urol*. 2007;**177**(3):1065–1070. https://doi.org/10.1016/j.juro.2006.10.025
32. Bhat GS, Shastry A. Association between post-ejaculatory refractory time (PERT) and premature ejaculation (PE). *J Sex Med*. 2019;**16**(9):1364–1370. https://doi.org/10.1016/j.jsxm.2019.06.016
33. Waldinger MD. The pathophysiology of lifelong premature ejaculation. *Transl Androl Urol*. 2016;**5**(4):424–433. https://doi.org/10.21037/tau.2016.06.04
34. Limoncin E, Tomassetti M, Gravina GL, *et al.* Premature ejaculation results in female sexual distress: standardization and validation of a new diagnostic tool for sexual distress. *J Urol*. 2013;**189**(5):1830–1835. https://doi.org/10.1016/j.juro.2012.11.007
35. Kaestle CE, Allen KR. The role of masturbation in healthy sexual development: perceptions of young adults. *Arch Sex Behav*. 2011;**40**(5):983–994. https://doi.org/10.1007/s10508-010-9722-0
36. Zimmer F, Imhoff R. Abstinence from masturbation and hypersexuality. *Arch Sex Behav*. 2020;**49**(4):1333–1343. https://doi.org/10.1007/s10508-019-01623-8
37. Ren Z, Liu Y, Deng J. Development and validation of the Chinese version of the Masturbation Beliefs Scale. *Sex Med*. 2022;**10**(3):100501. https://doi.org/10.1016/j.esxm.2022.100501
38. Castellini G, Fanni E, Corona G, Maseroli E, Ricca V, Maggi M. Psychological, relational, and biological correlates of ego-dystonic masturbation in a clinical setting. *Sex Med*. 2016;**4**(3):e156–e165. https://doi.org/10.1016/j.esxm.2016.03.024
39. Herbenick D, Fu TC, Wasata R, Coleman E. Masturbation prevalence, frequency, reasons, and associations with partnered sex in the midst of the COVID-19 pandemic: findings from a U.S. nationally representative survey. *Arch Sex Behav*. 2023;**52**(3):1317–1331. https://doi.org/10.1007/s10508-022-02505-2
40. Maddox AM, Rhoades GK, Markman HJ. Viewing sexually-explicit materials alone or together: associations with relationship quality. *Arch Sex Behav*. 2011;**40**(2):441–448. https://doi.org/10.1007/s10508-009-9585-4
41. Wincze JP. Psychosocial aspects of ejaculatory dysfunction and male reproduction. *Fertil Steril*. 2015;**104**(5):1089–1094. https://doi.org/10.1016/j.fertnstert.2015.07.1155
42. Sansone A, Yuan J, Hou G, *et al.* From Waterloo to the Great Wall: a retrospective, multicenter study on the clinical practice and cultural attitudes in the management of premature ejaculation, in China. *Andrology*. 2023;**12**(2):247–258. https://doi.org/10.1111/andr.13403
43. Rosen RC, McMahon CG, Niederberger C, Broderick GA, Jamieson C, Gagnon DD. Correlates to the clinical diagnosis of premature ejaculation: results from a large observational study of men and their partners. *J Urol*. 2007;**177**(3):1059–1064; discussion: 1064. https://doi.org/10.1016/j.juro.2006.10.044