

## EJACULATION DISORDERS

# Premature Ejaculation Among Internet Users Living in the Metropolitan Region of São Paulo, Brazil: A Cross-Sectional Comparison Between the Premature Ejaculation Diagnostic Tool (PEDT) and Patient-Reported Latency Time and Perception



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## ABSTRACT

**Background:** Premature ejaculation (PE) prevalence can vary according to different definitions, assessment methods and populational demographics and culture.

**Aims:** To investigate the differences between men classified as having “probable PE” (PEDT $\geq$ 11), “possible PE” (PEDT = 9 or 10) or “no PE” (PEDT $\leq$ 8) according to the Premature Ejaculation Diagnostic Tool (PEDT) criteria in regard to sociodemographic characteristics, and sexual and relational behavior. To assess the agreement of prevalence of PE according to 3 assessment methods: (i) the ejaculation latency time (ELT) according to the participant’s memory; (ii) PEDT and (iii) a direct question about the self-perception of ejaculation as being normal, too early (premature) or retarded.

**Methods:** In this web-based cross-sectional study, men aged  $\geq$  18 years living in the metropolitan region of São Paulo, Brazil, responded anonymously to an online survey. We used multinomial regression to estimate the association between PE according PEDT criteria and other features and the kappa coefficient to estimate agreement between the assessment methods.

**Outcomes:** Association between PEDT-PE, sociodemographic characteristics and sexual and relational behaviors; agreement between PEDT, ELT and self-perception of PE.

**Results:** Obesity, trying to hold back ejaculation, short or nonexistent foreplay and age  $<$ 30 years were associated with PEDT  $\geq$ 11. Men who considered that latency was shorter for oral, anal and vaginal sex than for masturbation were more likely to have probable PE according to PEDT. Possible PE (PEDT scores 9/10) was associated with trying to hold back ejaculation and considering time for ejaculation shorter for vaginal sex. There was fair agreement between assessments (kappa 0.39; CI:0.28 –0.42;  $P < .001$ ).

**Conclusion:** PE prevalence varies according to instruments and cut-offs used, with fair agreement between them. This finding shows that the methods evaluate different aspects of the EP syndrome and they must be combined to allow the discrimination between the different types of PE and treatments. Clinical approaches should consider the sexual behavior and relationship of the patient and their distress. **dos Reis M de MF, Barros EAC, Monteiro L, et al. Premature Ejaculation Among Internet Users Living in the Metropolitan Region of São Paulo, Brazil: A Cross-Sectional Comparison Between the Premature Ejaculation Diagnostic Tool (PEDT) and Patient-Reported Latency Time and Perception. Sex Med 2022;10:100463.**

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**Keywords Mesh terms:** Premature Ejaculation; Diagnostic Self Evaluation; Sexual Behavior; Sexual Health

**Author Keywords:** Rapid ejaculation; Rate of premature ejaculation; Too early ejaculation, e-survey; agreement among diagnostic methods

## INTRODUCTION

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) defines premature ejaculation (PE) as a sexual disorder. For the DSM-V, premature, early or rapid ejaculation is “a persistent or recurrent pattern of ejaculation occurring during partnered sexual activity within approximately 1 minute following vaginal penetration and before the individual wishes it; this pattern must have been present for at least six months and must be experienced on almost all or all (approximately 75–100%) occasions of sexual activity (in identified situation contexts or, if generalized, in all contexts) and this symptom causes clinically significant distress in the individual”.<sup>1</sup>

The International Society of Sexual Medicine (ISSM) proposed the distinction between lifelong PE (the ejaculation that occurs always or almost always before one minute after vaginal penetration since the first experience sexual) and acquired PE (uncomfortable and clinically significant reduction in the latency time between penetration and ejaculation (intravaginal ejaculation latency time, IELT, for up to three minutes); in both cases, PE is also associated with inability to delay ejaculation on all or nearly all vaginal penetrations or “negative personal consequences, such as distress, bother, frustration, and/or the avoidance of sexual intimacy”).<sup>2</sup>

Waldinger & Schweitzer (2006)<sup>3</sup> proposed that PE be seen as syndromes: beyond the lifelong PE and acquired PE, they described the “natural variable PE,” which is not a typical syndrome but rather a cluster of inconsistent symptoms of rapid ejaculation. In “natural variable PE” the occurrence of rapid ejaculation is not based on neurobiological or psychological pathology, but belongs to the normal variability of sexual performance. In these three types of PE, IELT is shorter than in men without PE. Additionally, Waldinger (2006)<sup>4</sup> described the fourth type of PE syndrome, called “premature-like ejaculatory dysfunction”, in men that experience PE while having normal or even long IELT durations. These men show a misjudgment of the actual ejaculation time and need different health and psychoeducational treatments from men that had no control over ejaculation or IELT lower than 1 minute.<sup>4</sup> It is important to note that all these definitions have a heterosexist bias because they only refer to intravaginal intercourse and neglect other forms of sexual activity and men having sex with men.<sup>5</sup> PE is associated with feelings of frustration, anxiety and sexual abstinence. The loss of control over ejaculation is associated with dissatisfaction, anguish and feelings of inferiority and loss of

self-confidence; in addition to important consequences on the relationship, with frustration and loss of closeness and intimacy between partners.<sup>6</sup> It is important to estimate the prevalence of PE and to distinguish their subtypes in order to planning health and educational interventions for men and their partners.

Studies on the prevalence of sexual dysfunction and PE are challenging to design due to the sensitive nature of the topic<sup>7</sup> and to the need of including enough participants, in a sample that is representative of the various gender identities and sexual preferences and behaviors in the population. The studies conducted until the 1990s in general used convenience samples of health service users or people recruited in public spaces, and this approach may lead to prevalence overestimation because of self-selection or recruitment of individuals in worse health situations.<sup>8</sup> Since the 1980s, there has been a reduction in the response rate to prevalence studies and an increase in costs of conducting studies in general.<sup>9</sup> These factors and the increase in the use of internet from the second half of the decade<sup>10</sup> led researchers to conduct studies on the prevalence of PE using the internet for sampling, recruitment and data collection procedures, with the possibility of including large samples and participants residing in different parts of the world.<sup>11</sup> Conducting studies on sexual dysfunctions through the internet was recommended by the European Society of Sexual Medicine in its position statement published in 2020.<sup>12</sup>

The prevalence of PE in the literature ranges from 4.0% to 77.6%.<sup>13</sup> This variability is a consequence of the different definitions of PE used by researchers (there can be a considerable difference between the proportion of men who ejaculate before they wish and the proportion of men who find this bothersome enough to seek treatment),<sup>14</sup> different assessment methods used and the different populations studied.<sup>13</sup> The main methods used involve the measurement of the latency time between vaginal penetration and ejaculation and the use of standardized questionnaires.<sup>15</sup> Different cutoff points have been used for the latency time until ejaculation (less than 1 minute, less than 2 minutes or “before desired”) and different ways of measuring it (using a stopwatch by the man, partner or by an observer or the subject’s memory)<sup>15</sup>

Among the existing standardized questionnaires, the Premature Ejaculation Diagnostic Tool (PEDT),<sup>6</sup> published in 2007 and translated and validated for different languages<sup>16–18</sup> is widely used. This questionnaire has two cutoffs:  $\geq 11$  (referred to

as “probable PE”) and 9–10 (“possible PE”).<sup>6</sup> Since 2010, several web-based cross-sectional studies about PE were conducted using PEDT in different countries and target populations (Table 1). Two of these studies used “random samples” (without describing further details of the sampling procedure, such as the sequence generation).<sup>19,20</sup> Thirteen studies used convenience samples, obtained from lists of medical students,<sup>21,22,23</sup> a panel of a research company,<sup>24</sup> market research panels<sup>25</sup> and a shopping club.<sup>26</sup> Seven studies<sup>27–33</sup> were open surveys, in which an invitation was posted on websites, distributed to newsgroups or list servers, or spread through word of mouth and through social media.<sup>9</sup> Four studies used Facebook as a recruitment channel.<sup>27–29,31</sup> The prevalence of PE in these investigations ranged from 6.0%<sup>20</sup> to 61%.<sup>25</sup> However, in studies conducted with face to face interviews or self-administered questionnaires that used PEDT, the prevalence of PE also shows large variability, ranging from 7.3%<sup>34</sup> (among University students) to 40.6%<sup>35</sup> (among men attended in a primary care setting). This variability could be explained by differences in studied populations and by the use of different cutoffs of PEDT adopted by researchers ( $\geq 11$  or  $\geq 9$ ). We did not find other studies investigating the differences among men classified as having “possible PE” or “probable PE” according to PEDT criteria. In all definitions of PE used, only vaginal penetration is considered and there is no consensus in the literature on the latency time to ejaculation in other sexual practices. Also, few studies use more than one assessment tool.

The primary objective of the present study was to investigate the differences between men classified as having “probable PE”, “possible PE” or “no PE” according to PEDT criteria with regards to sociodemographic characteristics, and sexual and relational behavior. A secondary objective was to assess the agreement between the three assessment methods: (i) the ejaculation latency time (ELT) according to the participant’s memory; (ii) PEDT and (iii) a direct question about the self-perception of ejaculation as being normal, too early (premature) or retarded. We hypothesized that different personal and interpersonal relationship characteristics would play a role in the detection of PE, and that the agreement between the different tools and diagnostic criteria would not be high. We worked with two research questions:<sup>1</sup> are there any significant differences between men with probable or possible PE regarding sociodemographic characteristics, and sexual and relational behavior? and<sup>2</sup> is the agreement among the three assessment methods of PE high?

## METHODS

### Study Design, Setting and Ethics

This is a cross-sectional study conducted online with adults living in metropolitan region of São Paulo, Brazil. The study was approved by the Institutional Review Board (protocol number CAAE: 18453119.2.0000.0082). Participants signed informed consents electronically before starting to respond to the survey. They responded anonymously (no identification was required in

the questionnaire) and online, without interaction with interviewers. We collected data from the May 22, 2019–March 3, 2020.

We report this study following the guidance provided by the reporting guideline STROBE (Strengthening the Reporting of Observational Studies in Epidemiology).

### Participants’ Recruitment and Sample Size

We conducted an e-survey using an open-access, convenience sample. We included 18-year-old men reached through our university’s and the researchers’ social media channels (especially Facebook and WhatsApp). We did not use monetary or other incentives to stimulate survey participation. The survey response was anonymous. The researchers and the university intensified the dissemination of the project and the link to the survey in 2020, to increase participants’ recruitment in the metropolitan region of São Paulo, where, in 2019, about 77% of population had access to internet.<sup>36</sup>

We verified age by asking for a declaration of date of birth in the survey form, and the address allowed us to exclude from the analysis any residents of other areas than the metropolitan region of São Paulo (that includes several cities in a commuter belt anchored by the capital).

For sample size calculation, we considered 30% as the prevalence of PE, with a margin of error (precision) of 5% and a 95% confidence interval (CI). We calculated 323 participants as the minimum sample to estimate the prevalence of PE, and we added 20% more to allow for losses. The final minimum sample size was thus set as 387 individuals.

### Data Collection and Variables

We built an online questionnaire using the Google Forms platform. In the first page/screen, we reminded participants that there are no correct or wrong answers and asked their consent for participation.

The first part of the form had sociodemographic questions (age, education, occupation, income, race/ethnicity, and we also asked if the respondent had a stable relationship or was married (and for how long) or single (not married or widower). We also asked the frequency of physical activity and their height and weight in order to calculate their body mass index (BMI).

Another section of the questionnaire, that was prepared for this study specifically, had items about their sexual life: the time and frequency of masturbation, foreplay in sexual relations, control of ejaculation. We gave participants a definition of ejaculation, as the release of semen at the climax of sexual pleasure obtained in masturbation or after penetration (ie, the introduction of the penis). Several questions required them to choose the time alternative as “up to 1 minute”, “up to 2 minutes”, “up to 5 minutes”, “up to 15 minutes” and “more than 15 minutes”, in a Likert scale: these were related to the time taken until ejaculating

**Table 1.** Web-based cross-sectional studies of premature ejaculation using Premature Ejaculation Diagnostic Tool (PEDT), 2010 – 2020

Study	Year	Authors	Countries	Target population*	Sampling	Sampling source	Method of recruitment	Online platform used	Anonymity	Age (years)	n	Criteria for considering premature ejaculation	Prevalence rate of premature ejaculation (%)
1	2010	Breyer et al.	United States	Medical students	Convenience	American Student Medical Association and Student-Doctor Network Lists	Posts by the two student bodies and an ad posted on the "Medscape.com" website	QuestionPro.com	Not reported	Not reported	919	PEDT ≥ 9	Heterosexual: 16.2%; Homosexual: 17.3%
2	2010	Smith et al.	United States	Medical students	Convenience	American Student Medical Association and Student-Doctor Network Lists	Posts by the two student bodies and an ad posted on the "Medscape.com" website	QuestionPro.com	Yes	Not reported	844	PEDT ≥ 9	24.4%
3	2011	Shindel et al.	English-speaking countries	Men who have sex with men	Convenience	Open <sup>†</sup>	Distribution of an invitation to local, national and international community centers aimed at lesbian, gay, bisexual and transgender people, organizations serving men who have sex with men, and Facebook ads targeting gays and other men who have sex with men	surveymonkey.com	Yes	30 – 79	1361	PEDT ≥ 9	Prevalence presented by age, HIV infection and AIDS; general prevalence was not showed
4	2011	Smith et al.	United States	Medical students	Convenience	American Student Medical Association and Student-Doctor Network Lists	Posts by the two student bodies and an ad posted on the "Medscape.com" website	QuestionPro.com	Yes	18 – 51	480	PEDT ≥ 9	14.6%
5	2012	McMahon et al.	Australia/New Zealand, China, Hong Kong, Indonesia, Malaysia, Philippines, South Korea, Taiwan and Thailand	Heterosexual having sexual relationships currently or in the last two years	Random	Open <sup>†</sup>	Not reported	Not reported	Not reported	18 – 65	4,997	PEDT ≥ 11	16%
6	2012	Shindel et al.	English-speaking countries	Men who have sex with men	Convenience	Open <sup>†</sup>	Distribution of an invitation to local, national and international community centers aimed at lesbian, gay, bisexual and transgender people, organizations serving men who have sex with men, and Facebook ads targeting gays and other men who have sex with men	surveymonkey.com	Yes	18 – 81	2640	PEDT ≥ 11	8 – 12%, according to age
7	2013	Shaer	United States	General male population	Convenience	Open <sup>†</sup>	Paid advertisement on Facebook, in the form of a banner (pay per click), financed by the authors. The ad was randomly distributed among members of the social network, regardless of gender, age, marital status and subjects of interest for the purpose of randomization	Not reported	Yes	18 – 79	1133	International Society for Sexual Medicine (ISSM) definition of premature ejaculation; PEDT (not describing the cutoff point) and a self-assessment question: "Do you think you ejaculate too quickly, before you or your partner wants to?"	ISSM: 13.4%; PEDT: 49.6%; self-evaluation: 14.4%
8	2014	Song et al.	South Korea	General male population, having had sex at least once per month in the last 6 mo	Convenience	Panel at a research company, with a representative sample of the Korean male population	Email sent to panelists inviting them to visit the survey web portal and complete the questionnaire	Not reported	Yes	20 – 59	443	PEDT ≥ 11; and a self-assessment question: "What category do you fall into: normal, premature, or delayed ejaculation?"	PEDT: 14.6%; self-evaluation: 20.5%

(continued)

Table 1. Continued

Study	Year	Authors	Countries	Target population*	Sampling	Sampling source	Method of recruitment	Online platform used	Anonymity	Age (years)	n	Criteria for considering premature ejaculation	Prevalence rate of premature ejaculation (%)
9	2014	O'Sullivan et al.	Canada	Teenagers	Convenience	Participants from another study and open access	Printed and online advertisements	Not reported	Not reported	16 – 21	114	PEDT = 9 or 10; PEDT ≥ 11	PEDT = 9 or 10: 6.1%; PEDT ≥ 11: 13.2%
10	2016	Lee et al.	Australia, China, South Korea, Philippines, Hong Kong, Indonesia, Malaysia, Singapore, Thailand, Taiwan and Vietnam	Heterosexual men with stable partnerships having had sex at least once per month in the last 6 mo	Convenience	Market research panels	Multiple recruitment e-mails sent	Not reported	Not reported	18 – 64	5,038	PEDT ≥ 9	61%
11	2017	Sansone et al.	Italy	General male population, having had sex at least once per month in the last 4 wks, comparing videogamers with non gamers	Convenience	Open <sup>†</sup>	The research link was published on the authors' pages on Facebook and Twitter and on Reddit; some people asked for permission to share the link to the page to share the questionnaire. 60% of the sample was captured by Facebook	GoogleForms	Yes	18 – 50	396	PEDT ≥ 11	Players: 0%; non players: 34.9%
12	2018	Levitan et al.	United States and Canada	Gay and bisexual men	Convenience	Open <sup>†</sup>	Reddit forums, aimed at men, women, lesbian, gay, bisexual and trans people, fitness, sexuality and weight loss	surveymonkey.com	Not reported	18 – 40	185	PEDT ≥ 11	11.9%
13	2019	Grabski et al.	Poland	Gay and bisexual men	Convenience	Open <sup>†</sup>	Ads on websites with content on health and wellness, male sexual health and aimed at non-heterosexual audiences	Not reported	Not reported	18 – 70	1486	PEDT ≥ 11	Homosexual: 11.8%; bisexual: 14.5%; total: 12%
14	2019	Tsai et al.	Taiwan	Male population with a monogamous relationship with a woman for at least one year	Convenience	Members of a shopping club, with filling quotas by age group to reflect the age composition of Taiwan's male population	E-mail inviting to respond to the questionnaire	Not reported	Yes	20 – 60	937	PEDT ≥ 11; and a self-assessment question: "Do you suffer from premature ejaculation, which is defined as recurrent or persistent ejaculation with minimal sexual stimulation before, during or shortly after vaginal penetration and before you want to?"	PEDT: 6.3%; self-evaluation: 28.5%
15	2020	Prieto-Castro et al.	Spain	Male population without previous diagnosis of premature ejaculation or erectile dysfunction	Random	Not reported	Collaboration request sent to a population database	Not reported	Yes	25 – 75	2,515	PEDT ≥ 9	6%

\*Target population was described using the original words from the cited studies

<sup>†</sup>Open: in this kind of sample there is no list of possible participants. Invitation was posted on websites, distributed to newsgroups or list servers, or spread through word of mouth and through social media.

when masturbating, during intercourse after penetration, the time considered “ideal” by the respondent and the time men thought their partners considered “ideal”. We asked if the time for ejaculation is longer with oral, anal, vaginal sex or masturbation. Although the cutoff adopted by DSM-V for PE is 1 minute, we used 2 minutes because ELT based on memory may be higher than ELT measured with a chronometer.<sup>37</sup>

We added the Premature Ejaculation Diagnostic Tool (PEDT)<sup>6</sup> in its Brazilian Portuguese validated version<sup>18</sup> to the online survey, with 5 questions that identify men who may have a problem with ejaculating too soon during sexual activity. Responses to PEDT go from 0 (“not at all”) to 4 (“extremely”) and the final score ranges from 0 to 20, where 8 or less indicates the man does not suffer from PE, 9 and 10 indicate possible PE and 11 or more indicate probable PE.<sup>38</sup>

We investigated PE in this study using, therefore, a set of three tools: (i) a specific question, as described above, about the time from penetration to ejaculation (ejaculation latency time, ELT, here including vaginal or anal penetration); (ii) PEDT, that includes question on the satisfaction of the participant and the partner with the time for ejaculation and (iii) a final direct question about the self-perception of ejaculation as being normal, too early (premature) or retarded.

All items in the survey were made “required” or mandatory, and the final results were recorded only if the participant responded all questions.

## Statistical Analysis

We exported data from GoogleForms to spreadsheets and excluded participants who declared dates of birth indicating they were less than 18 years old or addresses indicating they did not live in the metropolitan region of São Paulo. We also checked the existence of duplicates using the variables birth date and city of residence. Then we analyzed data using Stata (version 13.1) and considering  $P < .05$  as significant.

We compared the study sample to the male population of metropolitan region of São Paulo, using data from the last Brazilian Census, carried out in 2010<sup>1</sup> (available at <https://www.ibge.gov.br>), the Surveillance System for Protective and Risk Factors via Telephone Survey (Vigitel, available at <http://www2.datasus.gov.br>) and a survey about sexual behavior conducted in Brazil in 2008.<sup>39</sup>

We considered the associations among sociodemographic characteristics, sexual and relational behavior and possible PE (PEDT = 9 or 10) or probable PE (PEDT  $\geq$  11) as the main outcome for this study. We used multinomial regression<sup>40</sup> to calculate the odds ratios (OR) of having the condition comparing the three classification groups pairwise. First, we calculated the OR

and CI for each separate characteristic (univariate analysis). To build the final model, we included all variables with a  $P$ -value of 0.20 or less in this univariate analysis. The first block of variables had sociodemographic characteristics, obesity (BMI  $\geq$  30 kg/m<sup>2</sup>) and physical activity. A second block had the variables linked to the sexual behavior. Finally, we removed, one by one, the variable not significantly associated with the outcomes (PE or probable PE). We used the likelihood ratio test to evaluate the contribution of each variable to the final model. In the comparison of the different tested statistical models, we chose the most plausible under the biological and behavioral point of view.

We calculated absolute and relative frequencies and the three prevalence rates according to each criterion: the ELT  $\leq$  2 minutes; the PEDT score  $\geq$  11 the self-perceived PE with CI. We used kappa statistics<sup>41</sup> to assess the agreement between the three measures, and the chi-squared test to check the association between the responses on PEDT, IELT and the question about self-perception of PE.

## RESULTS

### Participants

During the period the questionnaire remained online, 829 men responded. From these, we excluded 264 that lived outside São Paulo metropolitan region, and another man who had not yet completed 18 years of age. Most participants, however, participated during February 2020, after a series of dissemination procedures through social media. All 564 included questionnaires were completely responded, so no imputation was needed.

The mean age of the 564 men was 26.9 years (standard deviation, SD, 10.2 years; range: 18-74) and most (75%) were aged up to 29 years (Table 2). Most men were white (67.2%). Although a substantial proportion of men were graduated or post-graduated (38.3%), and were working (59.8%), half of them had a low income (less than 5 Brazilian minimum wages in 2019, corresponding to US\$ 1175.00, exchange date: February 3, 2020). Almost 60% were heterosexual and in a stable relationship.

In comparison with the male population of the São Paulo metropolitan region aged 18 years or more, the men in our sample were younger, had a higher proportion of white people and higher educational level. There were more men in the sample without an income, probably because 37.8% of them were students. The proportion of homosexual men in the sample was almost twice and of bisexual was 2.5 times in comparison with the general population. There was no important difference in the proportion of men in stable relationships. The sample used in this study had a higher proportion of obese and very higher proportion of inactive people (Table 2).

### Sexual Behavior and Time for Ejaculation

Masturbation was frequent among these men: 66.1% said they masturbated at least three times a week (Table 3) and for

<sup>1</sup>The 2020 Brazilian Census had to be postponed due to the COVID-19 pandemic.

**Table 2.** Sociodemographic characteristics of the sample (n = 564) and of male population aged ≥ 18 years from São Paulo metropolitan area, Brazil

Sample	São Paulo Metropolitan Region		
	n	%	%
<b>Age*</b>			
Up to 19 y	131	23.2	4.5
20 to 29 y	295	52.3	26.3
30 to 39 y	72	12.8	23.4
40 years or older	66	11.7	45.7
<b>Race/ethnicity*</b>			
White	379	67.2	58.5
Mixed race	123	21.8	31.9
Black	48	8.5	7.4
Asian	14	2.5	2.1
Other	—	—	0.1
<b>Education*</b>			
Até Ensino Médio Incompleto	20	3.5	52.1
Ensino Médio Completo e Superior Incompleto	328	58.2	32.0
Ensino Superior Completo e Pós-graduação	216	38.3	15.0
Não determinado	—	—	0.9
<b>Income (minimum wage)**</b>			
No income (dependent on others)	157	27.9	17.4
Até 5	279	49.6	68.6
5 a 9	53	9.4	8.6
≥ 10	74	13.1	5.4
No information	1	—	—
<b>Sexual orientation†</b>			
Heterosexual	337	59.8	80.7
Homosexual	144	25.5	14.5
Bisexual	71	12.6	4.8
Pansexual	12	2.0	—
<b>Stable relationship*</b>			
No	231	41.0	38.9
Yes	333	59.0	61.1
<b>Obesity (BMI ≥ 30 kg/m<sup>2</sup>)‡</b>			
No	460	81.6	85.7
Yes	104	18.4	14.3
<b>Physical activity‡</b>			
No	226	40.1	15.5
Yes	338	59.9	84.5

\*Data from the 2010 Brazilian census, available in: <https://www.ibge.gov.br>

†Data from Mosaico Brasil, a research project conducted in 2008

‡Data from the Surveillance System for Protective and Risk Factors via Telephone Survey (Vigitel), available in <http://www2.datasus.gov.br>

31% it happens every day. The responses about foreplay were well distributed, and only a minority declared they do not practice any sexual activity before intercourse (2.7%), as shown in Table 3. Most men said they tried to hold ejaculation (67.9%) always or sometimes.

The time for ejaculation from starting masturbation or from penetration (Table 3) in real life seems to be different from what these men think would be ideal. Most (61.3%) said it takes no longer than five minutes for them to ejaculate during masturbation. In fact, 46.3% of men said that masturbation is when ejaculation is faster. Although the majority of participants think that the ideal time would be at least 6 minutes (91.7%), that happens to fewer men: only 71.5% think they actually ejaculate 6 minutes after penetration (or more). Most men also believe that their partners are expecting them to last longer than 6 minutes having sex before ejaculation (89%). More than half of the men think a minimum of 15 minutes is the ideal time, but that happens for only 34.8%.

## Prevalence of Premature Ejaculation

Table 4 presents the prevalence of PE according to different criteria. The table shows that using different methods to estimate prevalence leads to disparate results. Figure 1 illustrates these differences showing other pairs of comparisons. If the prevalence of PE is calculated when any of the criteria is present, the prevalence can reach 32.3% (95% CI: 28.4% – 36.3%).

## Agreement and Disagreement Between Assessment Methods

The agreement between the self-evaluated PE (when participants declared they ejaculate before wanting to) and the results of PEDT was moderate (kappa 0.52; 95%CI 0.44 – 0.60;  $P < .001$ ). However, the agreement between PEDT and the ELT was only fair (kappa 0.31; 95%CI 0.22 – 0.40;  $P < .001$ ) and the agreement between the 3 methods of assessment (the self-evaluated, PEDT and latency time) was also fair (kappa 0.39; 95%CI 0.28 – 0.42;  $P < .001$ ).

## Association Between the Three Assessment Methods

Table 5 shows the associations between PEDT questions, ELT and self-evaluated PE. Participants that reported a latency time lower than 2 minutes had higher proportion of responses associated with PE in all PEDT questions shown. Those who evaluate their own ejaculation as premature also had higher PEDT scores.

In the univariate analysis, the characteristics significantly associated with a higher odds ratio (OR) of PE according to PEDT were age, race/ethnicity, being a student, income, obesity, trying to hold ejaculation, time of foreplay (Table 6). Considering oral

**Table 3.** Behavior and perceptions of the time for ejaculation among men responding to the survey. São Paulo metropolitan area, Brazil, 2020 (n = 564)

General sexual behavior or perception	n	%
<b>Masturbation frequency</b>		
Less than once a week	42	7.5
Once a week	79	14.1
Twice a week	69	12.3
Three times per week	93	16.6
In alternate days	104	18.5
Every day	174	31
Inadequate response*	3	
<b>Time of foreplay before penetration</b>		
Around 1 h	60	10.6
Around half an hour	264	46.8
A few minutes	225	39.9
There is no foreplay	15	2.7
<b>Do you try to hold ejaculation?</b>		
No.	181	32.1
Yes, sometimes.	320	56.7
Yes, always.	63	11.2
<b>Ejaculation time</b>		
<b>Perception of time until ejaculation during masturbation</b>		
More than 15 min	69	12.2
6 – 15 min	149	26.4
3 – 5 min	222	39.4
2 min	108	19.1
Up to 1 min	16	2.8
<b>Situation where the time for ejaculation is less</b>		
Masturbation	261	46.3
Anal sex	97	17.2
Oral sex	89	15.8
Vaginal sex	117	20.7
<b>Perception of ideal time between the first penetration and the ejaculation</b>		
More than 15 min	305	54.1
6 – 15 min	212	37.6
Up to 5 min	47	8.3
<b>Perception of partner's opinion on the ideal time between the first penetration and the ejaculation</b>		
More than 15 min	288	51.1
6 to 15 min	214	37.9
Up to 5 min	62	11
<b>Perception of time between the first penetration and the ejaculation</b>		
More than 15 min	196	34.8
6 – 15 min	207	36.7
3 – 5 min	108	19.1
2 min	37	6.6
Up to 1 minute or ejaculates before penetration	16	2.8

\*This was a question allowing free text. These men wrote other things in the form, but not the response to the question.

**Table 4.** Comparison of the prevalence of premature ejaculation according to the Premature Ejaculation Diagnostic Tool (PEDT) and other diagnostic criteria. São Paulo metropolitan area, Brazil, 2020 (n = 564)

Criteria for diagnosing premature ejaculation	Prevalence (%)	95% CI (%)
PEDT: probable premature ejaculation (score $\geq 11$ )	25.5	22.0–29.3
PEDT: possible premature ejaculation (score 9 or 10)	13.8	11.1–17.0
Self-evaluated premature ejaculation (ejaculating before wanting to)	18.3	15.2–21.7
Latency time after penetration: < 1 min	2.8	1.6–4.6
Latency time after penetration: < 2 min	9.4	7.1–12.1
All criteria together	5.5	3.8–7.7
At least one criterium	32.3	28.4–36.3

CI = confidence interval; PEDT = Premature Ejaculation Diagnostic Tool.

or vaginal and anal sex as leading to different latency time was also associated with PE according to the PEDT result.

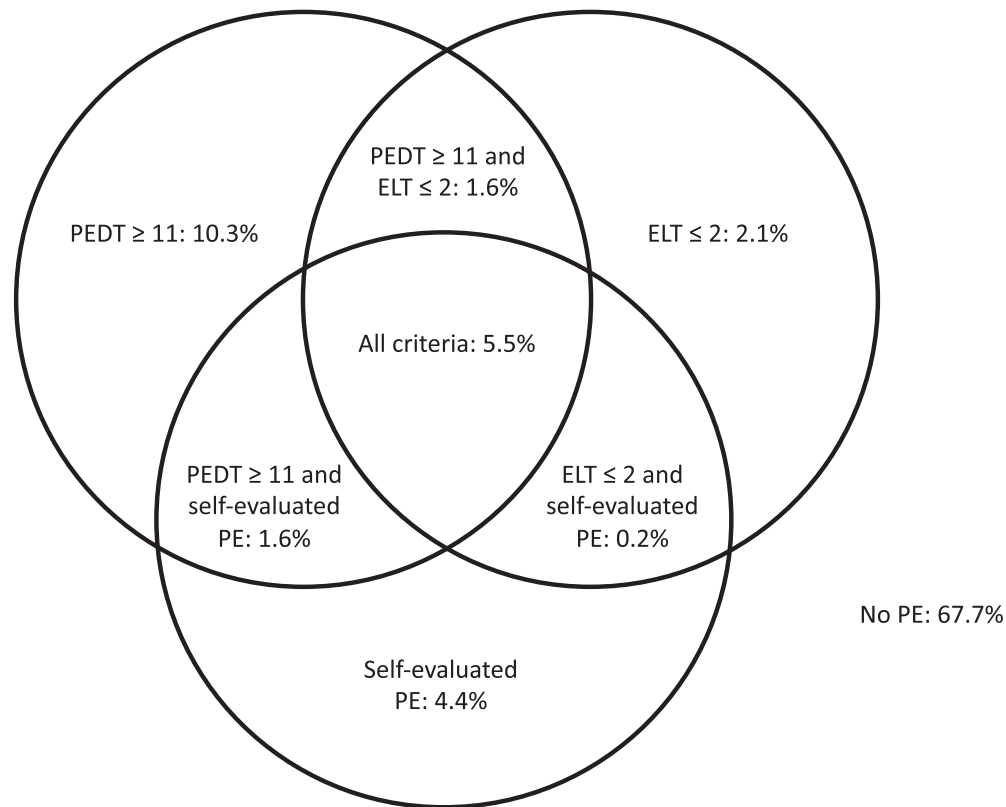
Conversely, the characteristics not associated with having premature ejaculation according to PEDT were physical activity, sexual orientation and living a stable relationship. Masturbation frequency or the perception of ideal time until ejaculation during masturbation, or this perception during intercourse with a partner were not associated with the PEDT result either (Table 6).

In the final multinomial model, probable PE criteria were associated with age, obesity, trying to hold ejaculation and time of foreplay (Table 7). The response about situations where the time for ejaculation is less than with masturbation was also significantly associated with PEDT  $\geq 11$ . Possible PE (PEDT = 9 or 10) was associated only with trying to hold ejaculation and considering ELT shorter in vaginal penetration.

## DISCUSSION

Our findings show that among male internet users the associations between sociodemographic variables and those related to sexual behavior were different for those with possible PE or probable PE according to PEDT. In other words, men with possible PE had characteristics closer to those of men without PE and only variables linked to sexual behavior were associated with a greater chance of possible PE (trying to hold the ejaculation sometimes or always and judging that the ejaculation is faster in vaginal sex compared to masturbation). On the other hand, men with probable PE, in addition to also holding back ejaculation, considered that ejaculation was faster when they had vaginal, anal or oral sex compared with solitary masturbation, had sex





**Figure 1.** Prevalence of premature ejaculation (PE) according to the Premature Ejaculation Diagnostic Tool (PEDT), the ejaculation latency time (ELT) and a direct question about the self-perception of ejaculation. São Paulo metropolitan area, Brazil, 2020 (n = 564).

with few minutes of or no foreplay, were younger and were obese more frequently.

Another finding of this study was that age was associated with probable PE. There is no consensus in the literature about the association between age and PE. Some authors observed an increase in the prevalence of PE with higher age,<sup>42,43,37</sup> while others did not find any statistically significant associations between age and PE.<sup>29,44,45</sup> A possible reason for these discrepancies is the heterogeneity in the age composition of the samples included in the studies – some with participants of very similar age (for example, Karakaban et al,<sup>46</sup> who studied men aged between 24 and 30 years) and others with wide age range (from 18 to 80 years old).<sup>29, 43</sup> Another possible explanation may be related to the inclusion or not of PE-associated comorbidities, among which erectile dysfunction (ED) and prostatitis, which are also linked to age; in these studies, after controlling for confounding variables, age no longer has a statistically significant association with PE and the association with comorbidities remains.<sup>44,45</sup> Furthermore, the social representations associated with “normal” time to ejaculate and expectations of sexual performance among men of different ages and cultural contexts may explain the different prevalence rates of PE observed between studies and age groups.

The association of obesity and PE that we observed is also controversial in the literature. Some studies could not find associations between nutritional status and PE.<sup>35,46,43</sup> While Song et al (2019)<sup>37</sup> found a significant association between higher BMI and PE, Zhang et al (2019)<sup>47</sup> observed a lower prevalence of PE among men with BMI higher than 25 kg/m<sup>2</sup>. Other studies found significant associations between regular physical activity and PE,<sup>35,43</sup> a result we did not replicate in our study. However, Yildiz et al (2018)<sup>48</sup> observed a higher prevalence of PE among men with higher physical activity indices, but their analysis did not adjust for other variables.

We found a higher chance of probable PE in men who considered that the time for ejaculation was shorter with penetration (anal, oral or vaginal) than with solitary masturbation. And, similarly to Breyer et al (2010),<sup>21</sup> we did not find significant associations between sexual orientation and PE. Because we could not find any other study on PE conducted exclusively among homosexual men or among subjects with sexual activities other than vaginal penetration that compared the time for ejaculation in these diverse sexual practices, we could not compare this result with the literature. We believe that this phenomenon of ejaculating earlier in sexual intercourse than in masturbation might be related to feelings of insecurity and less control over the situation.

**Table 5.** Association between responses to the Premature Ejaculation Diagnostic Tool (PEDT) tool and other items in the questionnaire about latency time and self-perceived premature ejaculation. São Paulo metropolitan area, Brazil, 2020 (n = 564)

PEDT questions	Latency time* < 2 min					Self-evaluated premature ejaculation				
	Yes		No		P	Yes		No		P
	(n = 53)	(n = 511)	(n = 103)	(n = 461)						
	n	%	n	%		n	%	n	%	
How difficult is it for you to delay ejaculation?										
Not difficult at all (0)	4	7.5	144	28.2	< .001	7	6.8	141	30.6	
Somewhat difficult (1)	3	5.7	164	32.1		11	10.7	156	33.8	
Moderately difficult (2)	13	24.5	133	26.0		27	26.2	119	25.8	< .001
Very difficult (3)	16	30.2	54	10.6		35	34.0	35	7.6	
Extremely difficult (4)	17	32.1	16	3.1		23	22.3	10	2.2	
Do you ejaculate before you want to?										
Almost never or never (0%)	3	5.7	142	27.8	< .001	2	1.9	143	31.0	
Less than half the time (25%)	3	5.7	165	32.3		4	3.9	164	35.6	
Around half the time (50%)	9	17	113	22.1		24	23.3	98	21.3	< .001
More than half the time (75%)	10	18.9	57	11.2		24	23.3	43	9.3	
Almost always or always (100%)	28	52.8	34	6.7		49	47.6	13	2.8	
Do you ejaculate with very little stimulation?										
Almost never or never (0%)	6	11.3	235	46.0	< .001	16	15.5	225	48.8	
Less than half the time (25%)	11	20.8	153	29.9		20	19.4	144	31.2	
Around half the time (50%)	12	22.6	82	16.0		32	31.1	62	13.4	< .001
More than half the time (75%)	12	22.6	31	6.1		21	20.4	22	4.8	
Almost always or always (100%)	12	22.6	10	2.0		14	13.6	8	1.7	
Do you feel frustrated because of ejaculating before you want to?										
Not at all (0)	5	9.4	163	31.9	< .001	2	1.9	166	36.0	
Slightly (1)	7	13.2	148	29.0		11	10.7	144	31.2	
Moderately (2)	5	9.4	88	17.2		21	20.4	72	15.6	< .001
Very (3)	10	18.9	75	14.7		29	28.2	56	12.1	
Extremely (4)	26	49.1	37	7.2		40	38.8	23	5.0	
Do you worry that the time you ejaculate leaves your partnership unsatisfied?										
Not at all (0)	6	11.3	98	19.2	.001	4	3.9	100	21.7	
Slightly (1)	1	1.9	85	16.6		7	6.8	79	17.1	
Moderately (2)	9	17	95	18.6		17	16.5	87	18.9	< .001
Very (3)	16	30.2	133	26.0		31	30.1	118	25.6	
Extremely (4)	21	39.6	100	19.6		44	42.7	77	16.7	

\*Latency time between penetration and ejaculation PEDT = Premature Ejaculation Diagnostic Tool

This finding and the absence or too short foreplay can affect psychological factors that increase the chance for PE. Brody & Weiss (2015),<sup>49</sup> investigating the role of availability for affective relationships and intimacy on male sexuality, observed an association between PE in adulthood and a worse relationship with the maternal figure in childhood. Althof (2006)<sup>50</sup> describes psychodynamic theories that postulate anxiety as the main agent for PE and that this term is used to describe<sup>1</sup> a phobic response, associated with fear of penetration,<sup>2</sup> an affect, a result of resolving the conflict between two needs (for example, the man feels anger towards his partner, but feels guilty about expressing this feeling openly) or<sup>3</sup> the concern about failure or poor sexual performance, known as anticipatory anxiety or performance anxiety, that leads to deterioration of the sexual life and to the avoidance of future sexual interactions.

We could not find an association between a stable relationship (or the lack of) and PE. Among other studies that include men with or without stable relationships, different results were found: Song et al (2014)<sup>24</sup> found that the absence of stability increased in two times the chance for PE, while Verze et al (2018)<sup>43</sup> concluded the opposite: the risk for PE increased among men living a stable relationship. The inclusion of men with and without stable relationships aimed at targeting a sample more similar to men who seek care due to PE symptoms.

The agreement between the three tools assessment methods was not substantial or high. The concordance between PEDT and the self-evaluation of PE was moderate and between PEDT and the ELT than 2 minutes was only fair, similar to other studies that found fair/moderate correlation between both assessments (Spearman correlation coefficients ranged from -0.40 to

Table 6.

This study questionnaire	Possible premature ejaculation (PEDT= 9 or 10)			Probable premature ejaculation (PEDT ≥11)			p*
	OR	95% CI		OR	95% CI		
		IL	SL		IL	SL	
<b>Age</b>							
Up to 19 years	1			1			0.035
20 to 29 years	0.83	0.46	1.51	0.83	0.52	1.33	
30 to 39 years	0.51	0.21	1.24	0.4	0.19	0.84	
40 years or older	0.41	0.15	1.08	0.39	0.18	0.84	
<b>Race/ethnicity</b>							
White	1			1			0.009
Mixed race	2.92	1.31	6.47	2.07	1.04	4.15	
Black	1.97	1.11	3.5	1.47	0.91	2.36	
Asian	—	—	—	0.74	0.2	2.72	
<b>Education</b>							
Up to high school	1			1			0.007
Undergraduate (incomplete)	1.04	0.56	1.95	0.9	0.55	1.48	
Undergraduate (bachelor)	0.46	0.21	1.04	0.58	0.32	1.02	
Post-graduation (graduate)	0.63	0.28	1.38	0.33	0.16	0.67	
<b>Activity</b>							
Working	1			1			0.001
Studying	1.97	1.19	3.25	1.9	1.27	2.85	
<b>Income</b>							
No income (dependent on others)	1			1			0.045
Up to US\$ 1175	0.87	0.48	1.56	0.67	0.43	1.04	
Between US\$ 1176 and US\$ 2355	0.89	0.36	2.19	0.52	0.24	1.11	
US\$ 2356 or more	0.62	0.26	1.44	0.29	0.14	0.62	
<b>Obesity (BMI ≥ 30 kg/m<sup>2</sup>)</b>							
No	1			1			0.049
Yes	0.61	0.29	1.3	1.51	0.94	2.42	
<b>Physical activity</b>							
No	1			1			0.084
Yes	0.94	0.57	1.57	0.64	0.43	0.95	
<b>Sexual orientation</b>							
Heterosexual	1			1			0.118
Homosexual	0.52	0.28	0.99	0.6	0.37	0.97	
Bisexual	0.98	0.47	2.04	0.86	0.47	1.58	
<b>Stable relationship</b>							
No	1			1			0.239
Yes	1.18	0.71	1.96	0.76	0.51	1.12	
<b>Masturbation frequency</b>							
Less than once a week	1			1			0.551
Once a week	0.59	0.2	1.78	0.77	0.32	1.83	
Twice a week	0.48	0.14	1.6	1.03	0.43	2.45	
Three times per week	0.88	0.32	2.4	0.54	0.22	1.31	
In alternate days	0.92	0.33	2.54	1.04	0.46	2.37	
Every day	0.72	0.28	1.86	0.7	0.32	1.53	
<b>Do you try to hold ejaculation?</b>							
No.	1			1			< 0.001
Yes, sometimes.	2.35	1.26	4.38	2.13	1.33	3.41	
Yes, always.	6.48	2.77	15.16	5.82	2.91	11.66	

(continued)

Table 6. Continued

This study questionnaire	Possible premature ejaculation (PEDT= 9 or 10)			Probable premature ejaculation (PEDT ≥11)			p*
	OR	95% CI		OR	95% CI		
		IL	SL		IL	SL	
<b>Time of foreplay before penetration</b>							
Around one hour	1			1			0.018
Around half an hour	1.02	0.44	2.38	1.6	0.74	3.49	
A few minutes	1.57	0.67	3.64	2.79	1.28	6.06	
There is no foreplay	1.79	0.31	10.51	5.57	1.51	20.57	
<b>Perception of time until ejaculation during masturbation</b>							
More than 15 minutes	1			1			0.617
6 to 15 minutes	1.05	0.63	1.76	0.83	0.55	1.27	
Up to 5 minutes	0.54	0.18	1.6	0.74	0.36	1.55	
<b>Perception of ideal time between the first penetration and the ejaculation with the partner</b>							
More than 15 minutes	1			1			0.54
6 to 15 minutes	1.07	0.64	1.8	1.04	0.68	1.57	
Up to 5 minutes	0.49	0.18	1.31	0.76	0.39	1.47	
<b>Situation where the time for ejaculation is less</b>							
Masturbation	1			1			< 0.001
Anal sex	0.91	0.43	1.98	1.78	1.01	3.11	
Oral sex	1.64	0.81	3.32	2.35	1.33	4.16	
Vaginal sex	2.18	1.17	4.09	3.21	1.92	5.38	

\*Chi-square test.

CI = confidence interval; IL = inferior limit; SL = superior limit; PET = Premature Ejaculation Diagnostic Tool

-0.57).<sup>51,16,17</sup> Jern et al (2013)<sup>52</sup> evaluated the correlation between PEDT score and ELT (for vaginal or anal intercourse) measured using a chronometer by the patients (Pearson correlation coefficient = -0.60;  $P < .002$ ). The moderate correlation and agreement likely reflect the fact that each of these methods detects different dimensions of the PE syndrome.

PEDT captures subjective aspects of PE as loss of control over ejaculation and feelings of anguish and annoyance, in line with the definition of PE in the DSM-IV-TR.<sup>53</sup> On the other hand, our survey question about self-assessment detects the conception that men have about the “ideal” time for ejaculation. Thus, self-assessment can lead to an overestimation of the prevalence of PE when including men with premature-like ejaculatory dysfunction.<sup>4</sup> In our study, 4.4% of men reported having PE, although they did not have PE according to the PEDT or ELT score. Their expectations about the ideal IELT can be unrealistic, since the median time to ejaculate after the vaginal penetration in general for the heterosexual population is 5.4 minutes<sup>54</sup> — and not 15 minutes, as more than half men surveyed imagined.

Song et al (2014)<sup>24</sup> conducted an internet survey on the prevalence of the four syndromes of PE proposed by Waldinger.<sup>3,4</sup> They used PEDT, the self-reported IELT and a self-evaluation question. They found that men with lifelong PE had significantly higher PEDT scores than men with other types of PE, and lower scores were found among men with premature-like ejaculatory

dysfunction. Wei et al<sup>15</sup> state that one single tool is not enough to detect PE. The authors propose the use of tests including penile stimulation to simulate a sexual relationship to obtain objective measures of latency time and intensity of ejaculation. The difficulty in measuring latency time probably explains the increasing number of studies using the estimated time instead.<sup>37</sup> Measurement methods are not always viable for epidemiologic studies — and even experimental studies with video recording or the use of stopwatches by men or their partners can be contaminated with confounding factors, such as performance anxiety leading to shorter times.

Rosen et al<sup>55</sup> had already suggested that the use of latency time — referred to as IELT, intravaginal latency time, in most studies —, estimated or measured with a stopwatch, is simply not enough for the diagnosis of PE. One study<sup>14</sup> compared the latency time between men without PE and with the diagnosis made by physicians using DSM (version 4). There was a great overlap: while 95% without PE had latency of 1.88 minutes or greater, 49% of men with PE also presented this same latency time. Due to the complexity of measurement, we believe that it is necessary to combine the latency time with the subjective evaluation by the patient, investigating stress, coping and control issues, and we share Jern et al (2013) proposal of incorporating questions about vaginal or anal ELT to the tools evaluating subjective aspects of PE.<sup>52</sup>

**Table 7.** Multinomial model of associations among premature ejaculation according Premature Ejaculation Diagnostic Tool (PEDT) and socio-demographic characteristics, behavior and perceptions about premature ejaculation. São Paulo metropolitan area, Brazil, 2020 (n = 564)

This study questionnaire	Possible Premature ejaculation (PEDT= 9 or 10)			Probable Premature ejaculation (PEDT ≥11)			p**
	OR*	95% CI		OR*	95% CI		
		IL	SL		IL	SL	
<i>Age</i>							
Up to 19 years	1			1			.033
20 to 29 years	0.83	0.45	1.54	0.71	0.42	1.18	
30 to 39 years	0.55	0.22	1.39	0.33	0.15	0.73	
40 years or older	0.44	0.16	1.21	0.33	0.14	0.74	
<i>Obesity (BMI ≥ 30 kg/m<sup>2</sup>)</i>							
No	1			1			.017
Yes	0.81	0.37	1.76	2	1.18	3.39	
<i>Do you try to hold ejaculation?</i>							
No.	1			1			< .001
Yes, sometimes.	2.21	1.18	4.15	2.04	1.25	3.35	
Yes, always.	5.99	2.49	14.4	5.93	2.79	12.61	
<i>Situation where the time for ejaculation is less</i>							
Masturbation	1			1			.001
Anal sex	0.99	0.45	2.19	1.9	1.05	3.45	
Oral sex	1.64	0.8	3.36	2.33	1.28	4.25	
Vaginal sex	2.11	1.1	4.04	3.17	1.83	5.51	
<i>Time of foreplay before penetration</i>							
Around 1 h	1			1			.014
Around half an hour	1.26	0.52	3	1.97	0.87	4.47	
A few minutes	1.92	0.8	4.59	3.43	1.51	7.81	
There is no foreplay	2.31	0.37	14.6	6.63	1.63	27.03	

\*OR (odds ratio) adjusted for all variables present in final model

\*\*Likelihood ratio test

CI = confidence interval; IL = inferior limit; PEDT = Premature Ejaculation Diagnostic Tool; SL = superior limit.

There are some other methodological issues that should be discussed about our study. First, all information was collected from the reports from participants who were not evaluated by urologists or other health professionals. As our focus was on the characteristics of sexual behavior, and in order to shorten the data collection instrument, we did not include questions for the assessment of comorbidities such as erectile dysfunction, prostatitis, depression and other chronic diseases. We conducted an open e-survey, without control over self-selection bias and we could not calculate our response rate. Although internet coverage in the metropolitan region of São Paulo was almost 80%, the sample studied is younger, more educated, more sedentary and has a higher income and a higher proportion of white people. Thus, it is not possible to generalize the PE prevalence estimates obtained in this study for the whole population of the metropolitan region of São Paulo.

The fact that this is an online survey might be of concern for some. However, as pointed by the European Society of Sexual Medicine, sexual behaviors and dysfunctions, areas with privacy issues, can benefit from online surveys<sup>12</sup> that allow the inclusion of larger samples. This is clear in the methods used by the studies summarized in Table 1. There is evidence that the collection of patient-reported outcomes (PRO) using electronic media is

equivalent when research instruments migrates from paper to screen-based format<sup>56</sup> and that there is a high correlation between traditional paper and pencil and electronic version of validated questionnaires to assess masculine sexual health.<sup>57</sup>

We chose to use Facebook and WhatsApp based on the evidence that the use of social media channels for recruiting participants in health research allows lower costs, shorter recruitment periods and improves participant selection in young and hard-to-reach populations in comparison with traditional methods.<sup>58</sup> We also decided to use not very strict inclusion criteria, and imposed no restrictions related to sexual orientation or stable relationships, in order to obtain a sample as close as possible of the general male population that could face PE and look for health care for this condition. The use of social media as a recruitment strategy probably improved the inclusion of younger men, but many studies regarding PE, independently of the recruitment strategy, included higher proportions of younger than elderly men.

Although the PEDT has been used in many studies to assess PE (including ours), several researchers have pointed out the limitations of this instrument. For example, it does not delimit the period of time for the symptoms (when did symptoms happen) and it offers two possible cutoff points, with some studies using

the cutoff point  $\geq 9$ , and others using  $\geq 11$ . These different categorizations make it difficult to compare the studies' results.<sup>15</sup> In addition, some authors point out the fact that the PEDT is an outdated instrument, as it has not been revised to meet the most current version of the DSM and uses a definition based on expert consensus, not scientific evidence.<sup>59</sup> Moreover, PEDT presents low specificity (50.5%) and positive predictive value (probability of a man actually having PE, given that he has PE according to the PEDT; of 31.2%).<sup>60</sup>

Another consideration is about the openness to express sexual orientation, preferences and behaviors. Studies suggest that individuals who agree to answer questionnaires about their sex life have personalities that are more novelty-oriented (curious, impulsive and exploitative), more reward-dependent (warm, friendly) and less harm-avoiding (cautious, shy) than people who decline to respond.<sup>7</sup> Also, volunteers in research on sexuality have more positive attitudes towards this issue, less frequency of feelings of guilt about sex and longer experience with sex or sex life.<sup>61</sup> Although there have been cultural changes in the way of living and expressing sexual orientation since the publication of a survey about Brazilian sexual behavior in 2008<sup>39</sup> we believe that the higher proportion of non-heterosexual men in the sample compared to the general population in the metropolitan region of São Paulo reflects these characteristics of volunteers in studies on sexuality.

The application of the questionnaire over the internet and the condition of anonymity in the study probably made the participants more comfortable to provide information about their sexual behavior. The sensitive nature of questions involving PE and other sexual dysfunctions makes it difficult to carry out prevalence studies using traditional means (face-to-face interviews, questionnaires by mail or telephone), as not all people feel comfortable providing information about their sex life in these ways. Even if a household survey with probability sampling is conducted, the probability of non-response due to the sensitive topic can make this strategy even more expensive and possibly inefficient. Thus, the previous methodological dilemma of studies on the prevalence of sexual dysfunctions (use of random samples versus convenience samples recruited from public places or health services), with a high risk of self-selection bias (or volunteer bias) was transferred to the studies using the Internet. We believe that although studies carried out via the Internet have important methodological limitations, they are practical alternatives for investigating characteristics associated with the presence of sexual dysfunctions. The research improves with the clear reporting of methodological characteristics and limitations and the conduct of new studies that test new sampling and data collection processes where possible.

For our knowledge, this is the first study that used two cut-points of PEDT to investigate associations between man characteristics and PE. Our results suggest that the higher cut-point showed higher number of statistically significant associations with exposure variables, maybe allowing better characterization of PE patients.

## CONCLUSIONS

This study shows that PE (according to PEDT) was associated with younger age, obesity and with trying to hold the ejaculation. PE was also associated with men considering that the time for ejaculation in any sexual activity with a partner was shorter than in solitary masturbation and having sex without or with only a few minutes of foreplay. This study also shows that the prevalence of PE varies according to the instrument and the cut-offs used for the assessment. Men with possible PE according to PEDT (scores 9 or 10) had similar characteristics to men without PE. The agreement among PEDT, ELT and the self-evaluation of PE was only fair, showing that these methods assess different aspects of the PE syndrome and should be combined to allow the discrimination between the different types of PE and the proposition of appropriate treatments that take into account the patient's sexual and relational behavior and their distress.

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## STATEMENT OF AUTHORSHIP

Margareth de Mello Ferreira dos Reis: Designed the study, collected and interpreted data, wrote the manuscript and revised the final version to be published. Eduardo Augusto Corrêa Barros, Leonardo Monteiro, Cristiano Linck Pazeto, Willy Bacaglin: Helped with data collection and interpretation and revised the manuscript critically, approving the final version. Sidney Glina: Provided general supervision of the study project, revised the paper critically and approved the final version. All authors consider themselves accountable for all study aspects.

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