Prevalence and Correlates of Premature Ejaculation in a Primary Care Setting: A Preliminary Cross-Sectional Study

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ABSTRACT

Introduction. Premature ejaculation (PE) is common. However, it has been underreported and undertreated.
Aims. To determine the prevalence of PE and to investigate possible associated factors of PE.
Methods. This cross-sectional study was conducted at a primary care clinic over a 3-month period in 2008. Men aged 18–70 years attending the clinic were recruited, and they completed self-administered questionnaires that included the Premature Ejaculation Diagnostic Tool (PEDT), International Index of Erectile Function, sociodemography, lifestyle, and medical illness. The operational definition of PE included PE and probable PE based on the PEDT.
Main Outcome Measure. Prevalence of PE.
Results. A total of 207 men were recruited with a response rate of 93.2%. There were 97 (46.9%) Malay, 57 (27.5%) Chinese, and 53 (25.6%) Indian, and their mean age was 46.0 ± 12.7 years. The prevalence of PE was 40.6% (N = 82) (PE: 20.3%, probable PE: 20.3% using PEDT). A significant association was found between ethnicity and PE (Indian 49.1%, Malay 45.4%, and Chinese 24.6%; $\chi^2 = 8.564$, d.f. = 2, $P = 0.014$). No significant association was found between age and PE. Multivariate analysis showed that erectile dysfunction (adjusted odds ratio [OR] 4.907, 95% confidence interval [CI] 2.271, 10.604), circumcision (adjusted OR 4.881, 95% CI 2.346, 10.153), sexual intercourse ≤5 times in 4 weeks (adjusted OR 3.733, 95% CI 1.847, 7.544), and Indian ethnicity (adjusted OR 3.323, 95% CI 1.489, 7.417) were predictors of PE.
Conclusion. PE might be frequent in men attending primary care clinics. We found that erectile dysfunction, circumcision, Indian ethnicity, and frequency of sexual intercourse of ≤5 times per month were associated with PE. These associations need further confirmation. **Tang WS and Khoo EM. Prevalence and correlates of premature ejaculation in a primary care setting: A preliminary cross-sectional study. J Sex Med **;**:**–**.**

Key Words. Patient-Reported Outcome Measures for Premature Ejaculation; Premature Ejaculation; Prevalence; Primary Health Care

Introduction

Premature ejaculation (PE) is a common male sexual dysfunction. The prevalence ranged between 21% and 66% in the community [1–3] and in primary care [4,5].

Various definitions have been used to define PE, and these include: the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Test Revision (DSM-IV-TR) [6]; the 10th revision of the International Classification of Diseases-10 [7]; and the evidence-based definition from the International Society for Sexual Medicine [8].

The DSM-IV-TR [6] defines PE as "a persistent or recurrent ejaculation with minimal sexual stimulation before, on, or shortly after penetration and before the person wishes it and it causes marked distress or interpersonal difficulty and is not due to the direct effects of a substance."

Currently, there are five validated tools that are used to assess PE: the five-item Premature Ejaculation Diagnostic Tool (PEDT) [9,10]; the Premature Ejaculation Profile [11], which used the DSM-IV-TR classification criteria; the 10-item Chinese Index of Premature Ejaculation [12], which was developed as an efficacy measure but

did not specifically address the DSM-IV-TR criteria; the Arabic questionnaires [13]; and the Index of Premature Ejaculation [14]. Among these tools, the PEDT was found to have a high level of agreement with the clinical diagnosis, and its test–retest reliability was good with an intraclass correlation coefficient of 0.88 [15].

PE is associated with age, lifestyle [16], and comorbidities such as depression [17], anxiety [17,18], social phobia [19,20], diabetes [21], prostate diseases [22–24], and erectile dysfunction (ED) [25]. Despite PE being common, very few studies have been conducted in the primary care setting. This study aimed to determine the prevalence of PE using PEDT and to identify possible associated factors of PE among primary care clinic attendees.

Methods

We conducted a cross-sectional study in the primary care clinic at the University Malaya Medical Center (UMMC), which is a teaching university hospital in Kuala Lumpur, Malaysia. Ethics approval was obtained from the UMMC Medical Ethics Committee prior to commencement of the study.

A convenience sampling method was used. Men who attended the primary care clinic between June and August 2008 were approached and recruited in this study. The reasons for encounter were chronic disease follow-up; treatment for acute conditions such as infection or injury; and undifferentiated problems. They might or might not have men's health issues. The inclusion criteria were: all men aged 18–70 years who understood English or Malay language (Malaysian national language); had experience of sexual intercourse; and were currently not taking a selective serotonin reuptake inhibitor. Informed consent was obtained from those who agreed to participate in the study. The participants were asked to complete a set of self-administered questionnaires in English or Malay language, and they consisted of: questions on sociodemography, lifestyle, medical conditions, and sexual history; International Index of Erectile Function-5 (IIEF-5); and PEDT. The participants were asked to self-report whether they had any of the following medical conditions: hypertension, hyperlipidemia, diabetes mellitus, prostate disease, insomnia, depression, and anxiety. For question on exercise, the participants were given options of "never," "<4 times/month," "1–3 times/week," or "≥4 times/week," while for the question on stress, the options were "a lot," "somewhat," "hardly," or "not at all."

The PEDT consists of five questions that address the following five domains: ejaculation control; frequency of PE; ejaculation with minimal sexual stimulation; distress; and interpersonal difficulty. Each question has five responses, and the scores of each question range from 0 to 4 with a minimum total score of 0 to a maximum score of 20. A low score suggests a low probability of having PE. The total scores are categorized into: "no PE" (≤8), "probable PE" (9–10), and "PE" (≥11). In our study, the operational definition of PE included "PE" and "probable PE."

Two versions of PEDT were used: the original English version and the translated Malay version. The PEDT was translated into the Malay language using the forward and backward translation process, and it was done independently by two postgraduate family medicine trainees who are bilingual. The back-translated English version was compared with the original English version, and further revisions were made. The final Malay version of the PEDT was sent to the copyright owner for approval to be used in the study.

The IIEF-5 is used in men who reported having attempted sexual intercourse in the past 4 weeks [26]. Therefore, in this study, the IIEF-5 was completed only by participants who had sexual intercourse in the past 4 weeks. Men who did not have sexual intercourse in the past 4 weeks were asked to self-report whether they have ED. The operational definition of ED in this study included men with IIEF-5 scores of 5–21 and men who self-reported ED when IIEF-5 was not applicable.

A pilot study was conducted with 15 men, and the questionnaires were pretested. Minimal adjustment was made. The sample size was calculated using Epi Info version 6 (Centers for Disease Control and Prevention, Atlanta, GA, USA). Based on an estimated PE prevalence of 30% with 95% confidence interval and taking into account a refusal rate of 20%, the estimated sample size was 102.

Data were analyzed using the SPSS 15.0 (SPSS Inc., Chicago, IL, USA) software [27]. Chi-square test was used to determine the associations between categorical variables. The significance level (α) was set at 0.05. Odds ratio was calculated to examine the strength of the associations. Multivariate analysis was used to examine the net effect of independent variables on PE and to determine the predictors of PE.

Results

A total of 245 men were approached to participate in the study, of which 222 patients fulfilled the inclusion criteria and 207 men consented. The response rate was 93.2%. The mean age of the participants was 46.0 ± 12.7 years, and the majority was Malays followed by Chinese and Indians. The majority of the respondents were employed, married, and sexually active. Most respondents had sexual intercourse in the last 4 weeks. The majority had average to very high libido, and the mean frequency of sexual intercourse was 5.2 ± 5.4 per 4 weeks (see Table 1). Based on the IIEF-5, 127 (61.4%) men had ED. Forty (19.3%) patients who did not have sexual intercourse in the past 4 weeks were asked to answer the question on self-reported ED; 17 of the 40 (42.5%) men self-reported ED. In this study, ED included men with ED based on the IIEF-5 and men who self-reported ED, with an overall prevalence of 69.6%.

The prevalence of PE using the study operational definition was 40.6% (N = 84) (probable PE [N = 42, 20.3%] and PE [N = 42, 20.3%] based on the PEDT). No significant association was found between PE and age groups ($\chi^2 = 1.406$, d.f. = 4, $P = 0.843$) (see Figure 1).

PE was found to be significantly associated with ethnicity, circumcision, ED, and frequency of sexual intercourse using univariate analysis (Table 2). Using binary logistic regression (backward logistic regression [LR] method), ED, circumcision, sexual intercourse (≤5 times per 4 weeks), and Indian ethnicity were predictive factors of PE (see Table 3).

Table 1 Background sociodemographic characteristics, health, lifestyle, and sexual behavior of the respondent

Characteristics	N (%) total sample 207	Mean (SD)
Age (years)		
18–29	25 (12.1)	45.97 (12.7)
30–39	48 (23.2)	
40–49	41 (19.8)	
50–59	59 (28.5)	
60–70	34 (16.4)	
Ethnicity		
Malay	97 (46.9)	
Chinese	57 (27.5)	
Indian	53 (25.6)	
Employment		
Employed	158 (76.3)	
Retired/pensioned	41 (19.8)	
Unemployed	4 (1.9)	
Studying	4 (1.9)	
Marital status		
Married	182 (87.9)	
Single	22 (10.6)	
Widower	1 (0.5)	
Divorced/separated	2 (1.0)	
Medical illness (self-reported)		
High blood pressure	78 (37.7)	
Diabetes mellitus	58 (28)	
High cholesterol	63 (30.4)	
Prostate disease	7 (3.4)	
Insomnia	17 (8.2)	
Anxiety	19 (9.2)	
Depression	6 (2.9)	
Lifestyle		
Smoking	62 (30)	
Alcohol	71 (34.3)	
Exercise		
≥4 times/week	27 (13)	
1–3 times/week	72 (34.8)	
<4 times/month	62 (30)	
Never	46 (22.2)	
Stress experiencing in life		
A lot	12 (5.8)	
Somewhat	116 (56)	
Hardly	66 (31.9)	
Not at all	13 (6.3)	
Circumcision	110 (53.1)	
Sexual intercourse within last 4 weeks	167 (80.7)	
Libido/sexual interest		5.2 ± 5.4
Very high	6 (2.9)	
High	48 (23.2)	
Average	123 (59.4)	
Low	18 (8.7)	
Very low	10 (4.8)	
Average frequency of sexual intercourse in the last 4 weeks		

SD = standard deviation.

Discussion

Using the study operational definition, the prevalence of PE among men who attended a teaching hospital-based primary care clinic was 40.6%. This was consistent with the findings from other studies, which reported the prevalence of PE ranging from 21% to 66% [1–3], including a study done in a Malaysia urban population where the prevalence of self-reported PE was 22.3% [16]. We included "probable PE" from the PEDT in the operational definition as it is known that men underreport their sexual problems and do not seek medical help [28]. If the "PE" category alone was examined, the prevalence of 20.3% was consistent with the findings of self-reported PE in the previous study [16]. It is likely the probable PE category of the PEDT was mild and was not perceived by the participants as a problem.

Indian ethnicity was found to be significantly associated with PE. The multi-country concept evaluation and assessment of PE incidence study have shown substantial geographical variation in the perception of how long it takes for the "average" man to ejaculate [29]. The difference in perception of normal intravaginal ejaculatory latency time (IELT) may cause difference in per-

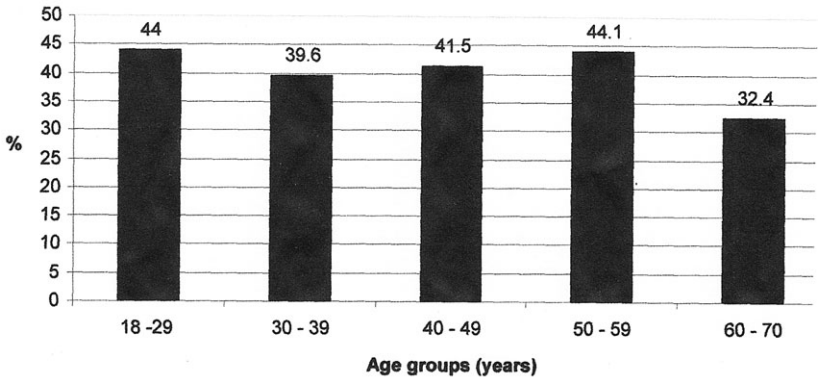

Figure 1 Prevalence of premature ejaculation according to age groups.

ception of poor control of ejaculation and related distress, and hence the problem of PE. These variations could be because of differences in religion, awareness of sexual dysfunction, ability to admit sexual failure, and cultural perception on the importance of sex [30]. This ethnic difference requires further studies for confirmation.

We found that circumcision was independently associated with PE. This finding was consistent with the O'Hara and O'Hara study [31], where women reported that their circumcised male partners were more likely to have PE than the uncircumcised partners. The thickening and keratinization of the glans penis mucosal epithelium after circumcision may be responsible for the difference in the sensory threshold of the glans penis. The nerves of the glandis corona may be hyperstimulated during intercourse and hence trigger ejaculation before it is desired [32]. However, there were prospective studies [33,34] that examined sexual function before and after circumcision, and found that circumcision did not appear to have an adverse effect. Waldinger et al. [29] also did not find any significant difference in the median IELT between circumcised and not circumcised men in five countries excluding Turkey. Further studies are needed to confirm this.

Frequency of sexual intercourse of ≤5 times in 4 weeks was also found to be significantly associated with PE. It is likely that men with PE would have less sexual intercourse, or it could also be plausible that infrequent sexual intercourse contributed to PE. The relationship between ejaculatory control and the frequency of sexual intercourse is conflicting. While the study of Jang [35] and Spiess et al. [36] reported that the frequency of sexual activity in men with PE was lower than age-matched controls with normal ejaculatory control, in contrast, Strassberg et al. [37] failed to demonstrate any relationship. The mechanism of this relationship is yet to be characterized but may include reduced performance anxiety, a higher ejaculatory threshold, or superior ejaculatory control because of earlier and superior recognition of prodromal ejaculatory sensations. Among the medical illnesses, ED was the only condition that had shown a significant association with PE. This corresponded with the Jannini et al. study that found that ED may be a comorbid, a cause, or an effect of PE [25]. Many men may find it confusing to differentiate between PE and ED, as was demonstrated in the Global of Study of Sexual Attitudes and Behaviors [1]. It is therefore important to further evaluate these conditions as the treatments are different.

No significant association was found between age and PE. This finding was similar to that found in the PE Prevalence and Attitudes survey [3] and the prevalence study of sexual dysfunction in the United States [2]. The prevalence of PE is similar across the age groups, while the prevalence of ED increases with age [38,39]. Anxiety and depression were not found to be significantly associated with PE in the study as was noted in others' studies [16,17]. This may be because of the small number of respondents with anxiety and depression in this study. In addition, the self-reported dichotomous scale of "yes" or "no" response for these conditions may not reflect the prevalence of the disease.

This study was limited by enrolling patients who understood either English or the Malay language. However, as this study was done at an urban tertiary hospital, most patients were literate in Malay or English. Nevertheless, this study could be further improved if other languages such as Tamil and Mandarin versions of the questionnaires are made available in this multicultural society. This study was also limited by its cross-sectional design, and it was conducted in a hospital-based primary care practice. Thus, the findings may not

Table 2 Associated factors of premature ejaculation

Associated factors	PE (84) N (%)	No PE (123) N (%)	χ^2	d.f.	*P* value	OR	95% CI
BMI							
Normal/underweight	19 (42.2)	26 (57.8)	0.064	1	0.8	0.917	0.469–1.792
Pre-obese/obese	65 (40.1)	97 (59.9)					
Age							
≤46 years	41 (41.8)	57 (58.2)	0.122	1	0.727	0.906	0.52–1.579
>46 years	43 (39.4)	66 (60.6)					
Ethnicity							
Malay	44 (45.4)	53 (54.6)	8.564	2	0.014		
Chinese	14 (24.6)	43 (75.4)					
Indian	26 (49.1)	27 (50.9)					
Smoking							
Yes	24 (38.7)	38 (61.3)	0.128	1	0.72	0.895	0.487–1.644
No	60 (41.4)	85 (58.6)					
Alcohol							
Yes	27 (38)	44 (62)	0.292	1	0.589	0.85	0.472–1.531
No	57 (41.9)	79 (58.1)					
Exercise							
Yes	64 (39.8)	97 (60.2)	0.206	1	0.65	0.858	0.442–1.664
No	20 (43.5)	26 (56.5)					
Hypertension							
Yes	38 (48.7)	40 (51.3)	3.438	1	0.064	1.714	0.968–3.036
No	46 (35.7)	83 (64.3)					
Diabetes							
Yes	28 (48.3)	30 (51.7)	1.979	1	0.159	1.55	0.84–2.86
No	56 (37.6)	93 (62.4)					
High cholesterol							
Yes	26 (41.3)	37 (58.7)	0.018	1	0.894	1.042	0.571–1.902
No	58 (40.3)	86 (59.7)					
Prostate disease							
Yes	3 (42.9)	4 (57.1)	0.016	1	0.901	1.102	0.24–5.055
No	81 (40.5)	119 (59.5)					
Insomnia							
Yes	6 (35.3)	11 (64.7)	0.215	1	0.643	0.783	0.278–2.207
No	78 (41.1)	112 (58.9)					
Anxiety							
Yes	9 (47.4)	10 (52.6)	0.4	1	0.527	1.356	0.526–3.495
No	75 (39.9)	113 (60.1)					
Depression							
Yes	2 (33.3)	4 (66.7)	0.135	1	0.714	0.726	0.13–4.054
No	82 (40.8)	119 (59.2)					
Circumcision							
Yes	56 (50.9)	54 (49.1)	10.387	1	0.001	2.56	1.436–4.549
No	28 (28.9)	69 (71.1)					
Stress							
Not at all or hardly	26 (32.9)	53 (67.1)	3.116	1	0.078	1.689	0.942–3.029
A lot or somewhat	58 (45.3)	70 (54.7)					
Age of first sexual intercourse							
≤24 years	41 (40.2)	61 (59.8)	0.008	1	0.93	0.97	0.56–1.69
≥25 years	43 (41)	62 (59)					
Mean: 24.3 ± 4.6							
Erectile dysfunction							
Yes	71 (49.3)	73 (50.7)	14.94	1	<0.001	3.741	1.872–7.474
No	13 (20.6)	50 (79.4)					
Frequency of sexual							
0–5 times/4 weeks	63 (47.4)	70 (52.6)	7.11	1	0.008	2.271	1.235–4.178
≥6 times/4 weeks	21 (28.40)	53 (71.6)					
Intercourse (mean: 5.2 ± 5.4)							

PE = premature ejaculation; OR = odds ratio; CI = confidence interval; BMI = body mass index.

be generalizable. However, it provides an insight to this condition in the primary care setting, which was lacking. A longitudinal study can be done for men with probable PE to evaluate if they develop PE and need treatment in the long term. In addition, studies using the latest evidence-based definition of PE by the International Society for Sexual Medicine Committee [40] can be used in

Table 3 Independent associated factors of PE using multiple logistic regression

	B	SE	Wald	d.f.	Significance	OR/Exp(B)	95.0% CI for EXP(B) Lower	Upper
Indian ethnicity	1.201	0.410	8.596	1	0.003	3.323	1.489	7.417
Circumcision	1.585	0.374	17.996	1	0.000	4.881	2.346	10.153
Erectile dysfunction	1.591	0.393	16.372	1	0.000	4.907	2.271	10.604
Sexual intercourse ≤5 times/4 weeks	1.317	0.359	13.460	1	0.000	3.733	1.847	7.544

PE = premature ejaculation; SE = standard error; OR = odds ratio; CI = confidence interval.

the primary care setting to further evaluate this common male sexual dysfunction. PE is defined as "a male sexual dysfunction characterized by ejaculation which always occurs prior to or within about one minute of vaginal penetration, and the inability to delay ejaculation on all or nearly all vaginal penetrations, and negative personal consequences." Studies have indicated that patients' or partner's self-reported ejaculatory latency time correlates relatively well with the objective stopwatch latency time [40–42]. Thus, patients and/or their partners with probable PE and PE can be further evaluated based on their self-reported IELT rather than the stopwatch latency time. The self-reported IELT is more applicable in the primary care settings and can help primary care physicians to decide on the treatment plan [43]. Dapoxetine, an on-demand short-acting serotonin selective reuptake inhibitor, has been shown to improve the IELT and can be used to treat PE [44–46].

Conclusion

PE might be a common male sexual dysfunction in primary care clinic attendees. It was found to be independently associated with ED, circumcision, Indian ethnicity, and frequency of sexual intercourse in this study. It is therefore important to assess PE in men presenting with ED. Moreover, physicians, especially the primary care physicians, who provide first-contact care must be aware of this common condition in men. Primary care physicians need to be trained to detect, diagnose, and manage PE.

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Statement of Authorship

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