

## Is sexual identity associated with the risk of premature ejaculation?

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### Summary

**Aim.** Some studies suggest that homosexual identity, compared to heterosexual, may be associated with a reduced risk of premature ejaculation (PE). The aim of this study was to test this relationship and to investigate possible underlying mechanisms.

**Material and method.** The present study drew on a database obtained from a cross-sectional online study of the sexuality of Polish heterosexual (HM;  $N = 1,121$ ), gay (GM;  $N = 1,789$ ) and bisexual (BM;  $N = 743$ ) men. The dependent variable was the PE diagnosis based on the PEDT questionnaire. The explanatory variables were characteristics of sexual and partnership patterns, health and minority stress among GM and BM. Statistical one- and multifactor analyses were performed.

**Results.** Homosexual identity proved to be an independent negative predictor of PE diagnosis. The preference for insertive penetration activity (including vaginal), performance anxiety and financial difficulties increased the risk of PE, while the experience of insertive and receptive forms of oral and anal sex but not vaginal sex, a higher level of education, better general sexual functioning and regular physical activity reduced such risk. The predictive meaning of homosexual identity has not been present in multifactor models for the group of men in relationships.

**Conclusions.** Homosexual identity is associated with a lower risk of PE diagnosis. This may be due to the differences in sexualities of GM and HM, as well as other psychosocial factors.

**Key words:** premature ejaculation, sexual and gender minorities, sexual health

### Introduction

Problems with sexual function (often called ‘sexual dysfunctions’) are among the most common difficulties related to sexuality both in the general population and

in clinical practice [1 – 3]. Premature ejaculation (PE), in turn, is one of the leading problems among men [4]. In recent years, considerable progress has been made in understanding and describing this phenomenon. New diagnostic criteria [5], typologies [6] and classifications [7, 8] were proposed. One issue that was not yet clarified in the literature is the potential relationship between sexual identity (orientation) and the risk of PE. A recent meta-analysis [9] shows that the risk of PE was 28.0% lower for homosexual orientation than heterosexual orientation. However, this study was based on only four previous studies, including only one population study, which also utilised different criteria to identify PE cases and instruments not originally intended for the populations of gay men (GM) and bisexual men (BM). Although in the three studies included in the above meta-analysis, homosexual identity was associated with a lower risk of the diagnosis of PE [10 – 12], the study by Breyer et al. [13] did not confirm this relationship. The Premature Ejaculation Diagnostic Tool (PEDT) [14] that was used, although not suitable for the GM and BM groups, is a standard assessment tool which meets the criteria for the diagnosis of PE in DSM-IV. The results of other studies are contradictory. Some, such as a recent analysis based on population data from Sweden [15], presented a lower risk of premature ejaculation (orgasm) associated with homosexual and bisexual identities compared to heterosexual identity; others, however, did not confirm this link [16] or pointed to an inverse relationship [2]. It has been attempted to explain these differences by the various effects of rapid ejaculation on sexual satisfaction in male-female and male-male couples, suggesting that it may be perceived as a greater problem among the former than among the latter [10]. Studies in which non-heterosexual men have participated demonstrated that factors such as: younger [17, 18] or older [10] age, problems with urination due to prostate diseases [17], HIV infection [17], lower number of sexual partners [17], engagement in any form of anal contacts with other men [19] or experiencing discrimination due to one's minority status [19], are important for the diagnosis of PE.

Previous interpretations of possible differences between various aspects of sexual functioning between heterosexual men (HM) and GM or BM, indicated the importance of factors related to sexuality itself (vaginal and anal intercourse, prevalence of oral contact, reversibility of sexual roles, simultaneous orgasm, fear of unwanted pregnancy, number of sexual partners, level of sexual performance anxiety, types of sexual and romantic relationships) [20, 21, 23], with minority stress (unique and additional burden experienced by minority men) [24, 25] and health status (worse physical, mental and sexual health status was related to minority stress) [26, 27].

### Aim of the study

In view of the ambiguities described above, in the present study, we have decided to attempt to answer the following research questions:

1. Is the homosexual or bisexual identity associated with a lower risk of premature ejaculation?
2. What are the possible factors that explain this relationship?

### Material

A total of 3,653 men, including 1,121 HM, 1,789 GM and 743 BM, were involved in the study. The participants were young, the mean and median age were, respectively: 28.01 and 26 years for HM, 29.48 and 28 years for GM, and 30.95 and 28 years for BM. Almost half of HM (44.10%) and GM (40.40%) resided in metropolitan areas and large cities (>500,000 inhabitants), while most BM lived in smaller towns (71.02%). The majority of HM (59.43%) and GM (54.09%) had at least partial university experience, whereas most BM (52.70%) concluded a secondary education at best. Most men in all three groups did not report financial problems. A detailed description of the groups is presented in Table 1 (continuous variables) and Table 2 (categorical variables).

Table 1. **Descriptive characteristics of the sample – continuous variables**

	HM (n = 1121)			GM (n = 1789)			BM (n = 743)		
	M (SD)	MED	Range	M (SD)	MED	Range	M (SD)	MED	Range
Demographic characteristic									
Age	28.01 (7.50)	26	18 - 73	29.48 (8.98)	28	18 - 80	30.95 (11.74)	28	18 - 71
Relationships									
DER	6.16 (5.01)	5	1 - 40	5.80 (4.82)	5	1 - 41	9.12 (8.49)	6	1 - 45
Minority stress									
IH	-	-	-	14.86 (6.06)	13	9 - 36	19.49 (6.84)	19	9 - 36
ExR	-	-	-	13.22 (4.28)	13	6 - 24	12.96 (4.81)	12	6 - 24
CIm	-	-	-	14.99 (6.06)	15	6 - 30	17.75 (6.01)	18	6 - 30
SMNE	-	-	-	11.72 (7.98)	10	1 - 60	8.16 (6.90)	6	1 - 51
Sexual functioning									
DSB	8.24 (1.31)	8	1-11	8.64 (1.72)	9	1-11	9.21 (2.13)	10	1-11

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NSP	1.70 (1.89)	1	0-20	3.94 (4.50)	2	0-20	3.66 (3.70)	2	0-20
PEDT	5.87 (4.41)	5	0 - 20	4.87 (4.43)	4	0 - 20	5.59 (4.68)	5	0 - 20
IIEF-2	21.88 (6.81)	25	1-30	18.70 (6.97)	21	1-30	20.01 (7.11)	23	1-30

DER - Duration of an Established Relationship; IH - Internalised Homophobia; ExR - Expectations of Rejection; Clm - Concealment; SMNE - Sexual Minority Negative Events; DSB - Diversity of Sexual Behaviours; NSP - number of sexual partners in the last 12 months; PEDT - Premature Ejaculation Diagnostic Tool; IIEF-2 - International Index of Erectile Functioning – 2

**Table 2. Descriptive characteristics of the sample – categorical variables**

Variable	HM (n = 1121)		GM (n = 1789)		BM (n = 743)	
	N	%	N	%	N	%
Demographic characteristics						
Residence						
<500 k	625	55.90	1065	59.60	527	71.02
>500 k	493	44.10	722	40.40	215	28.98
Education						
Lack of university experience	454	40.57	820	45.91	391	52.70
University experience	665	59.43	966	54.09	351	47.30
Financial situation						
Lack of financial difficulties	724	64.70	1004	56.18	421	56.82
Financial difficulties	395	35.30	783	43.82	320	43.18
Relationships						
Established relationship						
Yes	785	70.98	753	42.37	319	43.17
No	321	29.02	1024	57.63	420	56.83
Closed relationship						
Yes	722	92.21	226	29.70	149	45.71
No	61	7.79	535	70.30	177	54.29
Lifestyle						
Regular physical activity (sport)	637	56.96	645	36.07	298	40.03
Regular alcohol consumption	507	46.26	641	35.93	255	34.65
Regular nicotine consumption	309	28.09	702	39.33	285	38.72
Regular substance (recreational drug) use	87	7.99	96	5.41	46	6.30
Health adversities and diseases						
Cardiovascular diseases	133	11.91	341	19.16	164	22.34

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Diabetes	49	4.39	119	6.72	57	7.76
Prostate diseases	48	4.33	104	5.86	50	6.83
Thyroid diseases	54	4.89	144	8.12	59	8.07
Hyperprolactinaemia	39	3.53	93	5.23	43	5.88
Hypercholesterolaemia	84	7.63	182	10.25	97	13.22
HIV/AIDS	36	3.27	146	8.23	48	6.57
Depression	116	10.61	329	18.57	107	14.58
Anxiety disorders	115	10.45	317	17.85	98	13.35
Sexual activities						
Masturbation	1106	98.75	1772	99.05	733	98.79
Passionate kiss on the lips	1105	98.66	1709	95.53	696	93.80
Kissing different parts of the partner's body	1098	98.04	1662	92.90	670	90.30
Vaginal penetration	1056	94.29	247	13.81	529	69.95
Anal penetration (insertive)	537	47.95	1440	80.49	563	75.88
Anal penetration (receptive)	45	4.01	1522	85.08	490	66.04
Oral sex (insertive)	1044	93.21	1686	94.24	676	91.11
Oral sex (receptive)	70	6.25	1702	95.14	637	85.85
Oral stimulation of the genitals of a female partner	1037	92.59	525	29.35	523	70.49
Hand stimulation by the partner	1073	95.80	1606	89.77	663	89.35
Hand stimulation of the partner	1063	94.91	1588	88.76	663	89.35
Pleasure from penetration	1061	94.73	1116	62.38	593	79.92
Sexual difficulties						
Sexual performance anxiety	356	31.79	689	38.51	295	39.76

## Method

The present analysis was based on a database obtained from a larger research project on the sexuality of Polish HM, BM and GM. The methodology of the parent study has been elaborately described in other publications [20, 26]. This was an online cross-sectional study in which 3,697 men participated. It was conducted from June to September 2016 on a convenience sample of men. The study was approved by the Bioethical Committee of the Jagiellonian University<sup>1</sup>. Inclusion criteria of the parent study included: (1) minimum age of 18 years; (2) male gender; (3) informed consent to take part in the study, expressed by pressing a button to confirm that the

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participant had read the provided information on the study; (4) past and/or current sexual contacts. Recruitment was based on advertisements posted on health- and lifestyle-focused websites, as well as websites targeting non-heterosexual audiences. Forty-four respondents from the parent study were excluded from the present analysis on the grounds of reporting incomplete data.

#### Measurement of the dependent variable – diagnosis of premature ejaculation

The PEDT, developed as a DSM-IV criteria-congruent screening tool for PE, was used [14]. The tool has been translated into the Polish language and made available free of charge for scientific purposes by Pfizer Inc. [28]. It consists of five questions intended for assessing the aspects of ejaculation such as: (1) subjective sense of control, (2) latency/time to ejaculation, (3) response to sexual stimulation, (4) personal frustration and (5) concern for partner satisfaction, on a 5-point Likert scale (from 0 – ‘not difficult at all’ to 4 – ‘extremely difficult’). Analyses of sensitivity and specificity revealed the following reference ranges:  $\geq 11$  PE, 9-10 probable PE (P-PE),  $\leq 8$  no PE. The reliability (Cronbach’s alpha) of the Polish version used in this study was 0.86.

#### Measurement of explanatory variables

##### *Demographic variables and remaining explanatory variables*

For this purpose, a self-designed questionnaire developed for the parent study was utilised. The tool was constructed with the help of six competent judges (two homosexual men, two heterosexual men, one sexologist and one methodologist) who provided feedback for the final version of the survey. This tool consists of single- and multiple-choice questions, as well as closed and open-ended questions. The data collected included:

1. Sexual identity of respondents.
2. Demographic data: age, residence, education, financial situation.
3. Relationships: being in a relationship, duration of relationship, gender of the partner, sexual contacts outside the relationship.
4. Lifestyle: physical activity, consumption of alcohol, nicotine and substances (recreational drugs).
5. Health adversities: cardiovascular diseases, diabetes, prostate diseases, thyroid diseases, hyperprolactinaemia, hyperlipidaemia, HIV/AIDS, depression, anxiety disorders, systematic use of medications prescribed by a physician.
6. Sexual life: sexual activities experienced by the respondent (selected from the list provided in the questionnaire), diversity of sexual behaviours (number of various sexual behaviours experienced by the respondent selected from the same list), pleas-

ure from penetration (variable constructed in the following manner: respondents had the task of indicating three of the most pleasurable sexual activities from the above-mentioned list; if no activity involving penetration was selected the variable assumed a value of 0, if one such activity was selected – value of 1, if two or three such activities – value of 2), sexual performance anxiety (answer of ‘yes’ or ‘no’ to the question: ‘During the last 12 months has there ever been a period of several months when you felt anxious about your ability to perform sexually?’).

#### *Measurement of other sexual functions*

IIEF-2 (International Index of Erectile Function, Version 2) was used. This is a standard measure for assessing sexual function in men. The tool has been translated into the Polish language and made available free of charge for scientific purposes by Pfizer Inc. [29]. In the original version the sexual identity/orientation of the respondents was not taken into consideration, and the language used assumed the respondents had only had sexual contacts with women [30]. The second version of the tool was adapted for use in non-heterosexual men by replacing one of the phrases with another (‘sexual penetration’ instead of ‘vaginal penetration’ in the definition of sexual intercourse) [29]. The scale consists of five domains that correspond to the elements of sexual response: erection, orgasm, desire, sexual satisfaction and general satisfaction. The overall score of the scale was employed to control the general level of sexual function. The reliability (Cronbach’s alpha) of the Polish version used in this study was 0.79.

#### *Minority stress*

Increase in proximal processes: Internalised Homophobia (IH), Expectations of Rejection (ExR), Concealment (Clm), and Sexual Minority Negative Events (SMNE) were measured using the Sexual Minority Stress Scale (SMSS). The scale is based on Meyer’s minority stress model [21]. The scale consists of the Likert-type subscales, which evaluate individual minority processes. The scale has been translated and adapted for use in the Polish language [31]. The reliability (Cronbach’s alpha) for the individual subscales of the Polish version used in this study was IH: 0.86, ExR: 0.87, Clm: 0.83.

### **Statistical analyses**

All statistical analyses were performed utilising the R Studio software. Continuous variables were described with mean values, medians, standard deviations, and range values (Table 1). Categorical variables were described with frequencies and percentage values (Table 2). The outcome variable used in all statistical models included three levels (0 - no PE, 1 - probable PE, 2 - PE), and each model was set to have ‘no

PE' as a reference value and deemed significant when  $p \leq 0.05$ . To verify whether the predictor should be included in further analyses, series of univariate multilogit models were carried out for the whole sample, for men in established relationships only, and for GM and BM (Table 3). The predictors which turned out to be significantly related to the outcome variable were subsequently included in the final multinomial logit models, performed for the same subsamples – the whole sample, men in established relationships, and GM and BM (Table 4).

## Results

### One factor analyses

In one factor analyses, homosexual identity was associated with a lower risk of diagnosis of both P-PE (OR = 0.57;  $p < 0.001$ ) and PE (OR = 0.71;  $p < 0.01$ ) in comparison to heterosexual identity, in both all participants group, and the group of men in established relationships. There was no statistically significant relationship for bisexual versus heterosexual identity in both study groups, whereas in the group of GM and BM, the former had a lower risk of P-PE (OR = 0.68;  $p < 0.05$ ). Detailed results of univariate analyses are presented in Table 3.

Table 3. Univariate analysis for all men, men in established relationships only, and for GM and BM

Variable	All men		Men in established relationships only		GM and BM	
	(ref=no PE)					
	P-PE	PE	P-PE	PE	P-PE	PE
Sexual identity	(ref=HM)				(ref=BM)	
Bisexual	0.83	0.87	0.96	0.77	—	—
Homosexual	0.57***	0.71**	0.47***	0.56***	0.68*	0.82
Age (years)	0.99	0.99*	1.00	1.00	0.99	0.99
Residence (ref=< 500 k)						
Residence > 500 k	0.83	0.83	0.80	0.87	0.70*	0.78*
Education (ref=lack of university experience)						
University experience	0.91	0.68***	1.00	0.75*	0.86	0.61***
Financial situation (ref=lack of financial difficulties)						
Financial difficulties	1.17	1.58***	1.07	1.79***	1.47*	1.69***
Established relationship (ref=no)	1.50**	0.91	—	—	1.19	0.75*

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Duration of the established relationship (years)	—	—	1.01	1.01	—	—
Male partner (ref=female partner)	—	—	0.42***	0.49***	—	—
Closed relationship (ref=no)	—	—	0.88	0.92	—	—
Regular physical activity (sport)	0.80	0.62***	0.89	0.54***	0.55***	0.63***
Regular alcohol consumption	1.08	0.99	1.23	1.09	0.99	1.01
Regular nicotine consumption	1.01	0.97	0.95	1.15	1.04	0.99
Regular substance (recreational drug) use	1.29	0.68	0.73	0.65	1.68	0.87
Cardiovascular diseases	1.08	1.26*	1.14	1.39	1.16	1.35*
Diabetes	1.03	1.30	1.25	1.50	1.38	1.30
Prostate diseases	1.25	1.27	1.61	1.62	1.52	1.42
Thyroid diseases	1.34	1.64	1.27	1.34	1.69*	1.16
Hyperprolactinaemia	1.10	1.12	1.24	1.32	1.43	1.10
Hypercholesterolaemia	1.19	1.16	1.34	1.25	1.39	1.34
HIV/AIDS	1.04	1.10	1.03	1.11	1.29	1.14
Depression	0.76	1.14	0.65	1.17	0.99	1.34*
Anxiety disorders	0.72	1.10	0.56	1.45	0.79	1.16
Systematic use of medications prescribed by a physician	0.98	1.02	1.06	1.11	1.16	1.01
IH	—	—	—	—	1.03*	1.05***
ExR	—	—	—	—	1.07***	1.04**
Clm	—	—	—	—	1.04**	1.07***
SMNE	—	—	—	—	0.99	1.00
Masturbation	1.22	3.23	0.79	3.37	1.03	3.87
Passionate kiss on the lips	1.89	0.69	1.32	0.73	2.97	0.57*
Kissing different parts of the partner's body	1.28	0.83	1.60	1.69	1.04	0.67*
Vaginal penetration	1.43**	1.09	1.90***	1.48**	1.11	0.90
Anal penetration (insertive)	0.65***	0.57***	0.49***	0.50***	0.78	0.62***
Anal penetration (receptive)	0.75*	0.77**	0.68*	0.63***	0.99	0.87
Oral sex (insertive)	0.70	0.52***	0.73	0.41**	0.56*	0.55**
Oral sex (receptive)	0.72**	0.76**	0.70*	0.67**	1.14	0.86
Oral stimulation of the genitals of a female partner	1.20	1.03	1.47*	1.49*	0.94	0.94
Hand stimulation by the partner	1.12	0.79	0.75	0.70	0.88	0.75
Hand stimulation of the partner	1.04	0.70*	0.97	0.67	0.88	0.66*

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Diversity of sexual activities	0.97	0.90***	0.93	0.88**	0.98	0.92**
Pleasure from penetration (ref=0)						
1	0.98	0.76*	1.46	0.84	0.77	0.70**
2-3	1.19	0.93	1.65	1.14	1.07	0.85
NSP	0.97	0.98	0.98	0.98	1.00	0.99
Sexual performance anxiety anxiety	1.52**	3.30***	1.55*	3.18***	1.67***	3.35***
IIEF-2 score	1.00	0.97***	1.02	0.96***	0.99	0.96***

IH – Internalised Homophobia; ExR – Expectations of Rejection; Clm – Concealment; SMNE – Sexual Minority Negative Events; NSP – number of sexual partners in the last 12 months; IIEF-2 – International Index of Erectile Functioning – 2; \* <0.05; \*\* <0.01; \*\*\* <0.001

### Multifactor models

The analyses showed a significant association of homosexual identity with P-PE (OR = 0.52;  $p < 0.05$ ) and PE (OR = 0.52;  $p < 0.05$ ) only among all men. No such association was shown in the group of people in stable relationships, nor were there differences between homosexual and bisexual identities.

Detailed results of multivariate analyses in the study groups are presented in Table 4.

Table 4. **Multivariate analysis for all men, men in established relationships only, and for BM and GM**

Variable	All men		Men in established relationships only		GM and BM	
	P-PE	PE	P-PE	PE	P-PE	PE
Sexual identity	(ref=HM)				(ref=BM)	
Bisexual	0.73	0.71	0.73	0.68	—	—
Homosexual	0.52*	0.61*	0.63	1.16	0.72	1.03
Demographics						
Age	0.99	0.99				
Residence (ref=< 500 k)						
Residence > 500 k	—	—	—	—	0.86	1.04
Education (ref=lack of university experience)						
University experience	0.96	0.82*	1.04	0.90	1.00	0.79
Financial situation (ref=lack of financial difficulties)						
Financial difficulties	1.15	1.41***	1.01	1.52**	1.26	1.38*
Relationships						

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Established relationship (ref=no)	1.56**	1.22	—	—	1.33	1.07
Gender of the partner (ref=female)	—	—	0.34**	0.29**	—	—
Lifestyle						
Regular physical activity (sport)	0.75*	0.65***	0.83	0.56***	0.60**	0.75*
Health adversities and diseases						
Cardiovascular diseases	1.12	1.26		—	0.96	1.20
Thyroid diseases	—	—		—	1.77	1.06
Depression	—	—	—	—	0.75	1.03
Minority stress						
IH	—		—		1.00	1.01
ExR	—		—		1.05**	1.00
Clm	—		—		1.02	1.04**
Sexual activities						
Passionate kiss on the lips	—	—		—	5.29*	0.86
Kissing different parts of the partner's body	—		—		1.53	1.09
Vaginal penetration	0.97	0.90	1.10	0.89		—
Anal penetration (insertive)	0.68*	0.63**	0.56*	0.68	1.10	0.73
Anal penetration (receptive)	1.02	0.96	1.43	0.90	—	
Oral sex (insertive)	0.63	0.60*	0.99	0.52	0.56	0.77
Oral sex (receptive)	1.23	1.04	1.83	1.48		—
Oral stimulation of the genitals of a female partner	—	—	0.72	1.10		—
Hand stimulation of the partner	0.84	0.60	—	—	0.85	0.69
Diversity of sexual activities	1.08	1.11	0.98	1.03	0.98	1.09
Pleasure from penetration (ref=0)						
1	1.00	1.02	—	—	0.88	0.95
2-3	1.11	1.40*		—	1.22	1.37
Sexual difficulties						
Sexual performance anxiety	1.56***	3.25***	1.65**	2.88***	1.53*	2.86***
IIEF-2	1.00	0.98*	1.03	0.98	1.00	0.98*

IH - Internalised Homophobia; ExR - Expectations of Rejection; Clm - Concealment; IIEF-2 – International Index of Erectile Functioning – 2; \* <0.05; \*\* <0.01; \*\*\* <0.001

## Discussion

The purpose of this study was to determine whether homosexual or bisexual identity is associated with a reduced risk of premature ejaculation, as suggested in some of the previous studies [1, 2] and a recently published meta-analysis [3]. If such a relationship was established, the study also aimed to perform a preliminary investigation of possible explanatory factors for this association.

In fact, the above-mentioned one factor analyses revealed a connection between homosexual identity and both probable and certain diagnosis of PE, the probability of which was almost twice as high in HM than in GM. This effect was also present in men in relationships. After controlling the other relevant variables, homosexual identity lost its predictive value for men in relationships, but was retained in the group of all men. Interestingly, the female gender of the partner (relationship) has emerged as the strongest negative predictor, which, in combination with the increased risk of a PE diagnosis due to being in an established relationship, may support one of the interpretations of differences between the different groups of men. It has been suggested that men in close relationships with women are more likely to believe that they ejaculate prematurely because they are afraid of not providing sufficient sexual satisfaction to their female partners, which may be more important to them than for men in short-term relationships [9] or men in same-gender relationships. Vaginal penetration with simultaneous orgasm has been especially valued in the assessment of the quality of the 'heterosexual' partner system, whereas anal contact in male same-gender relationships is not considered a homologue for vaginal penetration, and therefore does not constitute a necessary condition for sexual satisfaction [21]. In addition, the full interchangeability of roles provides greater adaptability for the couple when sexual difficulties arise, and the course of sexual contact itself is more flexible, with the 'one, then the other' pattern more frequently present [21].

Our study also demonstrated that the experience of insertive forms of sex (but only anal and oral, not vaginal) was associated with a lower risk of a PE diagnosis. Perhaps the people engaging in such activities act so because they do not have problems with ejaculation, or having experience in this regard reduces such risk. However, the cross-sectional nature of the study does not allow to indicate the direction of such a relationship. On the other hand, the pleasure from penetration, which was more often reported in HM than in GM, has a different relationship with the risk of PE in both groups. In all men, the indication of two or three penetrative activities was associated with a relatively high increase in the risk of PE, while the indication of one such activity in GM and BM slightly reduced the risk, although the effect was lost as more penetrative activities were declared. This, again, could indirectly indicate the role of vaginal penetration in predicting a diagnosis of PE assessed by tools that evaluate subjective

aspects of ejaculation (choosing two or three penetrative activities means an increased probability or certainty that vaginal penetration was also chosen).

The universal factors that proved to be relevant in all groups of men were: sexual performance anxiety and financial difficulties, which increased the risk of diagnosing PE, and engaging in sports which reduced this risk. The role of sexual performance anxiety, as well as other psychogenic factors (intrapsychic, behavioural and relational aspects) has been strongly emphasised in older definitions of PE which considered it a typical psychogenic problem [32, 33]. Over time, the importance of genetic factors [34] (especially lifetime premature ejaculation [6]) and biomedical factors, such as urological factors (e.g. prostatitis), endocrine factors (e.g. hyperthyroidism) and neurological factors (e.g. penile hypersensitivity) have been more often taken into consideration in cases of patients with so-called acquired premature ejaculation [6, 35].

There was also a great diversity in the prevalence of this difficulty. Some studies have found it to be the most common sexual problem affecting men, while others have found its prevalence to be no different in comparison to other sexual dysfunctions; these projects varied significantly in the methodology applied [36].

In summary, the results of our study point to the role of psychosocial factors and the characteristics of sexual patterns in the observed differences, rather than to an inherent characterisation of men, such as a hypothetical difference in the genetic determination of ejaculation latency, noted in the study of the aetiology of PE.

In addition to the above-mentioned types of PE, modern typologies [6] indicate that some men who experience a natural variability in ejaculation latency (natural variable premature ejaculation) or even normal latency of ejaculation (premature-like ejaculatory dysfunction) may report dissatisfaction with time and the level of control of ejaculation, which results in them being qualified as burdened with PE. These types may be more common in HM, but there have been no studies yet to support such claim.

The importance of physical activity in reducing the risk of being diagnosed with PE is unclear, as it may have an overall positive effect on mental well-being.

The inverse relationship between PE, general sexual function and erection quality is consistent with previous studies and clinical findings [37, 38].

The observed role of minority stress supports the findings from some studies that presented its relationship with sexual problems [39], including PE [19]. Given the negative effects of processes associated with this stress on the quality of sexual life and sexual function [26], as well as overall well-being [24], this result is not surprising. The anxiety and haste that may accompany sexual activity and experience of some men who actively conceal their sexual identity can be factors that interfere with the course of the sexual response, including ejaculation.

Finally, there is one more explanation to be considered. Although the PEDT does not provide an objective measurement of ejaculation latency, it cannot be completely

excluded that the reported lower risk of a PE diagnosis or a complaint about PE in the group of GM is, in fact, related to the increased risk of delayed ejaculation observed in some studies [16]. The occurrence of this problem was attributed to minority stress, which negatively influences desire, orgasmicity and the uninhibited experience of sexual pleasure by some GM [23].

## Conclusions

Our study has both limitations and strengths. The former include: (1) non-probability sampling method: there was an overrepresentation of young, educated urban dwellers in the sample, which was related to convenience sampling and the online survey method; it may be expected that these demographic characteristics have an impact on sexual functioning and experience, relationships and willingness to disclose facts related to one's sex life; (2) the retrospective method of data collection that may be associated with errors due to distortions while reconstructing past events (e.g. number of sexual partners and different sexual activities); (3) although a standard assessment tool (PEDT) was used, it is not based on the measurement of ejaculation latency, which is considered the 'gold standard' (stop-watch study) [40]; this method may have led to false positive results, especially in men with 'premature-like ejaculatory dysfunction' or 'natural variable premature ejaculation'.

Among the strengths of this study are: (1) large sample size, which makes it possible to better understand the variability between the studied groups, and to increase the statistical power of the tests; (2) embedment in a unique Polish context of the study, along with transgressing the framework of sexually transmitted infections; the study is thus a valuable addition to the current state of knowledge about the sexuality of sexually diverse Polish men; (3) use of acclaimed measurement methods, e.g. PEDT; and (4) consideration of unique factors present in sexual minority men, i.e. measurement of minority stress.

Considering the above limitations and strengths of our study, we can conclude that homosexual identity may be associated with a lower risk of diagnosis of premature ejaculation. This relationship appears to be attributed rather by differences in the characteristics of sexual patterns and relationships between GM and HM men, along with other psychosocial factors, than by differences in the inherent characterisation of men.

Future research should include a more representative study sample, and apply the gold standard of measuring the latency of ejaculation with a stopwatch.

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