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Women's sexuality as surveyed by the FSFI questionnaire in those with no history of childhood sexual abuse or violence

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ABSTRACT

The usefulness of the Female Sexual Functioning Index (FSFI) questionnaire is presented for investigating women's sexual functioning and their determinant factors. Subjects were 133 women who had never experienced any form of sexual abuse in their childhood or any types of violence; these adverse and significant factors were thus absent from the study. The FSFI was found to be an excellent tool in screening for any sexual disorders in women.

KEY WORDS: women's sexuality, FSFI questionnaire, sexual desire.

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INTRODUCTION

On a global scale, it is estimated that on average one in 3-4 women have been victims of sexual abuse (25-33%) and one in 6-10 men (10-16%). According to the Child Protection Committee in Poland (*KOPD* in Polish), every fifth girl (around 20%) and every fifteenth boy (around 5-6%) below the age of 15 years has experienced sexual abuse [1, 2]. Such acts of abuse give rise to adverse consequences in the later sexual life of adults. The consequences of such harassment/molestation include the following: aversion to sharing one's body with others, associating love with violence, no pleasure in being touched, an emotional blockade, being afraid of showing anger in a relationship, chronic fear, changes in tactile association, inability to fully relax, inability to "lose control" in any given situation as the world is perceived as being unsafe/hostile, depression, inability

to trust others, sexual behaviour/contact is non-pleasurable, anxiety in forming deep emotional and sexual relationships, sexual dysfunction and loss of libido [1, 3]. Because experiencing violence can also disrupt women's sexuality, our study aimed to investigate normal sexual function in women through using the FSFI questionnaire in those who have never experienced such occurrences or any forms of violence. The FSFI was adapted to Polish circumstances/conditions by members of the Polish Gynaecological Association: Dr. Krzysztof Nowosielski MD (Department of Gynaecology and Obstetrics at the Regional Specialist Hospital in Tychy) and Dr. Beata Wróbel MD (Sexual Medical Centre at Dąbrowa Górnicza). The study supervisor was Professor of Medicine Richard Poreba.

A similar questionnaire, previously prepared by the International Society of Sexual Medicine, served as the

basis of our study questionnaire. This consists of 19 closed questions *inter alia* addressing how often sex was desired and any difficulties experienced in achieving orgasm. The Polish FSFI version (IFSK) was made available to the medical community at the scientific conference entitled “Sexuality is the key to sexual and reproductive health in partners”; this IFSK conference was organised under the honorary patronage of the European Association for Health Promotion “PRO-SALUTEM”. During the conference, our study authors familiarised doctors with the practical aspects of using the Polish questionnaire version for diagnosing sexual health problems and showing how it may be used by every woman. Indeed, the conference filled the gap in Polish scientific studies concerning gynaecological sexology, which in Poland still remains an undeveloped branch of medicine [4].

The aim of the study was to investigate women’s sexuality in those never having suffered violence.

MATERIAL AND METHODS

Subjects were 133 women who had never experienced sexual abuse in their childhood or any forms of violence. Data for the following variables were obtained for each subject: age, body mass, height, menarche, use of hormonal drugs (e.g. hormone replacement therapy, contraceptives) and sexual initiation. Sexual functioning was investigated by the aforementioned FSFI questionnaire (Female Sexual Function Test) consisting of 21 questions. The first 19 concerned sexual activity engaged in within the last 4 weeks taking into account the following 6 domain-structured areas: desire (questions 1 & 2), arousal (questions 3-6), lubrication (questions 7-10), orgasm (questions 11-13), satisfaction (questions 14-16) and pain/discom-

fort (questions 17-19). The questions were numerically graded by scores (domain scoring), in total, on a scale from 2.0 to 36.0. The last two questions were on fulfilling women’s sex-drive needs (questions 20 & 21).

Numerical variables were described by their means, standard deviations (SD) and medians with maximum and minimum ranges. Because the data were non-normally distributed, a non-parametric test on the significance of differences between two independent groups was adopted: the Mann-Whitney *U* test. Associations between numerical variables were assessed by Spearman rank correlation. The statistical analyses were performed using the Statistica 10PL programme. Statistical significance was adopted as being $p < 0.05$.

RESULTS AND DISCUSSION

AGE, BMI, MENARCHE AND SEXUAL INITIATION

Women’s age ranged from 18 to 63 years, with a mean of 28.2 ± 10.3 and a median of 24 years. There were 122 subjects below 45 years of age, but only 11 who were above this age; this small number thus precluded any reliable comparison of the > 45 year age group with those below this age.

The BMI varied from 16.73 to 33.98 kg/m², the mean BMI being 22.43 ± 3.53 kg/m² and median 21.47 kg/m². The number of women who were underweight or had normal body mass was 102, with 31 women being either overweight or obese.

On average, menarche occurred at 12.9 ± 1.612 years, ranging from 10 to 18 years age. Two women could not remember when they had their menarche. In all subjects, menarche had occurred spontaneously.

The first sexual contacts made by the subjects occurred, on average, at age 18.5 ± 2.4 years (sexual initiation ranging between 13 and 28 years), with ten women not providing their age when this happened (not having had their first sexual contacts).

HORMONAL DRUGS

There were 78 subjects (58.6%) who never took hormonal drugs, with the remainder (55 subjects) doing so. Of these, 48 took contraceptives (36.1%) and 14 (11.3%) took other hormonal drugs.

FSFI QUESTIONNAIRE

From the 133 subjects, 15 replied that they had had no sexual intercourse in the last 4 weeks, including:

- 9 women reporting not being sexually active in the last 4 weeks,
- 4 women replying that they were sexually active but that they did not have intercourse in the last 4 weeks,
- 2 women replying that they were active sexually within the last 4 weeks,
- 3 women saying that they were sexually active, they did not have intercourse and that they attempted intercourse within the last 4 weeks.

TABLE 1. Descriptive statistics of age, BMI, menarche and sexual initiation in women subjects

Variable	n	Mean	SD	Median	Min.	Max.
Age (years)	133	28.2	10.3	24.0	18.0	63.0
BMI (kg/m ²)	133	22.4	3.5	21.5	16.7	34.0
Menarche (years)	131	12.9	1.6	13.0	10.0	18.0
Sexual initiation (years)	123	18.5	2.4	18.0	13.0	28.0

TABLE 2. Women’s various replies to “What hormonal drugs do you take?”

What hormonal drugs are taken	Number	Percentage
No	78	58.6
Contraceptive pills	48	36.1
Other hormonal drugs	15	11.3
Total	141	106.0

The overall FSFI scores in subjects ranged from 2.0 to 36 points with a mean of 25.8 ±8.5 and median of 28.5 points. The highest average FSFI score was observed in the satisfaction domain at 4.7 ±1.5, range 0.8 to 6.0, whereas the lowest scoring was for the desire domain: mean 3.9 ±1.3, range 1.2 to 6.0.

CORRELATIONS OF AGE, MENARCHE, BMI AND SEXUAL INITIATION WITH FSFI SCORES

Significant correlations between age, BMI, menarche and sexual initiation with FSFI scores were found in the following:

- age and desire; medium negative correlation ($r = -0.42$); desire decreases with age,
- age and arousal; weak negative correlation ($r = -0.32$); arousal decreases with age,
- age and lubrication; weak negative correlation ($r = -0.24$); lubrication decreases with age,
- age and orgasm; weak negative correlation ($r = -0.22$); orgasm decreases with age,
- age and overall FSFI score; weak negative correlation ($r = -0.24$); overall FSFI score decreases with age,
- BMI and desire; weak negative correlation ($r = -0.20$); with increasing BMI desire diminishes,
- BMI and arousal; weak negative correlation ($r = -0.20$); with increasing BMI arousal diminishes,
- BMI and satisfaction; weak negative correlation ($r = -0.17$); with increasing BMI satisfaction diminishes,
- menarche and desire; weak negative correlation ($r = -0.29$); with later occurring menarche, desire diminishes,
- menarche and arousal; weak negative correlation ($r = -0.28$); with later occurring menarche, arousal diminishes,
- menarche and lubrication; weak negative correlation ($r = -0.18$); with later occurring menarche, lubrication diminishes,
- menarche and orgasm; weak negative correlation ($r = -0.22$); with later occurring menarche, orgasm diminishes,
- sexual initiation and desire; weak negative correlation ($r = -0.20$); with later sexual initiation, desire diminishes,
- sexual initiation and orgasm; weak negative correlation ($r = -0.18$); with later sexual initiation, orgasm diminishes.

All other correlations between variables and domains were statistically insignificant.

FSFI SCORES AND WOMEN'S BMI

Subjects were divided into two groups according to their BMI:

- < 25; underweight and normal BMI women, $n = 102$,
- ≥ 25; overweight and obese women, $n = 31$.

Mean FSFI scores for all domains and overall FSFI were higher in women who were underweight or had

TABLE 3. Descriptive statistics for FSFI scored replies for women subjects

FSFI domain	n	Mean	SD	Median	Min.	Max.
Desire (score)	133	3.9	1.3	3.6	1.2	6.0
Arousal (score)	133	4.2	1.6	4.8	0.0	6.0
Lubrication (score)	133	4.4	1.8	5.1	0.0	6.0
Orgasm (score)	133	4.1	1.8	4.8	0.0	6.0
Satisfaction (score)	133	4.7	1.5	5.2	0.8	6.0
Pain (score)	133	4.4	1.9	5.2	0.0	6.0
Total FSFI (score)	133	25.8	8.5	28.5	2.0	36.0

TABLE 4. Spearman rank correlations for women subjects

Variable	Age	BMI	Menarche	Sexual initiation
Desire	-0.42*	-0.20*	-0.29*	-0.20*
Arousal	-0.32*	-0.20*	-0.28*	-0.16
Lubrication	-0.24*	-0.12	-0.18*	-0.14
Orgasm	-0.22*	-0.09	-0.22*	-0.18*
Satisfaction	-0.16	-0.17*	-0.15	-0.11
Pain	-0.04	0.03	-0.13	-0.10
Total FSFI	-0.24*	-0.13	-0.24*	-0.17

*Statistical significance; $p < 0.05$

a normal BMI compared to those who were overweight or obese. Median FSFI for the domains of arousal, lubrication, satisfaction, pain and overall FSFI were higher in subjects who were underweight or those with normal BMI when compared to overweight and obese subjects. Medians for the domains of desire and orgasm were the same in both previously defined BMI groups (i.e., below or above a BMI of 25). Upon comparing FSFI scores in these two BMI groups, no significant differences were found in any of the domains or overall FSFI ($p > 0.05$).

FSFI SCORES AND TAKING HORMONAL DRUGS

Both means and medians of FSFI scores for almost all the domains (excepting satisfaction) along with overall FSFI scores are higher in women taking hormonal drugs than in those not taking them, the mean and median for the satisfaction domain being the same. Upon comparing subjects taking or not taking hormonal drugs, the following differences between domains were found to be significant:

TABLE 5. Descriptive statistics of FSFI score differences assessed by the Mann-Whitney *U* test between the two defined BMI groupings

FSFI domain	BMI	<i>n</i>	Mean	SD	Median	Mann-Whitney <i>U</i> test	
						Corrected	<i>p</i>
Desire (score)	< 25	102	4.0	1.3	3.6	1.236	0.216
	≥ 25	31	3.6	1.5	3.6		
Arousal (score)	< 25	102	4.4	1.5	4.8	1.335	0.182
	≥ 25	31	3.8	1.9	4.5		
Lubrication (score)	< 25	102	4.6	1.6	5.1	1.061	0.289
	≥ 25	31	4.0	2.2	4.8		
Orgasm (score)	< 25	102	4.2	1.7	4.8	0.301	0.764
	≥ 25	31	3.9	2.1	4.8		
Satisfaction (score)	< 25	102	4.8	1.4	5.2	0.319	0.749
	≥ 25	31	4.4	1.8	4.8		
Pain (score)	< 25	102	4.5	1.8	5.2	0.284	0.776
	≥ 25	31	4.2	2.2	4.8		
Total FSFI (score)	< 25	102	26.4	7.7	28.8	0.785	0.432
	≥ 25	31	23.9	10.5	28.2		

TABLE 6. Descriptive statistics and Mann-Whitney *U* test FSFI outcomes for women subjects taking or not taking hormonal drugs

FSFI	Hormonal drugs taken	<i>n</i>	Mean	SD	Median	Mann-Whitney <i>U</i> test
						Corrected
Desire (score)	Yes	55	4.2	1.3	4.2	2.034
	No	78	3.7	1.3	3.6	
Arousal (score)	Yes	55	4.5	1.4	4.8	1.522
	No	78	4.0	1.7	4.5	
Lubrication (score)	Yes	55	4.8	1.5	5.1	2.106
	No	78	4.2	1.9	4.8	
Orgasm (score)	Yes	55	4.5	1.6	5.2	2.387
	No	78	3.9	1.8	4.8	
Satisfaction (score)	Yes	55	4.7	1.5	5.2	0.128
	No	78	4.7	1.5	5.2	
Pain (score)	Yes	55	4.7	1.6	4.8	0.567
	No	78	4.3	2.1	5.2	
Total FSFI (score)	Yes	55	27.3	7.5	29.0	1.615
	No	78	24.8	9.0	27.9	

*Statistical significance; *p* < 0.05

- desire; higher scores obtained by those taking hormonal drugs,
- lubrication; higher scores obtained by those taking hormonal drugs,
- orgasm; higher scores obtained by those taking hormonal drugs.

SATISFACTION OF SEX DRIVE

The majority of women either felt a moderate or strong urge to satisfy their sex drive at respectively 39.1% and 31.6%. The fewest were those who felt this need to be weak at 1.5%, whereas in 7.5% of women this need was declared absent.

CORRELATION BETWEEN FSFI SCORE AND THE NEED TO SATISFY THE SEX DRIVE

Significant correlations between FSFI scores and the need to satisfy the sex drive were found in the following domains:

- desire; high positive correlation ($r = 0.76$); women achieving higher scores in this domain had stronger needs to satisfy their sex drives,
- arousal; moderate positive correlation ($r = 0.44$); women achieving higher scores in this domain had stronger needs to satisfy their sex drives,
- lubrication; moderate positive correlation ($r = 0.39$); women achieving higher scores in this domain had stronger needs to satisfy their sex drives,
- orgasm; moderate positive correlation ($r = 0.34$); women achieving higher scores in this domain had stronger needs to satisfy their sex drives,
- satisfaction; weak positive correlation ($r = 0.28$); Women achieving higher scores in this domain had stronger needs to satisfy their sex drives,
- pain; weak positive correlation ($r = 0.29$); women achieving higher scores in this domain had stronger needs to satisfy their sex drives,
- total FSFI; moderate positive correlation ($r = 0.52$); women achieving high scores in this domain had stronger needs to satisfy their sex drives.

FULFILLING THE SATISFACTION OF THE SEX DRIVE

All subjects answered questions on fulfilling their satisfaction of the sex drive. In all, 174 replies were received. Most women satisfied this need by having sexual intercourse with a man at 72.2%, whereas 29.3% do so by masturbating and 9% through watching erotic movies or reading erotic books. It was found that 17.3% of women did all of these aforementioned ways to satisfy their sex drive. Four women (3%) did nothing about satisfying their sex drive.

When using the FSFI questionnaire it was imperative to explain the nature of the study to the women subjects, to ensure the replies are concerned with experiences and sexual responses over the last 4 weeks and that replies should be sincere and frank and treated as being fully

TABLE 7. Numbers and frequencies of women subjects achieving sex drive satisfaction

Satisfying the sex drive	Numbers	Percentage
Not feeling such a need	10	7.5
Very weak or generally not feeling such a need	2	1.5
The satisfaction need is weak	12	9.0
The satisfaction need is moderate	52	39.1
The satisfaction need is strong	42	31.6
The satisfaction need is very strong	15	11.3

TABLE 8. Outcomes of the Spearman rank correlation in women subjects

Variable	Satisfying the sex drive
Desire	0.76*
Arousal	0.44*
Lubrication	0.39*
Orgasm	0.34*
Satisfaction	0.28*
Pain	0.29*
Total FSFI	0.52*

*Statistical significance; $p < 0.05$

confidential. When answering the questions, subjects were asked to keep to the following definitions:

- sexual activity: may include caressing, foreplay, masturbation and vaginal intercourse,
- sexual intercourse: defined as penetration of the vagina by the penis,
- erotic encouragement: includes situations such as foreplay with the partner, self-arousal (masturbation) or erotic fantasies,
- sexual desire or interest: feelings of wanting to have sex, to comply with the partner's sexual preferences and fantasising about having sexual intercourse,

TABLE 9. Table of women's replies to "Fulfilling the satisfaction of the sex drive by"

I fulfil the satisfaction of my sex drive by	Number	Percent of replies	Percent of subjects
Sexual intercourse with a man	96	55.2	72.2
Masturbation	39	22.4	29.3
Watching erotic movies, reading erotic books	12	6.9	9.0
All of the above to satisfy my sex drive	23	13.2	17.3
I do nothing even though I would very much like to, but I just can't	4	2.3	3.0
Total	174	100.0	130.8

- sexual arousal: feelings that involve both physical and mental aspects of sexual arousal. This involves feeling warmth and tingling of the genitalia as well as lubrication and muscle contractions [4].

Analysing female sexuality in this study by means of the FSFI questionnaire enables the impact of those selected female characteristics to be assessed on their lives and sexual functioning. Because violent acts disrupt women's sexuality, this study required making an appropriate choice of women subjects to allow women's normal sexuality to be assessed. The present study thus enabled us to determine the effect that stages in women's sexual development has on the extent of their involvement in and ability to engage in sexual activity. The FSFI questionnaire allows one to assess whether/how sexual desire, arousal, lubrication, orgasm, satisfaction or sexually related pain are affected by the following: age, body mass (BMI), height, menarche, taking hormonal drugs, clinical hyperandrogenism and sexual initiation. The study also enables one to assess how the aforementioned factors affect satisfaction of the sex drive. The study outcomes demonstrate that women's sexuality is greater the more women are able to consciously pursue it, which is heavily influenced by cultural factors that define the limits of fulfilling their sexual needs. Thanks to the questionnaire, women can themselves recognise whether they have any problems with their sexuality and assess the quality of their sexuality [5-7].

CONCLUSIONS

The FSFI questionnaire allows us to gain knowledge about female sexuality and the factors affecting it. The FSFI index (Female Sexual Functioning Index; in Polish *IFSK*) is an excellent means for screening women for sexual dysfunction.

DISCLOSURE

Authors report no conflict of interest.

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AUTHORS' CONTRIBUTIONS

MS, GJB, MPK, prepared the research concept and design the publication. GJB, MPK, APS collected data. MS, MPK, GJB, MW, MM analysed data. MS, GJB, MPK wrote the article. WK finally approved it.