PSYCHOLOGY, PSYCHIATRY

Sexual Difficulty and Its Psychological Correlates among Urban and Rural Adults of Central India: A Pilot Study of 60 Participants

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Published November 2026

Abstract

Sexual difficulties are common and linked with mental health, but community data from central India are scarce. In planning a larger comparison of urban and rural adults, the measurement battery and preliminary estimates need to be examined in a small sample. This study aimed to pilot a battery of standardised measures of sexual function, depression, anxiety, stress, relationship satisfaction, body appreciation and social support in urban and rural adults, and to obtain preliminary estimates of the prevalence and pattern of sexual difficulty and of its psychological correlates. A cross-sectional, community-based pilot study of 60 adults (35 urban, 25 rural; 31 men, 29 women) from Indore and Ujjain, Madhya Pradesh, were selected using stratified random sampling. Participants completed the PROMIS SexFS v2.0 Brief Profile, PHQ-9, GAD-7, PSS-10, CSI-16, BAS-2 and MSPSS. Sexual difficulty was a domain T-score below 36 (above 64 for vaginal discomfort). Results are descriptive, with Wilson 95% confidence intervals, effect sizes and exact or rank-based tests; all inferential results are exploratory. All 60 questionnaires were complete. Any sexual difficulty was present in 28.3% (95% CI 18.5 to 40.8) of all participants and 37.8% (95% CI 25.1 to 52.4) of the 45 who were sexually active. Prevalence among the sexually active was 48.0% in urban and 25.0% in rural participants (Fisher exact p = 0.135) and 39.1% in women and 36.4% in men (p = 1.000), with wide intervals. Orgasmic pleasure and satisfaction were the domains most often affected in women (21.7% each) and orgasmic pleasure in men (18.2%). Probable depression (PHQ-9 of 10 or more) was found in 15.0% and probable anxiety (GAD-7 of 10 or more) in 11.7%. Among the sexually active, participants with sexual difficulty scored higher on depression (mean 8.29 versus 3.46; d = 1.51), anxiety (d = 1.24) and perceived stress (d = 0.82), and lower on relationship satisfaction (d = -0.88), body appreciation (d = -0.76) and social support (d = -0.85). Probable depression was strongly associated with difficulty (odds ratio 18.9, 95% CI 2.1 to 174; Fisher exact p = 0.003). A sample of about 362 sexually active adults would estimate prevalence within 5 percentage points. The battery was feasible, and the pilot suggests a sexual difficulty prevalence of about one in three among sexually active adults and a strong association with depressive and anxiety symptoms. The estimates are imprecise and should be used for planning, not as population findings.

Keywords: anxiety; depression; India; pilot study; sexual dysfunction

1 Introduction

The World Health Organisation treats sexual health as a component of well-being and not merely the absence of dysfunction [1]. Sexual difficulties are common; in the United States, 43% of women and 31% of men reported at least one sexual problem [2]. Reported prevalence varies widely with sample, method and cultural context, and depression and anxiety are recognised risk factors [3], [4]. Depression and sexual dysfunction increase each other's risk [5].

Indian community evidence is limited and varies with definition. About one in five men and one in seven women had at least one sexual disorder in a rural survey near Mysore [6], whereas 81% of rural Haryana men reported at least one sexual health disorder as defined in that study [7]. Few studies compare urban and rural adults, or men and women, using a single measure. The PROMIS Sexual Function and Satisfaction measure covers both sexes with parallel domains and can be used by participants with or without a partner [8], but it has not been widely used in Indian community samples.

This pilot study examines the measurement battery in a small sample to inform a larger urban-rural comparison. Its aims were to assess data completeness and distribution, obtain preliminary estimates of the prevalence and pattern of sexual difficulty and its psychological correlates, and estimate the sample size needed for precise prevalence estimation. As is usual for a pilot, we tested no hypotheses.

2 Methods

2.1 Design and setting

This was a cross-sectional, community-based pilot study by the Department of Psychiatry, Index Medical College, Hospital & Research Centre, Indore, in urban and rural localities of Indore and Ujjain districts, Madhya Pradesh. Data were collected between 25 February and 25 August 2026 at urban and rural community sites and a clinic setting.

2.2 Participants and pilot sample

Adults aged 18 years or more who lived in the study area, gave consent, had been sexually active in the preceding six months and could communicate in Hindi or English were eligible. Exclusions were severe psychiatric or cognitive impairment, advanced neurological disease affecting sexual function, medications with substantial sexual side effects, active treatment for a sexual disorder, and terminal illness. We collected the pilot sample of 60 participants using stratified random sampling, with proportional allocation by setting and sex: 20 urban men, 15 urban women, 11 rural men, and 14 rural women.

2.3 Measures

We measured sexual function with the PROMIS SexFS v2.0 Brief Profile (14 items for women, 10 for men; 30-day recall) and scored it as T-scores according to the scoring manual [9]. Depressive symptoms were measured with the PHQ-9 [10], anxiety with the GAD-7 [11], perceived stress with the PSS-10 [12], relationship satisfaction with the 16-item Couples Satisfaction Index [13], body appreciation with the Body Appreciation Scale-2 [14] and perceived social support with the MSPSS [15]. A sociodemographic schedule recorded age, sex and residence.

2.4 Definitions

Probable depression and anxiety were PHQ-9 and GAD-7 scores of 10 or more. Domain-level sexual difficulty was a T-score below 36 on function and satisfaction domains, or above 64 on vaginal discomfort, and any sexual difficulty meant at least one affected domain (male sexual activity item excluded). These thresholds are a study-defined screening rule, not a clinical diagnosis. Because the

PROMIS items refer to the past 30 days, difficulty was classified in participants sexually active in the previous four weeks (n = 45), and prevalence is reported for all 60 and for those 45.

2.5 Statistical analysis

Proportions were estimated with Wilson 95% confidence intervals [16]. Because of the small numbers, we used the Fisher exact test for categorical comparisons. We compared continuous measures with Welch's t-test and the Mann-Whitney test, and reported effect sizes as Cohen's d [17], [18] with approximate 95% confidence intervals. Associations among scales are Spearman correlations with Fisher-z intervals. We did not fit regression models because there were too few events per predictor [19]. All analyses are exploratory; no correction for multiple testing was applied, and p-values should be read with the confidence intervals. We calculated the sample size for estimating prevalence with a given precision as $n = 1.96^2\ p(1 - p) / d^2$. Analyses used Python (SciPy, statsmodels).

Ethics

The study was approved by the Institutional Ethics Committee of Index Medical College, Hospital & Research Centre, Indore (registration EC/NEW/INST/2021/1687; reference IMCHRC/IEC/2026/21, 21 February 2026) and followed the ICMR national ethical guidelines [20] and the Declaration of Helsinki [21]. Oral informed consent was obtained, participants were assigned unique codes, and distressed participants were referred to the Department of Psychiatry.

Results

Data completeness and participants

All 60 questionnaires were complete, with no missing values on any scale or on age. The sample comprised 35 urban (58.3%) and 25 rural (41.7%) adults and 31 men (51.7%) and 29 women (48.3%). Mean age was 33.98 years (SD 12.88; range 19 to 70). Forty-five participants (75.0%) were sexually active in the previous four weeks, and the other 15 were classified as having no classifiable difficulty.

Prevalence of sexual difficulty

Any sexual difficulty was present in 17 of 60 participants (28.3%, 95% CI 18.5 to 40.8), which is 17 of 45 (37.8%, 95% CI 25.1 to 52.4) of the sexually active (Table 1). Among the sexually active, prevalence was 48.0% in urban and 25.0% in rural participants (odds ratio for urban versus rural 2.77; Fisher exact p = 0.135) and 39.1% in women and 36.4% in men (odds ratio 1.13; Fisher exact p = 1.000). The intervals overlap widely, so the pilot can neither confirm nor exclude differences in prevalence between settings or sexes.

Table 1. Prevalence of any sexual difficulty with 95% Wilson confidence intervals.

Group	All, n/N	All, % (95% CI)	Sexually active, n/N	Sexually active, % (95% CI)
Overall	17/60	28.3 (18.5 to 40.8)	17/45	37.8 (25.1 to 52.4)
Urban	12/35	34.3 (20.8 to 50.8)	12/25	48.0 (30.0 to 66.5)
Rural	5/25	20.0 (8.9 to 39.1)	5/20	25.0 (11.2 to 46.9)
Men	8/31	25.8 (13.7 to 43.2)	8/22	36.4 (19.7 to 57.0)
Women	9/29	31.0 (17.3 to 49.2)	9/23	39.1 (22.2 to 59.2)

Difficulty as defined in Methods. All participants with a classified difficulty were sexually active.

Pattern across domains

Among sexually active women, the most frequent domains of difficulty were orgasmic pleasure and satisfaction with sex life (5 of 23 each, 21.7%), followed by orgasmic ability (13.0%); no woman had difficulty with interest. Among sexually active men the most frequent were orgasmic pleasure (18.2%), erectile function (13.6%) and, with equal frequency, interest and orgasmic ability (9.1% each) (Table 2). Counts per domain were 0 to 5, so estimates are very imprecise.

Table 2. Prevalence of difficulty by PROMIS domain among sexually active participants.

Domain	Difficulty, n (%)	95% CI	Mean T-score (SD)
Women: interest	0 (0.0)	0.0 to 14.3	52.1 (7.5)
Women: vaginal lubrication	2 (8.7)	2.4 to 26.8	50.2 (8.5)
Women: vaginal discomfort	1 (4.3)	0.8 to 21.0	48.8 (8.6)
Women: orgasm, ability	3 (13.0)	4.5 to 32.1	45.9 (10.9)
Women: orgasm, pleasure	5 (21.7)	9.7 to 41.9	45.2 (10.8)
Women: satisfaction with sex life	5 (21.7)	9.7 to 41.9	46.8 (10.0)
Men: interest	2 (9.1)	2.5 to 27.8	49.3 (8.1)
Men: erectile function	3 (13.6)	4.7 to 33.3	51.0 (15.8)
Men: orgasm, ability	2 (9.1)	2.5 to 27.8	50.4 (12.9)
Men: orgasm, pleasure	4 (18.2)	7.3 to 38.5	47.0 (11.8)
Men: satisfaction with sex life	1 (4.5)	0.8 to 21.8	50.7 (10.6)

Difficulty is T < 36, or T > 64 for vaginal discomfort. Women n = 23, men n = 22. A higher T-score means more of the concept, except for vaginal discomfort.

Depression, anxiety, stress and psychosocial measures

Probable depression was present in 9 participants (15.0%, 95% CI 8.1 to 26.1) and probable anxiety in 7 (11.7%, 95% CI 5.8 to 22.2). Probable depression was 14.3% in urban and 16.0% in rural participants, and 12.9% in men and 17.2% in women; probable anxiety was 8.6% and 16.0% by setting and 9.7% and 13.8% by sex. Scale scores are in Tables 3 and 4. Differences between rural and urban participants and between women and men were small (|d| 0.01 to 0.41) with confidence intervals that included zero, and none of the twelve comparisons was significant at the 0.05 level (smallest p = 0.117, for relationship satisfaction in women versus men).

Table 3. Scores by setting, mean (SD), with rural versus urban comparison.

Measure	Urban (n = 35)	Rural (n = 25)	d (95% CI)	p
PHQ-9	5.37 (3.87)	5.40 (3.64)	0.01 (−0.51 to 0.52)	0.977
GAD-7	4.66 (3.80)	5.40 (3.73)	0.20 (−0.32 to 0.71)	0.454
PSS-10	17.66 (5.54)	18.72 (5.04)	0.20 (−0.32 to 0.71)	0.443
CSI-16	60.11 (9.24)	62.48 (9.27)	0.26 (−0.26 to 0.77)	0.334
BAS-2	3.46 (0.60)	3.25 (0.64)	−0.35 (−0.86 to 0.17)	0.195

Measure	Urban (n = 35)	Rural (n = 25)	d (95% CI)	p
MSPSS	58.34 (8.71)	59.08 (9.55)	0.08 (−0.43 to 0.59)	0.761

n = 60 overall. d is positive when rural scores higher. p-values are from Welch t-tests; Mann-Whitney tests gave the same conclusions.

Table 4. Scores by sex, mean (SD), with women versus men comparison.

Measure	Men (n = 31)	Women (n = 29)	d (95% CI)	p
PHQ-9	5.32 (3.94)	5.45 (3.60)	0.03 (−0.47 to 0.54)	0.898
GAD-7	4.81 (3.87)	5.14 (3.69)	0.09 (−0.42 to 0.59)	0.735
PSS-10	17.48 (6.10)	18.76 (4.34)	0.24 (−0.27 to 0.75)	0.353
CSI-16	62.90 (9.89)	59.17 (8.24)	−0.41 (−0.92 to 0.10)	0.117
BAS-2	3.44 (0.63)	3.29 (0.62)	−0.24 (−0.75 to 0.27)	0.360
MSPSS	59.81 (9.38)	57.41 (8.56)	−0.27 (−0.77 to 0.24)	0.306

d is positive when women score higher. p-values are from Welch t-tests; Mann-Whitney tests gave the same conclusions.

Psychological correlates of sexual difficulty

Among the 45 sexually active participants, those with sexual difficulty (n = 17) scored higher than those without (n = 28) on depression, anxiety and perceived stress and lower on relationship satisfaction, body appreciation and social support (Table 5). The largest difference was for depressive symptoms (mean 8.29 versus 3.46; d = 1.51, 95% CI 0.83 to 2.19). Probable depression was present in 7 of 17 participants with difficulty (41.2%) and in 1 of 28 without (3.6%), an odds ratio of 18.9 (95% CI 2.1 to 174; Fisher exact p = 0.003). The wide interval reflects the single participant in the comparison cell.

Table 5. Scores in sexually active participants with and without sexual difficulty, mean (SD).

Measure	Difficulty (n = 17)	No difficulty (n = 28)	d (95% CI)	p
PHQ-9	8.29 (3.57)	3.46 (2.95)	1.51 (0.83 to 2.19)	< 0.001
GAD-7	7.41 (3.78)	3.32 (2.96)	1.24 (0.59 to 1.90)	0.001
PSS-10	20.65 (5.71)	16.64 (4.27)	0.82 (0.20 to 1.45)	0.019
CSI-16	56.24 (8.36)	64.00 (9.01)	−0.88 (−1.51 to −0.26)	0.006
BAS-2	3.08 (0.76)	3.55 (0.51)	−0.76 (−1.38 to −0.14)	0.034
MSPSS	53.88 (8.45)	60.82 (7.96)	−0.85 (−1.48 to −0.22)	0.010

Welch t-tests. d is positive when participants with difficulty score higher. All six comparisons were significant at 0.05 (exploratory); PHQ-9, GAD-7 and CSI-16 also met the Bonferroni threshold of 0.0083.

The six psychological scales were correlated in the expected directions (Table 6; Spearman correlations in the whole pilot sample of 60). Depression and anxiety were strongly correlated (rho = 0.66), and each correlated positively with perceived stress (0.49 and 0.37) and negatively with relationship satisfaction, body appreciation and social support (rho from -0.31 to -0.54). Relationship satisfaction was positively correlated with body appreciation (0.54), and its correlation with social support (0.25) was borderline (p = 0.055).

Table 6. Spearman correlations among the psychological and psychosocial measures (n = 60).

Pair	Spearman rho	95% CI	p
PHQ-9 with GAD-7	0.66	0.49 to 0.78	< 0.001
PHQ-9 with PSS-10	0.49	0.27 to 0.66	< 0.001
PHQ-9 with CSI-16	−0.38	−0.58 to −0.14	0.002
PHQ-9 with BAS-2	−0.51	−0.68 to −0.29	< 0.001
PHQ-9 with MSPSS	−0.31	−0.52 to −0.06	0.016
GAD-7 with PSS-10	0.37	0.13 to 0.57	0.004
GAD-7 with CSI-16	−0.50	−0.67 to −0.28	< 0.001
GAD-7 with BAS-2	−0.54	−0.70 to −0.33	< 0.001
GAD-7 with MSPSS	−0.37	−0.57 to −0.13	0.003
PSS-10 with CSI-16	−0.43	−0.62 to −0.20	< 0.001
PSS-10 with BAS-2	−0.59	−0.74 to −0.40	< 0.001
PSS-10 with MSPSS	−0.39	−0.59 to −0.15	0.002
CSI-16 with BAS-2	0.54	0.33 to 0.70	< 0.001
CSI-16 with MSPSS	0.25	−0.00 to 0.47	0.055
BAS-2 with MSPSS	0.33	0.08 to 0.54	0.010

Sample size implication

Using the pilot prevalence of 37.8% among sexually active adults, about 362 sexually active participants would be needed to estimate prevalence within 5 percentage points with 95% confidence, and about 91 to estimate it within 10 percentage points. If about 75% of recruited adults are sexually active, about 483 adults would need to be recruited.

Discussion

This pilot of 60 adults showed that every participant could complete the full battery of seven standardised measures, with no missing data. Preliminary prevalence of at least one domain of sexual difficulty was 28.3% of all participants and 37.8% of the sexually active. These figures lie within the broad range of Indian community estimates [6], [7], which, as McCabe et al. [3] caution, depend heavily on how a difficulty is defined. They describe participants whose function fell in the lower tail of the US reference distribution and not clinical dysfunction.

Prevalence appeared higher in urban than in rural participants (48.0% versus 25.0%), but the interval is wide (urban 30.0% to 66.5%, rural 11.2% to 46.9%), the Fisher exact test was not significant, and the larger data set from which this pilot was drawn showed no such difference. The pilot illustrates how unstable subgroup estimates are at this size; the observed gap should not be interpreted as an urban-rural difference. The same caution applies to the near-identical prevalence in women and men.

The pattern of domains, with orgasmic pleasure, orgasmic ability and satisfaction more often affected than interest, is a preliminary observation based on very small counts. The association of sexual difficulty with depressive and anxiety symptoms, perceived stress and lower relationship satisfaction is in the direction expected from bidirectional evidence on depression and sexual dysfunction [5] and

from the dual control model, in which stress and anxiety increase inhibition of sexual response [22]. The odds ratio for probable depression is unreliable because one participant occupied a comparison cell, so it should not be used as an effect estimate.

Implications for a larger study

The pilot supports using the PROMIS SexFS Brief Profile with the PHQ-9, GAD-7, PSS-10, CSI-16, BAS-2 and MSPSS in community settings. It points to the need for a sample of several hundred sexually active adults for precise prevalence estimates, to the value of adding a distress item to each domain because screening-defined difficulty does not equal distress [23], and to the need to record both residence and recruitment-site type, since they may differ.

Limitations

The sample of 60 is small, and confidence intervals are wide. All tests are exploratory and not corrected for multiple testing, and the design is cross-sectional.

Conclusion

The measurement battery was feasible and gave complete data in 60 adults. Preliminary prevalence of sexual difficulty was about one in three among sexually active adults, and sexual difficulty was strongly associated with depressive and anxiety symptoms and perceived stress, but estimates for urban-rural and sex differences were too imprecise to interpret. A larger sample of at least about 360 sexually active adults is needed for precise prevalence estimates.

Ethics approval and consent

Approved by the Institutional Ethics Committee, Index Medical College, Hospital & Research Centre, Indore (EC/NEW/INST/2021/1687; IMCHRC/IEC/2026/21, 21 February 2026); oral informed consent was obtained from all participants.

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