Assessment of male sexual function by the Brief Sexual Function Inventory

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OBJECTIVE

To present normative data from Norway using the Brief Male Sexual Function Inventory (BSFI, the first patient self-administered questionnaire to assess male sexuality, and used in the USA) in men aged 20–79 years, examine the psychometric properties of the BSFI, explore the impact of sexual function and other variables on overall sexual satisfaction, and compare American and Norwegian normative data.

SUBJECTS AND METHODS

From public official address lists 3500 men aged 20–79 years were invited to take part in an anonymous questionnaire study, including the BSFI. Altogether 1185 (34%) responded, and the response rates varied with age.

RESULTS

There was increasingly reduced sexual function concerning drive, erection, ejaculation, and problem assessment with age, and most of the age-effect started at >50 years old. Overall sexual satisfaction followed the same trend, but with a weaker association with age. Analyses of factor structure and internal consistency of the BSFI supported a one-factor solution with good internal consistency. Drive, erection, ejaculation, and problem assessment explained 28% of the variance in overall sexual satisfaction. Being younger and having a sexual partner were also associated with high scores of overall sexual satisfaction. American and Norwegian normative data in the BSFI dimensions were markedly similar.

CONCLUSION

The BSFI is a short and discrete screening tool for sexual function, and for most clinical and research purposes we recommend using the BSFI as a one-dimensional scale.

KEYWORDS

male sexual function, sexual drive, erection, ejaculation, sexual problems, normative data

INTRODUCTION

Normal sexual functioning comprises sexual activity with transition through the phases from arousal to relaxation with no problems, and with a feeling of pleasure, fulfilment and satisfaction. The treatment of urological diseases often compromises male sexual functioning, and therefore several instruments have been developed for examining such functioning, which by its nature is best measured by patient self-report [1–5]. Many of these instruments assess the problems of specific patient groups, such as men treated for prostate disease [6]. These instruments cover sexual functioning, and should be separated from questionnaires that also cover sexual experiences and attitudes, as frequently used in epidemiological population surveys. Other instruments, mainly used in psychiatry or andrology, presume the individual is having a sexual problem [7,8].

The Brief Male Sexual Function Inventory (BSFI) was published by O'Leary *et al.* [1] in 1995 to provide a self-reported measure of current sexual functioning. The BSFI was designed to be brief, self-administered, and clinically useful. It covers three functional domains, i.e. sexual drive, erectile function and ejaculatory function, as well as problem assessment of these functional domains, and overall satisfaction. Referring to the multidimensionality of sexual function, O'Leary *et al.* concluded that a summary score from the BSFI was not recommended. However, the degree of multidimensionality is also an empirical question that has not been fully examined previously. If strong correlations between functional domains are found, a total BSFI score covering all items might be clinically useful.

O'Leary *et al.* [1] tested the psychometric properties of the BSFI on data obtained from men in a general medical clinic and men who complained of sexual dysfunction. Internal consistency coefficients for the domains were 0.62–0.95 measured by Cronbach's α. Test-retest reliability for a 1-week interval showed intra-class correlation coefficients of 0.79–0.90 for the domains. Discriminant function was validated for the BSFI for age-adjusted contrasts of the mean scores of erectile function, sexual satisfaction and problem assessment. For sexual drive and ejaculation, discrimination was not reached due to methodological problems.

In a later study O'Leary *et al.* [9] used the BSFI to characterize the sexual function of 2115 community-dwelling men aged 40–79 years in Olmsted County, MN, USA. Among these men 1883 (89%) had responded to at least one item on the BSFI. In general the authors found that sexual drive, erectile functioning, ejaculatory functioning, and overall satisfaction showed patterns of decline with advancing age. To our knowledge this is the only population-based study of the BSFI published to date. A replication study from a different culture should therefore be of interest for comparative and confirmatory purposes, and we invited a random sample of Norwegian men aged 20–79 years to

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Variable	N (%)
Total number of distributed forms	3500
Fully completed forms (11 valid responses)	1092 (31)
Partly completed forms (1–10 valid responses)	93 (3)
Age groups, years	
20–29 (N distributed 450)	86 (19)
30–39 (N distributed 450)	120 (27)
40–49 (N distributed 500)	159 (32)
50–59 (N distributed 700)	260 (37)
60–69 (N distributed 700)	213 (30)
70–79 (N distributed 700)	206 (29)
Unknown age	48
Educational level:	
Low (compulsory only)	293 (27)
Middle (college)	474 (43
High (university level)	325 (30)
Medication for:	
Hypertension	269 (25)
Diabetes	54 (5)
Anxiety/depression	60 (6)
Erectile dysfunction	51 (5)
Married or in an intimate relationship	942 (86)
New sexual partner last 6 months	69 (6)
Sexually engaged nowadays	624 (57)

TABLE 1 The demographic characteristics of the BSFI sample

TABLE 2 Dimensional BSFI normative data, mean (SD) score

Age group, years	Total score (items 1–10)	Drive	Erections	Ejaculation	Problem assessment	Overall satisfaction
20–29	3.55 (0.42)	2.79 (0.81)	3.63 (0.60)	3.85 (0.37)	3.79 (0.53)	2.79 (1.12)
30–39	3.49 (0.54)	2.68 (0.77)	3.61 (0.73)	3.79 (0.54)	3.70 (0.62)	2.55 (1.09)
40–49	3.42 (0.59)	2.55 (0.73)	3.57 (0.72)	3.76 (0.60)	3.61 (0.70)	2.72 (1.03)
50–59	3.06 (0.74)	2.26 (0.74)	3.03 (0.96)	3.54 (0.74)	3.31 (0.92)	2.77 (0.93)
60–69	2.55 (0.96)	1.92 (0.79)	2.44 (1.16)	3.01 (1.15)	2.76 (1.18)	2.46 (1.10)
70–79	1.99 (0.92)	1.54 (0.89)	1.60 (1.18)	2.32 (1.23)	2.45 (1.21)	2.14 (1.16)
All	2.89 (0.95)	2.19 (0.89)	2.83 (1.22)	3.28 (1.05)	3.16 (1.07)	2.55 (1.09)

complete the BSFI. Furthermore, a thorough analysis of the scale properties is needed to decide on the issue of subscales.

The present study had four aims: (i) To examine the psychometric properties of the BSFI; (ii) to present normative data for BSFI-based male sexual function for Norwegian men aged 20–79 years; (iii) to examine the impact of sexual function and other relevant variables upon overall sexual satisfaction; and (iv) to compare the level of sexual dysfunction in a Norwegian population sample with the only previously published sample of normative data for the BSFI.

SUBJECTS AND METHODS

Using public address lists, a target population of 3500 men aged 20–79 years received a questionnaire containing the BSFI as well as fatigue and quality-of-life instruments to complete and return anonymously. This version of the BSFI was linguistically and culturally validated in Norwegian. An accompanying letter described the context and purpose of the investigation. The study was approved by The Regional Committee for Medical Ethics – Region South Norway. A mailing company sent out the questionnaires to the representative sample of men, together with an explanation of the need for normative data in relation to men with prostate and testicular cancer. As the questionnaires were returned anonymously, no probing of nonresponders was possible and no informed consent was needed.

Altogether 1185 (34%) of the 3500 men invited responded; the response rates varied with age, increasing from 19% at 20–29 years to 37% at 50–59 years, and then decreasing to 29% in those aged 70–79 years (Table 1). Besides age, the level of education, marital status, presence of cancer, and current use of medication were elicited by the questions.

In the BFSI the first 10 items cover functional aspects of male sexuality, while the last item covers overall sexual satisfaction. The functional items cover sexual drive (two items), erection (three items), ejaculation (two items), whereas the other questions focus on subjective problem assessment about drive, erection and ejaculation (three items). The scaling is from zero (no function, big problem, etc.) to four (good function, no problem, etc.) Using factor analysis the BSFI can be hypothesized to comprise a one-factor functional scale (item 1–10), a three-factor solution (drive, erection and ejaculation) or a four-factor solution with problem assessment as an additional factor. As item 11 (overall satisfaction) is not a functional question, and consists of one question, this item is not included in the psychometric analyses. The BSFI is shown in the Appendix.

Data from the normative sample were calculated for the BSFI total score, for the three functional domains, problem assessment, and for overall satisfaction, in deciles from 20 to 79 years. Three types of data are presented, i.e. mean (SD) scores (Table 2 and Fig. 1) and percentiles (Table 3 and Fig. 2).

Results from the Norwegian sample were compared to those from the Olmsted County report [9]. The Norwegian and American samples were tested for age-group differences in the BSFI domains. Differences in level of sexual function between the samples were expressed as mean z-score differences based on age-weighted scores, where each decade from 40 years was given equal weight, and the age-group of ≥70 years from the Olmsted County was assumed to be comparable to the 70–79 age group in the Norwegian sample.

The psychometric properties of BSFI were examined in four ways: (i) The factor structure of BSFI was examined using principal-component analysis (PCA) with orthogonal rotation. The number of factors was limited by Eigen-value ≥ 1 and to a fixed number of factors, according to theoretical assumptions; (ii) the internal consistency of the BSFI was assessed with the Cronbach's α; (iii) correlations between subscales were examined; (iv) the impact of functional aspects (item 1–10) on overall sexual satisfaction was examined using univariate and multivariate linear regression analyses with adjustment for age. The same approach was used in a parsimonious model where proportions of the total explained variance were obtained by fractions according to standardized regression coefficients. All models were adjusted for age. The direct effects of each functional domain upon overall sexual satisfaction were examined in initial models, and adjusted for each other in a final model. All results reported were statistically significant using two-sided tests with $P < 0.05$, except where greater levels of significance were reported.

RESULTS

The responders were representative of the Norwegian male population in educational level (compulsory school only 27%, college 43%, and higher level 30%) and marital status (86% married or in an intimate relationship); 57% reported being sexually active over the last 30 days, and 6% had a new sexual partner during the last 6 months. Of the respondents, 25% reported using current medication for hypertension, 5% for diabetes, 6% for anxiety/depression, and 5% for erectile dysfunction (Table 1).

The factor structure of the BSFI was examined in five PCA solutions (A–E, Table 4) and the factors are numbered (i.e. A1 and A2 for factor 1 and 2). The initial PCA (model A) with orthogonal rotation identified two factors with Eigen-value ≥ 1. The items on drive, erection, and the first ejaculation item loaded strongest on the first factor (A1), while the second ejaculation item and items on problem assessment loaded strongest on the second factor (A2).

Repeating the same PCA model and restricting to four factors (allowing Eigen-values <1) showed only a drive factor (B2) according to the original model. The ejaculation items were again divided between factor B1, comprising erection items, and factor B3, comprising ejaculation items, in addition to the ejaculation item from the problem assessment factor. Two of four problem assessment items loaded strongest on a 'problem assessment factor' (B4).

With items on ejaculation excluded from a third PCA model, the drive/erection (C1) vs

FIG. 1. Mean functional scores with age group.

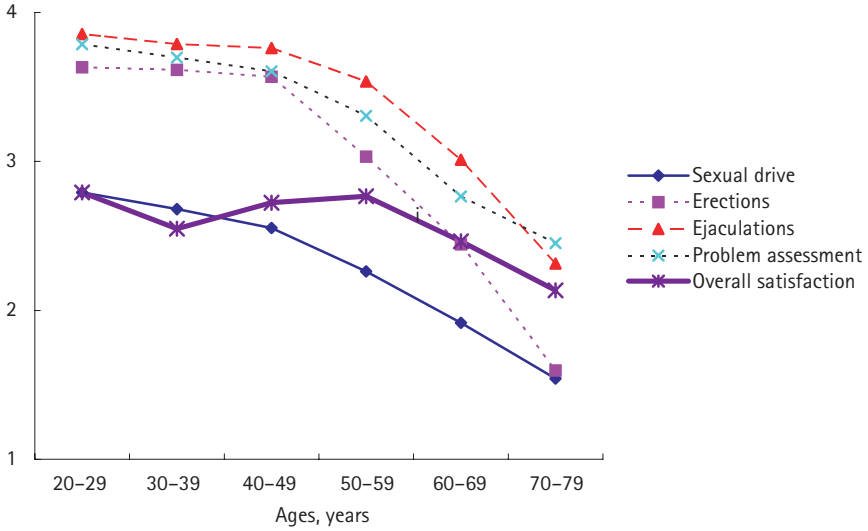
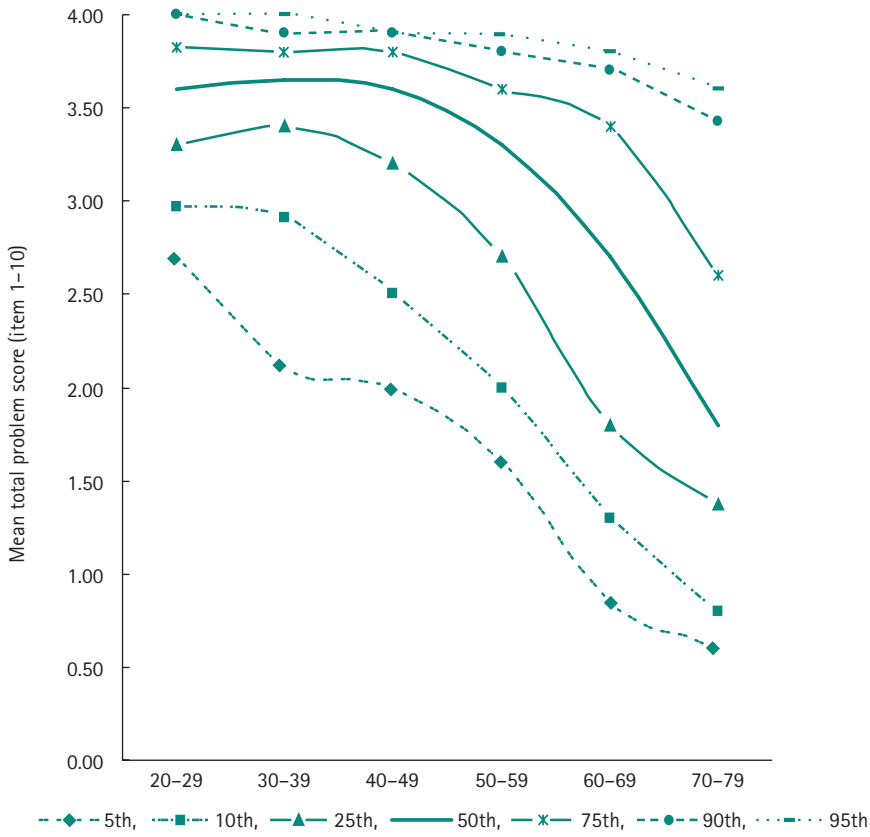


FIG. 2. Normative data; percentiles of the total problem score (items 1–10).



Group	5	10	25	50	75	90	95
Age 20–29							
Total (1–10)	2.70	2.97	3.30	3.60	3.83	4.00	4.00
Drive	1.17	2.00	2.00	3.00	3.50	4.00	4.00
Erection	2.00	2.67	3.33	4.00	4.00	4.00	4.00
Ejaculation	3.18	3.50	4.00	4.00	4.00	4.00	4.00
Problem	2.67	3.00	4.00	4.00	4.00	4.00	4.00
Satisfaction	1.00	1.00	2.00	3.00	4.00	4.00	4.00
Age 30–39							
Total (1–10)	2.11	2.91	3.40	3.65	3.80	3.90	4.00
Drive	1.02	1.50	2.13	2.50	3.00	3.50	4.00
Erection	1.70	2.33	3.67	4.00	4.00	4.00	4.00
Ejaculation	2.53	3.00	4.00	4.00	4.00	4.00	4.00
Problem	2.00	3.00	3.67	4.00	4.00	4.00	4.00
Satisfaction	0.00	1.00	2.00	3.00	3.00	4.00	4.00
Age 40–49							
Total (1–10)	2.00	2.50	3.20	3.60	3.80	3.90	3.90
Drive	1.00	1.50	2.00	2.50	3.00	3.50	3.50
Erection	1.67	2.67	3.33	4.00	4.00	4.00	4.00
Ejaculation	2.50	3.50	4.00	4.00	4.00	4.00	4.00
Problem	2.00	2.67	3.33	4.00	4.00	4.00	4.00
Satisfaction	1.00	1.00	2.00	3.00	3.00	4.00	4.00
Age 50–59							
Total (1–10)	1.60	2.00	2.70	3.30	3.60	3.80	3.89
Drive	1.00	1.50	2.00	2.00	2.50	3.00	3.50
Erection	1.33	1.67	2.33	3.33	4.00	4.00	4.00
Ejaculation	2.00	2.50	3.50	4.00	4.00	4.00	4.00
Problem	1.33	2.00	3.00	3.67	4.00	4.00	4.00
Satisfaction	1.00	1.00	2.00	3.00	3.00	4.00	4.00
Age 60–69							
Total (1–10)	0.84	1.30	1.80	2.70	3.40	3.70	3.80
Drive	0.50	1.00	1.50	2.00	2.50	3.00	3.15
Erection	0.33	1.00	1.33	2.67	3.33	4.00	4.00
Ejaculation	0.50	1.20	2.00	3.50	4.00	4.00	4.00
Problem	0.57	1.00	2.00	3.00	4.00	4.00	4.00
Satisfaction	0.00	1.00	2.00	3.00	3.00	4.00	4.00
Age 70–79							
Total (1–10)	0.60	0.80	1.38	1.80	2.60	3.43	3.60
Drive	0.00	0.00	1.00	1.50	2.00	2.50	3.00
Erection	0.00	0.00	1.00	1.33	2.33	3.43	4.00
Ejaculation	0.00	0.50	1.50	2.00	3.50	4.00	4.00
Problem	0.33	1.00	1.33	2.33	3.67	4.00	4.00
Satisfaction	0.00	0.00	1.00	2.00	3.00	4.00	4.00

TABLE 3
Percentile-based BSFI normative data

problem assessment solution re-emerged (C2), but with the second factor holding an Eigen-value slightly below 1.

In a fourth PCA model, problem assessment was excluded. This model revealed a three-factor solution according to the drive (D2), erection (D1) and ejaculation (D3) model, although with the first ejaculation item loading slightly higher on the erection factor (D1).

Examination of a scree-plot of Eigen-values in relation to the number of factors supported a one-factor solution (E1) for the entire scale (the item on overall satisfaction excluded) as the first factor had an Eigen-value of 6.54 followed by only 1.14 in the next one.

The internal consistency of the functional items in the BSFI was acceptable in all age-groups organized in decades from 20 years. The internal consistency was weakest in the youngest men (20–29 and 30–39 years, α of 0.78 and 0.88, respectively), and 0.90–0.94 in all decades from 40 years. Excluding any single item did not improve Cronbach's α substantially in any age group.

Age was negatively associated with all domains of the BFSI regardless of the statistical approach (means and percentiles). Mean levels of sexual drive, erection, ejaculation, problem assessment, and overall satisfaction declined slightly from age 20–29 to 40–49 years, and then more steeply among those aged 70–79 years ($P < 0.001$) (Fig. 1). Age had almost equal effect on the three functional domains (explained variance on drive 22%, erection 33%, and ejaculation 23%) and on problem assessment (19%), while the effect on overall sexual satisfaction was weaker (3%). The mean BSFI scores constituting Fig. 1 are given with SDs in Table 2. The same age-effects are illustrated with percentiles (Fig. 2, Table 3). Tables 2 and 3 and Figs 1 and 2 present the normative data. Guidelines for use of these data are given in the discussion section.

In Fig. 3, the effects of functional domains (drive, erection, ejaculation) and problem assessment on overall sexual satisfaction are shown adjusted for age only (light bars). All four domains had strong crude effects on overall sexual satisfaction. Further adjustment for the other domains reduced the effect of every domain, indicating that the domains share most of their effect on overall sexual satisfaction, i.e. there is no single functional aspect of primary importance for overall sexual satisfaction. This is in line with the analyses of psychometric properties indicating a one-factor solution for the functional aspects.

The regression model from Fig. 3 was expanded in Fig. 4 with variables beyond the functional domains presumed to influence overall sexual satisfaction. The partial effects of age, having a sexual partner, current medication, and educational level were examined in a parsimonious model in addition to the four domains of the BSFI.

The three functional domains together explained 16% of the variance in overall sexual satisfaction, with sexual drive being the strongest. Problem assessment was a stronger single factor, explaining 12% of the variance in satisfaction. Independent of the BFSI functional domains, age had a negative

TABLE 4 Factor structures of the BSFI

	A1	A2	B1	B2	B3	B4	C1	C2	D1	D2	D3	E1
1. Days drive	0.84	0.18	0.33	0.84	0.20	0.12	0.86	0.19	0.33	0.84	0.20	0.73
2. Level drive	0.83	0.18	0.30	0.84	0.12	0.23	0.84	0.21	0.34	0.85	0.15	0.73
3. Days erection	0.80	0.40	0.74	0.43	0.12	0.33	0.77	0.46	0.81	0.43	0.16	0.85
4. Firm erection	0.77	0.48	0.79	0.34	0.20	0.34	0.73	0.53	0.85	0.35	0.25	0.88
5. Difficult erection	0.71	0.54	0.76	0.30	0.28	0.35	0.66	0.59	0.80	0.31	0.34	0.89
6. Difficult ejaculation	0.62	0.52	0.69	0.27	0.54	0.03			0.65	0.26	0.51	0.81
7. Problem ejaculation	0.23	0.84	0.24	0.17	0.84	0.32			0.27	0.18	0.92	0.76
8. Problem with sexual drive	0.37	0.77	0.25	0.26	0.33	0.80	0.31	0.83				0.80
9. Problem with erection	0.39	0.82	0.43	0.16	0.40	0.73	0.34	0.88				0.85
10. Problem with ejaculation	0.23	0.89	0.23	0.15	0.73	0.51	0.21	0.86				0.78
Initial Eigen-values	6.54	1.14	6.54	1.14	0.56	0.48	5.41	0.99	4.81	0.76	0.50	6.55
Eigen-values rotated solution	3.91	3.78	2.78	2.02	1.99	1.95	3.27	3.13	2.74	1.94	1.38	6.55
Explained variance, %	77		87				80		87			66

Factor loadings from five different rotated factor solutions (model A through E).

effect and having a sexual partner a positive effect on overall satisfaction. All the included factors were statistically significant (erection $P < 0.01$, all others $P < 0.001$), and explained 43% of the variance in sexual satisfaction.

Men with a high education were overall more sexually satisfied (0.2 points on the 5-point scale, $P = 0.008$), but inclusion of education in the parsimonious model only increased the explained variance with 0.4% (F change, $P = 0.030$), and education was therefore excluded from the model. Current medication (hypertension, diabetes, anxiety/depression, and erection problems) did not explain any further variance in overall sexual satisfaction (F change, $P = 0.379$).

As shown in Fig. 5, both the mean functional scores, problem scores, and overall satisfaction, and their association with age, were almost identical in the Norwegian sample and the Olmsted County sample. However, the mean levels of problems with erectile function in particular, and in the oldest group in general, were marginally lower in the Norwegian than in the American sample.

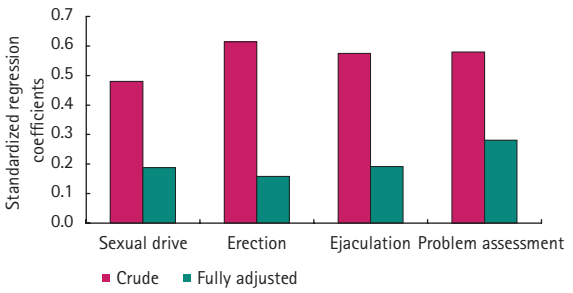


FIG. 3.
Functional aspects in relation to overall sexual satisfaction.

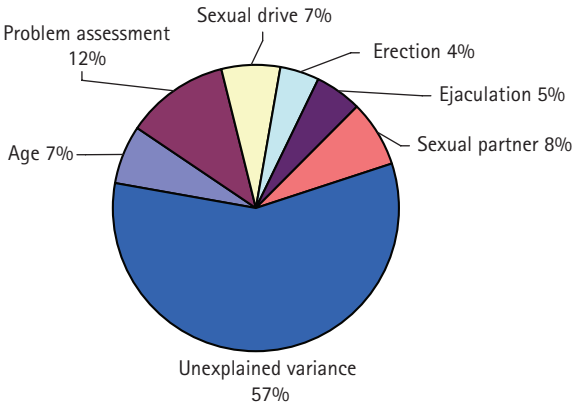
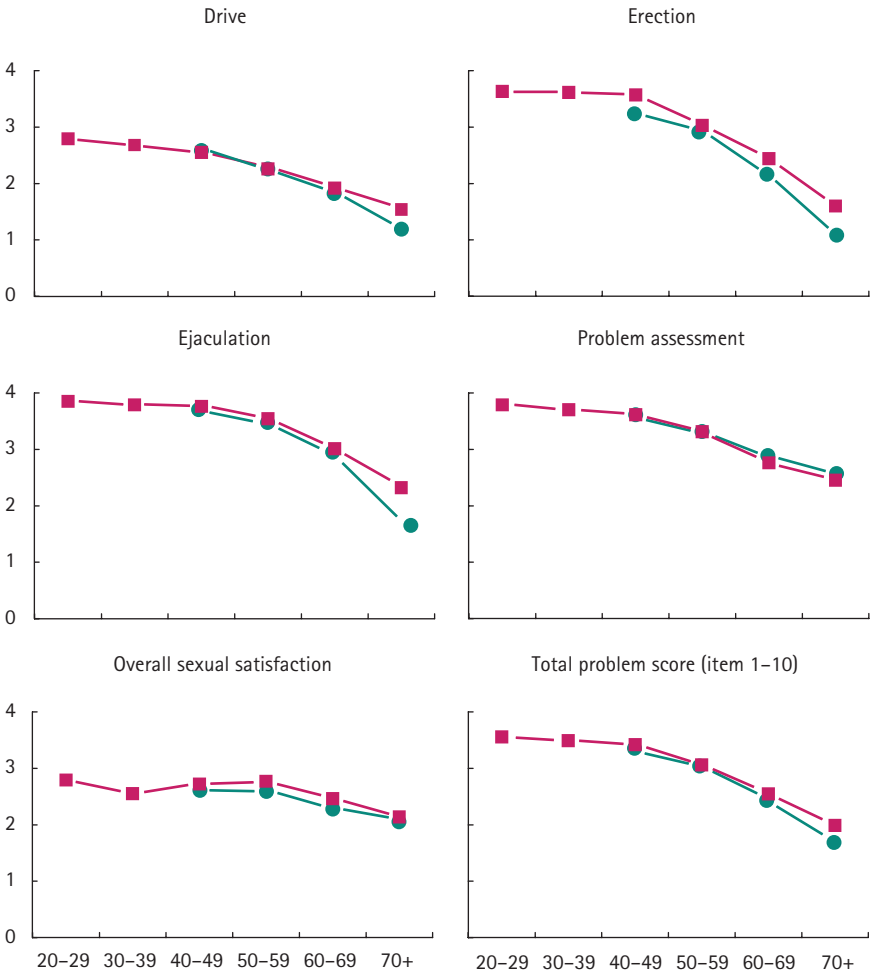


FIG. 4.
Variance components in overall sexual satisfaction.

DISCUSSION

The present study adds to the existing knowledge about the BSFI in four respects: (i) In ageing men, particularly after age 50 years, population-based normative data show increasingly reduced sex drive, ability to have an erection, and to ejaculate, and a higher problem assessment related to this reduced functionality. Overall sexual satisfaction followed the same trend, but with a weaker association with age. (ii) Factor analysis and internal consistency of the BSFI supported a one-factor solution for items 1–10, and that solution also showed good internal consistency. (iii) The functional domains drive, erection and ejaculation, and problem assessment, explained 28% of the variance in overall sexual satisfaction, and no single domain was more important than the others. Increasing age (7%) and not having a sexual partner (8%) were associated with reduced overall sexual satisfaction, whereas educational level and current medication did

FIG. 5. Mean problem scores in Norway (red squares) vs Olmsted County USA (green circles). Significant differences (P < 0.05) between samples for drive (≥70), erection (40–49, 60–69, 70–79), ejaculation (70–79), overall sexual satisfaction (50–59, 60–69), and total problem score (40–49, 70–79). There were no significant differences for problem assessment. Weighted mean sample difference in total problem score (age ≥ 40) z-score = 0.13.



not contribute to explain overall sexual satisfaction.

The Norwegian normative data provided are population-based, and are based on a broader age-range (including also men 20–39 years old) than those previously provided from Olmsted County [9]. In men aged ≥40 years, both mean levels of function and the associations between functional levels and age were almost identical in the American and the Norwegian sample, indicating cross-cultural reliability of the BSFI.

Applying the normative data for clinical purposes is a way of quantifying the level of function in individual patients. For this purpose, we recommend using the percentiles provided in Fig. 2 and Table 3. For a patient with a total functional score of 1.5, a quick interpolation in Fig. 2 indicates that this patient has a functional level at the 5th percentile if he is 50–59 years old, or between the 25th and 50th percentile if 70–79 years old. The patient aged 50–59 years can be informed about very poor function for his age, while the one aged 70–79 can be told that he is in the 'lower normal' level. Table 3 provides percentiles on each functional domain for more advanced clinical purposes.

For research purposes where clinical groups are intended to be compared with normative data, we offer three ways of use of the present results: (i) Based on the mean scores provided in Table 2, comparisons of means, supplied with one-sample *t*-tests, are simple. (ii) The group median in the clinical population can be compared with the percentiles given in Table 3 or Fig. 2. If the clinical group is constituted by several age-cohorts, we recommend stratified comparisons within age-groups, or better, a single comparison based on weighted normative data. If, e.g. the clinical group consists of 25% aged 50–59 and 75% aged 60–69 years, the comparable age-weighed data for mean sexual drive can be calculated as $[(3.06 \times 25) + (2.55 \times 75)]/100 = 2.68$. The same approach applies to percentile-based data (Table 3). For age-weighting of SDs, use procedures for pooled SDs [10].

Is there a need for more details than provided by a one-dimensional scale for functional impairment? Applying the principle of parsimony, we cannot, from our analyses, recommend a multidimensional approach to sexual function. Our conclusion is that in the compromise between details and simplicity the one-dimensional scale is preferable to the four-domain approach initially suggested by O'Leary *et al.* [1]. This conclusion is based on four findings: (i) Factor analyses gave no clear support for a four-factor solution, although there was some support for the drive and erection factors; (ii) The one-factor solution correlated strongly with all items (1–10), comprising 66% of the total variance in the BSFI, which is a good compromise for the single-factor compared to the multiple-factor solutions; (iii) The internal consistency for the one-factor model comprising all 10 items was good (α 0.94); (iv) All four factors were relevant for overall sexual satisfaction, sharing much of the explained variance.

The implication of these findings is that the use of a one-factor solution comprising the first 10 items of the BSFI will cover most variance relevant for sexual function in men, and that there is only a marginal added value in using the original four-factor model. However, in clinical circumstances or research questions where specific functional problems are expected to emerge, the use of the four-factor model might still be justified. Therefore, we provide normative data also for this model. Furthermore, there might be arguments for retaining the BSFI with four domains in investigating clinical cohorts where both the prevalence and nature of functional problems are higher than in the general population.

Whereas we found little support for distinguishing among different functional

domains, we suggest that overall sexual satisfaction should not to be confused with the mean score in functional domains. Certainly there is a positive association between functional scores and overall sexual satisfaction, but in our model, the domains of drive, erection and ejaculation explained only 17% of the variance in overall sexual satisfaction. Problem assessment of the functional domains explained 12% of the variance. Medication and educational level did not increase the explained variance, but having a sexual partner and age were relevant. However, 57% of the variance in overall sexual satisfaction remained unexplained. There are three clinical implications of this finding: Patients subjective problem assessment is more relevant for overall sexual satisfaction than are reports of single functional domains. Interventions aimed at improving functional domains such as erection do not necessarily improve overall sexual satisfaction. Finally, patients with low scores on functional domains, e.g. ejaculatory impairment as a side-effect of an antidepressant drug, do not necessarily report reduced overall sexual satisfaction.

The major limitation of the present study is a fairly low participation rate, which is a common problem in surveys of the general population on sensitive issues. Information on the sexual function of those not responding is not available, and we do not know to what degree the functional level of the participants is representative for those not participating. However, other studies show only modest differences in prevalence estimates and sociodemographic distribution when comparing results by individuals responding after a reminder and initial responders [11–13]. Similar findings for nonresponders are reported from surveys examining sexual habits [14–16]. A large Australian study on participation bias in sexuality surveys concluded that effect sizes on most measures were small, and that postal surveys of sexual attitudes and behaviour may overestimate sexual liberalism, activity and adversity, although the bias should not seriously compromise population estimates [17].

However, the response rate of the present study is comparable with those in other sexuality studies in the general population. In Sweden, a survey on sexuality in the general population had a response rate of 47% among women, after an introductory letter and one telephone reminder [18]. In a Norwegian epidemiology study on the sexuality of men and women in Oslo, the overall response rate was 48% after one reminder [19]. Previous Norwegian studies indicate that response bias is not a major problem in sexual surveys, and studies on sexual behaviour suggest that the nonresponders are randomly distributed [14,15].

In conclusion, the BSFI is a brief and discreet screening instrument for assessing sexual function and sexual satisfaction. For general screening purposes, we suggest using it as a one-dimensional tool rather than a more complicated multidimensional one, as initially suggested. As comparisons of functional scores of the BSFI between the Norwegian and the Olmsted sample revealed no clinically relevant difference, we suggest the normative data reported here is relevant across several cultural contexts.

CONFLICT OF INTEREST

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Abbreviations: **BSFI**, Brief Male Sexual Function Inventory; **PCA**, principal-component analysis.

APPENDIX

The BSFI

"Let's define sexual drive as a feeling that may include wanting to have a sexual experience(masturbation or intercourse), thinking about having sex, or feeling frustrated due to lack of sex"

Sexual drive					
1 During the past 30 days, on how many days have you felt sexual drive?					
	None	Only a few	Some	Most	Almost every day
	0	1	2	3	4
2 During the past 30 days, how would you rate your level of sexual drive?					
	None at all	Low	Medium	Medium-high	High
	0	1	2	3	4
Erections					
3 Over the past 30 days, how often have you had partial or full sexual erections when you were sexually stimulated in any way?					
	Not at all	A few times	Fairly often	Usually	Always
	0	1	2	3	4
4 Over the past 30 days, when you had erections, how often were they firm enough to have sexual intercourse?					
	Not at all	A few times	Fairly often	Usually	Always
	0	1	2	3	4
5 How much difficulty did you have getting an erection during the past 30 days?					
	No erections	A lot of difficulty	Some difficulty	Little difficulty	No difficulty
	0	1	2	3	4
Ejaculation					
6 In the past 30 days, how much difficulty have you had ejaculating when you have been sexually stimulated?					
	No sexual stimulation	A lot of difficulty	Some difficulty	Little difficulty	No difficulty
	0	1	2	3	4
7 In the past 30 days, how much did you consider the amount of semen you ejaculate to be a problem for you?					
	Did not climax	Big problem	Medium problem	Small problem	No problem
	0	1	2	3	4
Problem assessment					
8 In the past 30 days, to what extent have you considered a lack of sexual drive to be a problem?					
	Big	Medium	Small	Very small	No problem
	0	1	2	3	4
9 In the past 30 days, to what extent have you considered your ability to get and keep erection to be a problem?					
	Big	Medium	Small	Very small	No problem
	0	1	2	3	4
10 In the past 30 days, to what extent have you considered your ejaculation to be a problem?					
	Big	Medium	Small	Very small	No problem
	0	1	2	3	4
Overall satisfaction					
11 Overall, during the past 30 days, how satisfied have you been with your sex life?					
	Very dissatisfied	Mostly dissatisfied	Neutral or mixed	Mostly satisfied	Very satisfied
	0	1	2	3	4