Published in final edited form as:
Menopause. 2011 August ; 18(8): 839–844. doi:10.1097/gme.0b013e31820befca.

A higher sense of purpose in life is associated with sexual enjoyment in midlife women

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Abstract

Objective—To understand the association between sense of purpose in life and sexual well-being in a cohort of midlife women.

Methods—Participation in partnered sexual activities and indicators of sexual well-being (the engagement in, and enjoyment of, sexually intimate activities) were measured in a longitudinal cohort of 677 eligible women aged 40–65. At a single time point, women completed the Life Engagement Test (LET), a measure of life purpose. Univariable and multivariable mixed models were used to assess the association between LET and longitudinal sexual well-being.

Results—A higher sense of purpose in life was associated with higher levels of enjoyment (coefficient=2.89, p<0.001) but not with participation in partnered sexual activity (coefficient=0.49, p=0.63) or engagement in partnered sexually intimate activities (coefficient=1.0, p=0.30). Participation was associated with younger age, lower body mass index, being married, reporting any vaginal dryness, and better emotional well-being. HT use approached, but did not reach, significance in association with participation, with p=0.05. Engagement in sexually intimate activities was associated with younger age, more social support, and better emotional well-being. Higher levels of enjoyment were associated with more social support, better emotional well-being, and less vaginal dryness. Menopausal status was not associated with engagement or enjoyment, and only being 5 years or more post-menopausal was related to decreased participation.

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Disclosures: None

Conclusions—Higher sense of purpose in life is associated with more enjoyment of sexually intimate activities, adjusting for other known factors that influence sexual well-being, and independent of demographic factors and menopausal or HT status.

Keywords

menopause; female sexual dysfunction; life purpose; psychosocial factors; women's health

Introduction

Sexual function and sexual well-being in midlife women is multi-faceted and incompletely understood. When asked to rate how important sex is to them, more than 75% of midlife women in the Study of Women Across the Nation (SWAN) cohort answered moderately to extremely important.[1] At the same time, sexual problems are common among American women, and highly prevalent at midlife. Shifren et al reported a 14.8% prevalence of distressing sexual problems in middle-aged women.[2] Multiple studies have shown an increase in complaints of sexual dysfunction across the menopausal transition. While understanding of the determinants of sexual functioning across the transition has increased significantly, more work needs to be done to fully understand their effects individually and in concert.[3–8] Evidence suggests that psychosocial factors, including the quality of intimate relationships, social support and emotional well-being, importantly influence sexual function.[1,3,9] Given the complex interplay of factors affecting sexual function, the prevalence of sexual problems and the importance of sex to midlife women, sexual well-being is an important health-related outcome.

Having a greater sense of purpose in life is an important psychosocial predictor of psychological well-being.[10] For example, purpose in life has been positively correlated with happiness,[11–13] life satisfaction,[10–13] self-esteem,[10,14] self-acceptance, personal growth,[14] and optimism.[10] Additionally, purpose in life has been negatively associated with perceived stress[14] and depression.[10–13, 15] Purpose in life has also been linked to physical well-being and health. For example, Matthews et al.[16] have shown that elderly women with high purpose in life have half the risk for aortic calcification compared to those whose purpose in life is lower. Similarly, Ryff and her colleagues[17–19] found that higher purpose in life predicts lower levels of inflammatory markers, higher levels of HDL cholesterol, lower waist-hip ratios, and lower production of salivary cortisol across the day, among a sample of aging women. Finally, purpose in life is associated with lower risk for incident mild cognitive impairment and incident Alzheimer Disease, among a group of community-dwelling elderly persons.[20] If sense of purpose contributes to overall well-being, then it may be related to health outcomes, including sexual function, in a manner similar to emotional well-being or social support.

We sought to understand the association between life purpose measured at a single point in time and aspects of partnered, sexually intimate activity over three years in a cohort of midlife women. Aspects of sexual well-being examined here included measures of participation in sexually intimate activities with a partner (yes/no), and engagement in and enjoyment of partnered sexually intimate activities. Engagement includes the importance and frequency of kissing, hugging, oral sex, and sexual intercourse. Enjoyment includes emotional and physical satisfaction with partnered sexual activities.

Methods

Sample

STRIDE (Do Stage Transitions Result in Detectable Effects) is a longitudinal cohort study of women aged 40–65 years at baseline designed to evaluate the impact of menopause on health-related quality of life. Details of recruitment and questionnaire administration have been published elsewhere.[21] Briefly, from January through December 2005, women 40–65 years of age receiving health care from a single, university-based, general internal medicine practice were invited to participate in the STRIDE study. Six hundred seventy-seven women completed the STRIDE baseline, 637 of whom also completed the LET and were included in the initial analysis. A subset of 459 women who were sexually active with a partner was used to analyze the associations among variables with engagement in and enjoyment of partnered sexually intimate activities. This study was approved by the University Institutional Review Board and was registered with clinicaltrials.gov (#NCT00097994). All participants provided a written informed consent prior to participating in the study.

Measures

Survey questions were administered using Internet-based forms. Participants were asked to provide information about sociodemographics including economic status using a single item measure asking how difficult it was to pay for the very basics. Participant height and weight were abstracted from the participant's medical record to determine the body mass index (BMI calculated as weight in kilograms per height in meters squared). Participants completed the RAND-36 emotional well-being scale annually.[22] The questions comprising the emotional well-being scale are designed to take general mood, including depression and anxiety, and over-all well-being into account.

All women were asked about participation in partnered sexual activities. Women were classified as sexually active or inactive with a partner based on their responses (yes/no) to the following question: During the past 6 months, have you engaged in any sexual activities (ranging from hugging and kissing to sexual intercourse) with a partner (either a man or woman)? Those who answered yes were considered sexually (i.e. were participating in partnered physically intimate activities) active and were asked a series of questions about sexual functioning. Women who answered no were considered sexually inactive and were asked to select the single most important reason for their inactivity from a list of six reasons. Because these questions had previously been used as individual questions, not as scales, a principal components factor analysis with oblique rotation first in the STRIDE cohort and then confirmed in the SWAN sample was performed and has been published in detail elsewhere. [9] Briefly, two scales were identified: engagement in and enjoyment of sexually intimate activities. The engagement scale consists of six items with 5 levels (0–4) of response. The engagement sexual function domain addresses desire, types of sexual activity and importance of sexual activity. Hugging and kissing is included in sexual activity in this domain as a part of sexual well-being in intimate partnered relationships. The alpha co-efficient for engagement in the sample was 0.75. The enjoyment scale consists of three items with 5 levels of response; the alpha coefficient was 0.76.[9] The enjoyment domain addresses sexual and emotional satisfaction with a partner, as well as arousal during sexual activity.

Menopausal stage was assessed by self-report using a modification of the Stages of Reproductive Ageing Workshop criteria (STRAW).[4,9,23] Participants who reported either having had a hysterectomy or taking oral contraceptive pills could not be classified by bleeding pattern and were placed into two separate groups. Information about oophorectomy status was not collected. Hormone therapy (HT) use was defined as taking any estrogen with or without progesterone, including oral contraceptive pills. All participants, with the

exception of those who reported taking oral contraceptive pills, reported the frequency of vaginal dryness on a 5-point Likert scale ranging from 1 (never) to 5 (all of the time).

The Life Engagement Test (LET) was administered to participants in year 3. The Test consists of six items, for example: 1) There is not enough purpose in my life; 2) To me, the things I do are all worthwhile. Item responses are 1–5 (strongly disagree, disagree, neutral, agree, strongly agree) on each item, with higher total scores indicating greater sense of life purpose. Three of the six items are reverse coded, and the item answers are summed to determine the overall score. The alpha coefficient for the LET in this study sample is 0.87. The median LET score in this study sample was 25 out of a possible 30 (mode 30, mean 25.1, SD 4.45, range 6–30), consistent with the published medians for this measure,[10] indicating a generally high sense of purpose.

Social support was measured using the 12-item Interpersonal Support Evaluation List (ISEL).[24, 25] The ISEL includes questions representing three aspects of social support: appraisal; belonging; and tangible support. The items combine to create the overall continuous scale.

Analysis

Participant characteristics were summarized using descriptive statistics for frequencies and measures of central tendency. Initially, we used logistic (for the dichotomous variable of participation) and linear (for continuous variables engagement and enjoyment) mixed effects models to assess the univariable associations between the predictor and each of the outcome variables. Models accounted for both constant and time-varying variables. Because we were interested in partnered intimate activity, only those women who answered “yes” to participation with a partner were included in the analysis. LET score was treated as a trait and was assessed at a single visit. The three sexual function outcome domains (participation, engagement, and enjoyment) were treated as time-varying. Time-varying variables were menopausal status, vaginal dryness, emotional well-being, social support, difficulty paying for basics, and hormone therapy. Static baseline variables were age, race (white versus non-white), educational attainment, marital status, and body mass index. We used the life engagement test score collected at a single time point to predict sexual functioning in women in various menopausal stages. The test statistic for association is the unadjusted, standardized coefficient (beta). Covariables with a univariable significance of $p \leq 0.1$ were selected for inclusion in multivariable linear mixed effects models. All analyses were performed using STATA 10.0 (Stat Corp., College Station, TX, USA). A p-value$\leq$0.05 was considered significant for all analyses.

Results

Table 1 describes the characteristics of the study sample at baseline. On average, women were 52.3 years old. Nineteen percent were non-white, 64% had at least a college degree and 75% were married or in a committed relationship. Consistent with United States norms, the average BMI was elevated (29.2). The majority of women in the sample had no difficulty paying for basics. Women from all menopausal stages were represented in the sample. The majority (86%) of women were not using HT. Median LET score was 25, indicating a high level of life engagement. The mean emotional well-being score from the RAND SF 36 in the study sample was 48 (range: 16–66, higher numbers indicate better emotional well-being). This is slightly lowered than values seen in a general population (51–52), but consistent with a clinical sample.[22]

Among women who participated in partnered activities, higher purpose in life was positively associated with higher levels of enjoyment (standardized coefficient=2.89, $p<0.01$) in

multivariable models. We found no significant association between the LET and whether the participant was sexually active (standardized coefficient=0.49, p=0.63) or degree of engagement in sexually intimate activities (standardized coefficient=1.0, p=0.30).

Participation (yes) in partnered sexually intimate activities was associated with younger age, lower body mass index, being married, reporting any vaginal dryness, and better emotional well-being (Table 2). HT use just reached significance in association with participation, with a p=0.05. Engagement in sexually intimate activities was associated with younger age, more social support, and better emotional well-being (Table 2). Higher levels of enjoyment were associated with more social support, and better emotional well-being. More vaginal dryness was associated with decreased enjoyment (Table 2). In these analyses, menopausal status was not associated with engagement or enjoyment, and only menopausal status of being 5 years or more post-menopausal was related to decreased participation in sexual activities. Additionally, variables that did not reach significance in the univariable models and hence were not included in the multivariate models shown in Table 2 included vaginal dryness and education for the engagement outcome and education for the enjoyment outcome.

Discussion

Consistent with the study hypothesis, we found that a greater sense of purpose in life was significantly associated with greater enjoyment of sexually intimate activities in a cohort of midlife women. This correlation is independent of demographic factors included in the model, suggesting that purpose in life relates to sexual enjoyment regardless of other concrete life circumstances. This finding is consistent with multiple studies showing that sexual function in peri- and early menopausal women is strongly associated with measures of psychosocial functioning, including quality of intimate relationships, social support, and emotional well-being.[3,7,26] These results are also consistent with Woloski-Wruble et al's findings that sexual satisfaction and overall life satisfaction (as measured by the Life Satisfaction Index) were tightly coupled.[27] Davison et al examined the relationship between overall well-being and sexual satisfaction in a community-based cross-sectional sample of midlife women and found that, independent of menopausal status, women with lower sexual satisfaction had lower general well-being.[28] High purpose in life used in this study is another measure of psychosocial function that may be important to sexual well-being.

We also found that purpose in life was not associated with whether women participated in partnered sexually intimate activities. As published elsewhere, 70% of the women in the STRIDE cohort listed lack of a partner as the single most important reason for sexual inactivity with a partner.[9] Participation for women seems to be associated with a variety of motivations, some of which are unrelated to physical enjoyment.[29] This is consistent with our finding that whether women participated in partner sexual activities was unrelated to their sense of purpose in life.

Purpose in life represents a novel way to examine meaningful behaviors in which people engage. Beyond overall well-being, purposeful or meaningful lives may represent a separate dimension in psychosocial functioning, one that may interact significantly with satisfying sexual behaviors. It is possible that in some women, higher sense of life purpose and enjoyment of sexual activity co-segregate due to an unknown confounder. Further elucidation of this relationship may influence interventions for sexual function and overall well-being in the future.

Secondary results presented here are also consistent with the current literature on sexual function. We found emotional well-being and social support to be important correlates of partnered sexual intimacy. Measures of overall emotional well-being have been consistently

shown to be important correlates of sexual function in women.[1,30–31] Menopausal status and use of HT were less important in this cohort. While hormone therapy (HT) was associated with participation in sexual activities (yes) in the univariate models, this significance was mitigated in the multivariable model (p=0.05). HT was not associated with engagement in, or enjoyment of, partnered sexually intimate activities. The findings of the relative greater import of psychosocial factors over hormonal milieu or gonadal functions for sexual function has been reported in multiple large cohort studies of midlife women, including the Melbourne Womens' Midlife Health Project[3] and SWAN.[1]

Similarly, age but not menopausal status was associated with participation (yes) and engagement, consistent with previous studies.[3, 32–34] Increasing vaginal dryness was associated with decreased sexual enjoyment, which makes physiologic sense and has also been shown in the SWAN cohort.[1,7]

There are important limitations to this study. The direction of the relationship between life purpose and enjoyment of sexual activity cannot be determined. While this is a longitudinal study, LET was measured only once, and therefore no trend over time can be evaluated. STRIDE does not measure women's hormone levels. Likewise, there is no information on oophorectomy status on this sample. We are therefore unable to adjust our sexual well-being models for levels of androgens or estrogens. Multiple studies, however, have found that psychosocial factors are more prominently related to sexual functioning during mid-life than are hormonal factors.[3,7] This sample was taken from women presenting to a general medicine clinic, not from the community, which may introduce bias regarding additional medical problems or a fundamental difference from the community at large. We limited our analysis to only women engaged in partnered sexual activity, and therefore cannot comment on potentially satisfying masturbatory practices.

Conclusion

In conclusion, purpose in life, a predictor of overall well-being, is an important aspect of psychosocial function that may be used in investigations of sexual well-being. This fits well with the existing body of literature supporting a crucial role for psychosocial function in midlife women's sexuality.

Acknowledgments

Financial Support: National Institutes of Health's National Institute of Child Health and Human Development (5K 12HD043441-09, Prairie); National Institutes of Health's National Institute on Aging (AG024254, Hess)

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TABLE 1

Baseline characteristics of study cohort (N=677)[a]

Characteristic	N, Mean (SD or Range), or Median	%[b]
Age, y (mean (range))	53.1 (41–68)	
40–44	66	9.7
45–49	160	23.6
50–54	190	28.1
55–59	135	19.9
60–64	92	13.7
65–68	34	5
Race		
White	511	75.5
Non-white	166	24.5
Marital status		
Single/Widowed/divorced	284	41.95
Married/partner	393	58.05
Ability to pay for basics*		
Very hard	43	6.8
Somewhat hard	179	28.1
Not hard at all	408	64.0
Don’t know	7	1.1
Educational Attainment		
≤ High School (ref)	100	15
Some College	182	27
Completed College	159	24
Graduate Degree	235	35
BMI (mean, (range))	29.9 (14.7–68.55)	
<25 kg/m^2	210	31.1
25–29.9 kg/m^2	180	26.7
≥30 kg/m^2	285	42.2
Menopausal Status		
On OCPs	38	5.6
Premenopausal	141	21.0
Early perimenopause	72	10.6
Late perimenopausal	42	6.2
Early postmenopausal	112	16.5
Late postmeonpausal	133	19.6
Hysterectomy (unknown ovarian status)	139	20.5
Hormone Therapy Use		

Characteristic	**N, Mean (SD or Range), or Median**	**%**[b]
Yes	93	13.7
No	584	86.3
LET score (median) (scale:6–30, higher = more engaged)	25	
Partnered Physical Intimacy		
Participation (yes)	459	67.8
Enjoyment (scale: 0 never – 5 always) (mean (range))	2.61 (0–4.0)	
Engagement (scale:0 none- 5 daily) (mean (range))	2.01 (0.3–4.0)	

[a] Note: Baseline sample characteristics are from study year 2; LET and Ability to Pay for Basics were measured in year 3.

[b] Due to rounding, percentages may not total 100.

LET, Life Engagement Test

TABLE 2

Participation in any partnered sexual activity in the last 6 months, engagement, and enjoyment-Longitudinal multivariable analysis; time varying except as noted. Significant associations in bold.

Characteristic	Participation		Engagement		Enjoyment	
	Coefficient	P value	Coefficient	P value	Coefficient	P value
Social support	1.90	0.06	4.74	**<0.001**	3.99	**<0.001**
Menopausal status		0.27		0.20		0.82
On OCPs	−0.59	0.56	−.01	0.90	−.027	0.79
Pre (ref)	1		1		1	
Early peri	−0.39	0.70	−0.96	0.34	−1.16	0.24
Late peri	−0.00	0.99	−0.28	0.78	−0.57	0.57
Early post	−0.81	0.42	−1.62	0.11	−0.55	0.58
Late post	−2.16	**0.03**	0.54	0.59	−0.82	0.42
Hysterectomy	−1.03	0.30	0.18	0.86	−1.45	0.15
Difficulty paying for basics		0.40		0.20		0.76
Very hard (ref)	1		1		1	
Somewhat hard	−0.84	0.40	1.92	0.06	1.07	0.29
Not hard at all	−0.24	0.81	1.89	0.06	1.04	0.30
Don’t know	−2.43	**0.02**	1.45	0.15	0.28	0.78
Vaginal Dryness		**<0.01**				**<0.01**
Not at all (ref)	1		1		1	
Rarely	2.88	**<0.01**			0.62	0.54
Some of the time	3.15	**<0.01**			0.04	0.97
Most of the time	3.29	**<0.01**			−2.65	**0.01**
All of the time	2.89	**<0.01**			−2.61	**<0.01**
HT use (yes)	1.99	0.05				
Age (baseline)	−4.16	**<0.001**	−3.99	**<0.001**	−1.76	0.08
BMI (baseline)	−2.95	**<0.01**				
Marital status (married)	11.96	**<0.001**				
Educational Attainment (baseline)		0.81				

Characteristic	Participation		Engagement		Enjoyment	
	Coefficient	P value	Coefficient	P value	Coefficient	P value
≤ High School (ref)	1		1		1	
Some College	0.74	0.50				
Completed College	0.66	0.51				
Graduate Degree	−0.06	0.95				
Emotional well-being [a]	2.55	**0.01**	3.54	**<0.001**	3.89	**<0.001**
LET (year 3)	0.49	0.63	1.00	0.32	2.89	**<0.01**

[a] From RAND-36

LET, Life Engagement Test

All variables were entered simultaneously into the regression model. Blank cells indicate associations not tested in multivariate model due to lack of significance in univariable model.