



DATE: October 2017

**OREGON HEALTH AND SCIENCE UNIVERSITY  
OFFICE OF CLINICAL INTEGRATION AND EVIDENCE-BASED PRACTICE**

**Evidence-Based Practice Summary**

**Prevalence of low libido in U.S. menopausal women and women who have been treated for cancer**

Prepared for: Karen E. Adams, M.D. and Nicole Harrington Cirino, M.D.

Authors: Tovah Kohl, MA

**BACKGROUND**

Longitudinal data from the Study of Women's Health Across the Nation (SWAN) indicated that 24% of postmenopausal women reported they never felt, and 41% infrequently felt sexual desire. Although postmenopausal women did note a lower level of interest in sex, multiple factors were involved, including death of a spouse, illness of a spouse, or their spouse's inability to perform sexual functions. There is variation in the studies with some reporting that women who are in the premenopausal stage or post menopause have lower sexual interest or desire than do women who have not yet entered menopause but in other studies, there is no difference. (Woods 2010)

There is growing evidence that women treated for cancer commonly experience disturbances in sexual functioning. Studies have found that cancer, chemotherapy, or endocrine treatment have had a negative effect on the sex life of cancer survivors. The most frequent sexual problems reported have included diminished sexual desire, decreased arousal and lubrication, painful intercourse, and inhibited orgasm. Sexual problems can occur in patients who have been treated recently and in cancer survivors. (Speer 2005)

**ASK THE QUESTION**

**Question 1:** What is the prevalence of low libido in menopausal women? In women who have been treated for cancer?

**SEARCH FOR EVIDENCE**

**Database:** Ovid MEDLINE(R) <1946 to September Week 2 2017>



Search Strategy: See Appendix A

## **CRITICALLY ANALYZE THE EVIDENCE**

### LOW LIBIDO IN MENOPAUSAL WOMEN

The literature search resulted in more than 100 articles that reported the prevalence of low libido in menopausal women. We narrowed the search to include studies conducted in the past 10 years and investigated women in the United States. We identified nine studies that analyzed low libido amongst various populations.

1. Low libido in menopausal women with metabolic disorder: Two studies examined low libido in women with metabolic syndrome. They found that the prevalence of low libido compared to healthy controls was 37.9% (39 out of 103 participants) versus 19% (20 out of 105 participants) (Martelli, V., et al 2012). The second study (Trompeter et al 2016) examined community dwelling women in southern California with metabolic disorder. The prevalence of sexual dysfunction by FSFI total score in women with metabolic syndrome was 50%, compared with 34.8% in those without.
2. Low libido in menopausal Hispanic women with low socioeconomic status: One study (Schnatz 2010) examined the prevalence of women with low libido in the Women's Life Center at Hartford Hospital. There were 27 of 83 women (32.5%) with decreased sexual desire, including 20 (24.1%) stating that they experience it often.
3. Low libido in menopausal women with advanced kidney disease: Strippoli et al (2012) evaluated the prevalence and correlates of female sexual dysfunction in advanced kidney disease. Of the 410 menopausal women in the study, 373 (91%) had sexual dysfunction.
4. Low libido in menopausal women: There were five studies that evaluated the prevalence of low libido in menopausal women. The first (Nappi 2010) surveyed women around the world regarding vaginal atrophy and other effects of menopause, including 437 American women. Forty-one percent of the women said vaginal atrophy had negative consequences for their sex life, 36% said it made them feel old, 27% said it had negative consequences for self-esteem, 12% said it gave them a lower quality of life. West (2008) examined low sexual desire and hypoactive sexual desire disorder (HSDD) in American menopausal women. Prevalence of low sexual desire ranged from 26.7% among premenopausal women to 52.4% among naturally menopausal women. The prevalence of HSDD was highest among surgically menopausal women (12.5%). The third study (Kingsberg 2014) assessed women's attitudes toward low sexual desire. They found that 34% of postmenopausal women were very dissatisfied with their current sexual desire level. Rosen et al (2012) sought to determine the prevalence of adult women with HSDD. The



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prevalence of HSDD for women over 40 ranged from 13%- 4% with the highest proportion among women ages 40-49. Woods et al (2010) described the levels of sexual desire across the menopausal transition (MT) and early postmenopause (PM). They found that women experienced a significant decrease in sexual desire during the late MT stage ( $p < 0.01$ ) and early PM ( $p < 0.0001$ ).

## LOW LIBIDO IN WOMEN WHO HAVE BEEN TREATED FOR CANCER

The literature search resulted in more than 100 articles that reported the prevalence of low libido in women who have been treated for cancer. We narrowed the search to include studies conducted in the past 10 years and focused on women in the United States. We identified five studies that analyzed low libido in women who were treated for cancer.

1. Low libido in women who have been treated for cancer: Lehmann et al (2016) studied the association between body image and sexual satisfaction in adult survivors of childhood cancer. They found that survivors and controls reported comparable levels of body image, body dissociation, sexual experiences, and sexual and status satisfaction. The second study (Wong 2013), found no clinically relevant temporal changes in the trajectory of sexual wellbeing before hematopoietic cell transplantation (HCT) to 3 years after. Zebrack et al (2010) studied the prevalence and risk factors for sexual dysfunction in childhood cancer survivors. They found that 52% of females reported at least 'a little of a problem' in one or more areas of their sexual functioning. The fourth study (Recklitis et al 2010) aimed to address the prevalence of sexual dysfunction among Hodgkin's lymphoma (HL) survivors. Fifty-six percent of survivors has a decreased interest in sex. The final study (Abbot-Anderson 2012), was a systematic review to identify sexual concerns in gynecological cancer survivors. Nineteen of the included studies reported decreased interest in sex.

<b>PICO Question:</b> What is the prevalence of low libido in menopausal women in the United States?				
<b>Outcome:</b> Prevalence				
<i>Author/Date</i>	<i>Purpose of Study</i>	<i>Study Design &amp; Methods</i>	<i>Sample</i>	<i>Outcomes</i>
<b>Total # of Studies: 9 # of Non-Randomized Studies: 9</b>				
Martelli, V., et al. (2012). <i>Journal of Sexual Medicine</i>	The aims of the study were to: (i) to evaluate the prevalence of female sexual dysfunction in <b>women with metabolic syndrome MetS</b>	The Female Sexual Function Index (FSFI) questionnaire, the Female Sexual Distress Scale (FSDS), and The Middlesex Hospital Questionnaire were administered. Female sexuality was defined as dysfunctional when FSFI	103 postmenopausal women with MetS and 105 healthy postmenopausal controls (HC).	<b>The prevalence of women with sexual dysfunction was higher in MetS women than HC (39/103 [37.9%] vs. 20/105 [19%], P = 0.003).</b> The prevalence of both pathological scores in every FSFI domain and FSDS score was higher in MetS women than HC. The logistic regression, considering age and the length of relationship as a common starting point, shows that higher levels of triglycerides are linked to a higher risk of presenting FSD (odds ratio = 2.007 95% confidence interval [1.033-3.901]) in the whole population.)



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	in comparison with healthy controls and (ii) to evaluate the influence of singular components of MetS on female sexual function.	score was <23 and FSDS was >15.		
Nappi, R. E. and M. Kokot-Kierepa (2010). <i>Maturitas</i>	To consider issues relating to vaginal atrophy via an international survey.	Using a structured questionnaire, interviews were performed on women aged 55-65 years living in Sweden, Finland, the United Kingdom, the United States and Canada..	84246 women aged 55-65 years, 437 American women.	41% of women said vaginal atrophy had negative consequences for their sex life 36% said it made them feel old, 27% said it had negative consequences for self-esteem 12% said it gave them a lower quality of life
Schnatz, P. F., et al. (2010). <i>Journal of Women's Health</i>	The objective of this study was to identify the prevalence of female sexual dysfunction (FSD) in a sample comprising <b>women of mostly Hispanic descent and low socioeconomic status (SES)</b> .	Demographic data and symptoms related to sexuality were analyzed from women who consecutively came to the Women's Life Center at Hartford Hospital (2004-2008). FSD was defined as decreased sexual desire, dyspareunia, or vaginal dryness; depression as one positive response to a validated three-question screening instrument; and anxiety as a positive response to whether the patient experiences anxiety sometimes or often.	102 women 52.9 +/- 6.8 years of age who consecutively came to the Women's Life Center at Hartford Hospital (2004-2008).	There were 27 of 83 women (32.5%) with decreased sexual desire, including 20 (24.1%) stating that they experience it often.
Strippoli, G. F., et al. (2012). <i>The American Society of Nephrology: CJASN</i>	This large, cross-sectional study evaluated the prevalence and correlates of <b>female sexual dysfunction in</b>	Cross Sectional Study	1472 women with ESRD  410 menopausal( 373 with sexual dysfunction)	Sexually active women with sexual dysfunction were older (mean age, 51.7 years versus 44.7 years among those without sexual dysfunction); had higher CESD scores; were more likely to receive a pension, be menopausal, take nitrate therapy, and have diabetic nephropathy or lower dialysis adequacy; and were less likely to be waitlisted for a transplant (P<0.05). The OR for women with sexual dysfunction on hemodialysis was

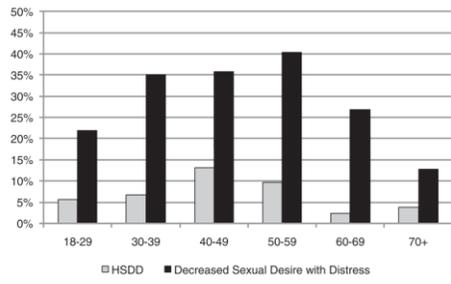
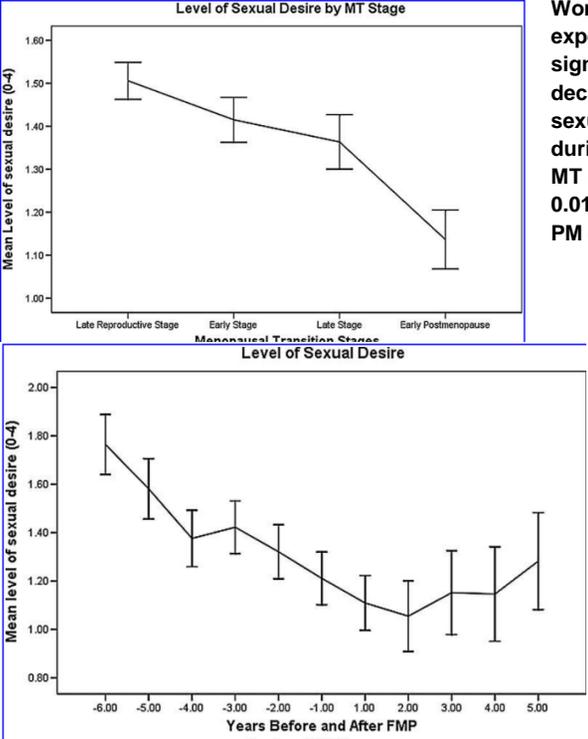


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	<b>advanced kidney disease.</b>			2.64 (1.13-5.14)
Trompeter, S. E., et al. (2016). <i>American Journal of Medicine</i>	This study examined the association of <b>sexual function with metabolic syndrome and cardiovascular disease in healthy older women.</b>	376 postmenopausal, community-dwelling women from the Rancho Bernardo Study (mean baseline age = 73 years) that completed a clinic visit during 1999-2002 and returned the Female Sexual Function Index (FSFI) questionnaire mailed in 2002.	376 women	Women with metabolic syndrome had significantly lower sexual desire (P = .0401) and lower arousal (P = .0086) scored both individually and combined (P = .0047) compared with women without metabolic syndrome. A lower orgasm frequency was reported by women with metabolic syndrome (P = .0427), with a higher prevalence of orgasm dysfunction (P = .0134). Satisfaction scores also met a cut point for dysfunction in metabolic syndrome (P = .0025); lubrication and pain domains did not differ between groups for associations with metabolic syndrome.  In this cohort, <b>almost 40% of sexually active women met the FSFI criteria for sexual dysfunction with a total score ≤26.55. The prevalence of sexual dysfunction by FSFI total score in women with metabolic syndrome was 50%, compared with 34.8% in those without, which was not statistically significant.</b>
West, S. L., et al. (2008). <i>Archives of Internal Medicine</i>	The study sought to estimate the prevalence of low sexual desire and hypoactive sexual desire disorder (HSDD) in <b>US women, focusing on their menopausal status</b>	Cross sectional study from a probability sample of US households. The women were interviewed by telephone	2207 US women aged 30 to 70 years and in stable relationships (>or=3 months) were interviewed by telephone. The analysis focused on 755 premenopausal women and 552 naturally and 637 surgically menopausal women.	<b>Prevalence of low sexual desire ranged from 26.7% among premenopausal women to 52.4% among naturally menopausal women. The prevalence of HSDD was highest among surgically menopausal women (12.5%).</b> Compared with premenopausal women and adjusting for age, race/ethnicity, educational level, and smoking status, the prevalence ratios for HSDD were 2.3 (95% confidence interval, 1.2-4.5) for surgically menopausal women and 1.2 (0.5-2.8) for naturally menopausal women; the prevalence ratios for low sexual desire were 1.3 (0.9-1.9) and 1.5 (1.0-2.2) for surgically and naturally menopausal women, respectively.
Kingsberg, S. A. (2014). <i>Journal of Women's Health</i>	To assess women's attitudes toward low sexual desire and how it affects personal relationships, along with level of awareness of <b>low sexual desire as a medical condition and treatment-</b>	online survey	450 pre- and postmenopausal women aged 20 to 60 years	<b>34% of postmenopausal women were very dissatisfied with their current sexual desire level.</b>



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<p>Rosen, R. C., et al. (2012). <i>Journal of Women's Health</i></p>	<p><b>seeking history.</b> The current study aimed to determine the prevalence of generalized acquired HSDD in <b>women aged &gt;=18 who attended primary care or obstetrics and gynecology clinics for nonurgent clinic visits in the United States.</b></p>	<p>Cross Sectional Study. Participants completed a two-part self-administered questionnaire, and a validated, structured, in-person diagnostic interview, conducted by a trained health professional was used for diagnosing HSDD according to DSM-IV-TR criteria</p>	<p>701 (292 post menopausal) women were enrolled at 20 clinical sites</p>	 <p>FIG. 2. Prevalence of hypoactive sexual desire disorder (HSDD) and decreased sexual desire with distress by age decade. HSDD is defined as receiving a diagnosis of generalized, acquired HSDD by the diagnostic interview. Decreased Sexual Desire with Distress is defined as responding Yes to the first four questions of the Decreased Sexual Desire Screener® (DSDS).</p> <table border="1"> <caption>Data for Figure 2: Prevalence of HSDD and decreased sexual desire with distress by age decade</caption> <thead> <tr> <th>Age Decade</th> <th>HSDD (%)</th> <th>Decreased Sexual Desire with Distress (%)</th> </tr> </thead> <tbody> <tr> <td>18-29</td> <td>~5</td> <td>~22</td> </tr> <tr> <td>30-39</td> <td>~8</td> <td>~35</td> </tr> <tr> <td>40-49</td> <td>~13</td> <td>~35</td> </tr> <tr> <td>50-59</td> <td>~10</td> <td>~40</td> </tr> <tr> <td>60-69</td> <td>~4</td> <td>~28</td> </tr> <tr> <td>70+</td> <td>~5</td> <td>~15</td> </tr> </tbody> </table>	Age Decade	HSDD (%)	Decreased Sexual Desire with Distress (%)	18-29	~5	~22	30-39	~8	~35	40-49	~13	~35	50-59	~10	~40	60-69	~4	~28	70+	~5	~15													
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<p>Woods, N. F., et al. (2010). <i>Journal of Women's Health</i></p>	<p>To describe levels of sexual desire <b>across the menopausal transition (MT) and early postmenopause (PM)</b>, including effects of age, MT-related factors, health, stress, symptoms (hot flash, sleep, mood), and social opportunity factors.</p>	<p>A subset of Seattle Midlife Women's Health Study (SMWHS) participants who provided data during the early reproductive, early and late menopausal transition stages, or postmenopause. Multilevel modeling using the R program was used to test factors related to sexual desire</p>	<p>286 women</p>	 <p><b>Level of Sexual Desire by MT Stage</b></p> <table border="1"> <caption>Data for Level of Sexual Desire by MT Stage</caption> <thead> <tr> <th>Menopausal Transition Stage</th> <th>Mean Level of sexual desire (0-4)</th> </tr> </thead> <tbody> <tr> <td>Late Reproductive Stage</td> <td>~1.50</td> </tr> <tr> <td>Early Stage</td> <td>~1.40</td> </tr> <tr> <td>Late Stage</td> <td>~1.35</td> </tr> <tr> <td>Early Postmenopause</td> <td>~1.15</td> </tr> </tbody> </table> <p><b>Level of Sexual Desire</b></p> <table border="1"> <caption>Data for Level of Sexual Desire (Years Before and After FMP)</caption> <thead> <tr> <th>Years Before and After FMP</th> <th>Mean level of sexual desire (0-4)</th> </tr> </thead> <tbody> <tr> <td>-6.00</td> <td>~1.75</td> </tr> <tr> <td>-5.00</td> <td>~1.55</td> </tr> <tr> <td>-4.00</td> <td>~1.35</td> </tr> <tr> <td>-3.00</td> <td>~1.40</td> </tr> <tr> <td>-2.00</td> <td>~1.25</td> </tr> <tr> <td>-1.00</td> <td>~1.15</td> </tr> <tr> <td>1.00</td> <td>~1.05</td> </tr> <tr> <td>2.00</td> <td>~1.00</td> </tr> <tr> <td>3.00</td> <td>~1.15</td> </tr> <tr> <td>4.00</td> <td>~1.15</td> </tr> <tr> <td>5.00</td> <td>~1.25</td> </tr> </tbody> </table> <p><b>Women experienced a significant decrease in sexual desire during the late MT stage (p &lt; 0.01) and early PM (p &lt; 0.0001)</b></p>	Menopausal Transition Stage	Mean Level of sexual desire (0-4)	Late Reproductive Stage	~1.50	Early Stage	~1.40	Late Stage	~1.35	Early Postmenopause	~1.15	Years Before and After FMP	Mean level of sexual desire (0-4)	-6.00	~1.75	-5.00	~1.55	-4.00	~1.35	-3.00	~1.40	-2.00	~1.25	-1.00	~1.15	1.00	~1.05	2.00	~1.00	3.00	~1.15	4.00	~1.15	5.00	~1.25
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The GRADE criteria were used to evaluate the quality of evidence presented in research articles reviewed during the development of this guideline. For more detailed information, see Appendix A.

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<b>Total # of Studies: 5 # of Systematic Reviews: 1 # of Non-Randomized Studies: 4</b>																																								
Lehmann, V., et al. (2016). <i>Psycho-Oncology</i>	To study the association between body image and sexual satisfaction in <b>adult survivors of childhood cancer</b>	Participants completed web-based questionnaires concerning body image, body dissociation, sexual satisfaction, and relationship status satisfaction (i.e., satisfaction with either being in a relationship or being single).	Survivors (n=87) and controls (n=87) were matched on age and gender, with a mean age of 27 years (range: 20-40).	Survivors and controls reported comparable levels of body image, body dissociation, sexual experiences, and sexual and status satisfaction (d= 0.15 - 0.28)  <b>Table 2.</b> Descriptive statistics of all included measures, stratified by survivors versus controls and relationship status  <table border="1"> <thead> <tr> <th></th> <th></th> <th>Body image</th> <th>Body dissociation</th> <th>Sexual satisfaction</th> <th>Status satisfaction</th> </tr> <tr> <th></th> <th>n</th> <th colspan="4">M (SD) range</th> </tr> </thead> <tbody> <tr> <td>Survivors</td> <td>87</td> <td>16.05 (6.08) 2-27</td> <td>8.36 (5.73) 0-25</td> <td>25.47 (5.30) 5-30</td> <td>11.47 (3.70) 2-15</td> </tr> <tr> <td>Controls</td> <td>87</td> <td>16.95 (5.56) 4-27</td> <td>9.87 (5.75) 0-24</td> <td>24.61 (6.03) 5-30</td> <td>10.39 (3.90) 2-15</td> </tr> <tr> <td>Comparison</td> <td></td> <td>F=0.24, p=.623</td> <td>F=3.34, p=.069</td> <td>F=1.17, p=.280</td> <td>F=0.97, p=.326</td> </tr> <tr> <td>Cohen's d</td> <td></td> <td>0.15</td> <td>0.26</td> <td>0.15</td> <td>0.28</td> </tr> </tbody> </table>			Body image	Body dissociation	Sexual satisfaction	Status satisfaction		n	M (SD) range				Survivors	87	16.05 (6.08) 2-27	8.36 (5.73) 0-25	25.47 (5.30) 5-30	11.47 (3.70) 2-15	Controls	87	16.95 (5.56) 4-27	9.87 (5.75) 0-24	24.61 (6.03) 5-30	10.39 (3.90) 2-15	Comparison		F=0.24, p=.623	F=3.34, p=.069	F=1.17, p=.280	F=0.97, p=.326	Cohen's d		0.15	0.26	0.15	0.28
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Wong, F. L., et al. (2013). <i>Blood</i>	To described the trajectory of sexual well-being from <b>before hematopoietic cell transplantation (HCT) to 3 years</b>	Prospective cohort study	125 women total who received allogeneic ( 61) and autologous (64) HCT	<b>Total sexual function:</b> No clinically relevant temporal changes were observed.																																				
Zebrack, B. J., et al. (2010). <i>Psycho-Oncology</i>	The purpose of this study is to (1) identify prevalence and risk factors for sexual dysfunction in <b>childhood cancer survivors</b> , and (2) examine the extent to which sexual dysfunction may be associated with health-related quality of life (HRQOL) and psychosocial	Survivors completed standardized measures of sexual functioning, HRQOL, psychological distress and life satisfaction. Descriptive statistics assessed prevalence of sexual symptoms. Bivariate analyses identified correlates of sexual symptoms and examined associations between symptoms and HRQOL/psychosocial	599 survivors (316 women) age 18-39 years	For any given symptom, most survivors reported an absence of sexual problems. <b>Fifty-two percent of females and 32% of males reported at least 'a little of a problem' in one or more areas of their sexual functioning.</b>																																				



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	outcomes.	outcomes.		<p><b>Table 2. Descriptive statistics for MOS sexual functioning scale</b></p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Frequency (%) of item response</th> </tr> <tr> <th>Not a problem</th> <th>A little of a problem</th> <th>Somewhat of a problem</th> <th>Very much a problem</th> </tr> </thead> <tbody> <tr> <td colspan="5"><b>Men</b></td> </tr> <tr> <td>Lack of sexual interest</td> <td>219 (79.9)</td> <td>28 (10.2)</td> <td>15 (5.5)</td> <td>12 (4.4)</td> </tr> <tr> <td>Unable to relax and enjoy sex</td> <td>218 (79.9)</td> <td>24 (8.8)</td> <td>24 (8.8)</td> <td>7 (2.6)</td> </tr> <tr> <td>Difficulty in becoming sexually aroused</td> <td>232 (84.7)</td> <td>22 (8.0)</td> <td>12 (4.4)</td> <td>8 (2.9)</td> </tr> <tr> <td>Difficulty getting or keeping an erection</td> <td>218 (79.6)</td> <td>33 (12.1)</td> <td>8 (2.9)</td> <td>15 (5.5)</td> </tr> <tr> <td colspan="5"><b>Women</b></td> </tr> <tr> <td>Lack of sexual interest</td> <td>190 (62.7)</td> <td>54 (17.8)</td> <td>31 (10.2)</td> <td>28 (9.2)</td> </tr> <tr> <td>Unable to relax and enjoy sex</td> <td>197 (65.2)</td> <td>47 (15.6)</td> <td>34 (11.3)</td> <td>24 (7.9)</td> </tr> <tr> <td>Difficulty in becoming sexually aroused</td> <td>199 (65.9)</td> <td>52 (17.2)</td> <td>30 (9.9)</td> <td>21 (6.6)</td> </tr> <tr> <td>Difficulty in having an orgasm</td> <td>182 (60.5)</td> <td>44 (14.6)</td> <td>41 (13.6)</td> <td>34 (11.3)</td> </tr> </tbody> </table>		Frequency (%) of item response				Not a problem	A little of a problem	Somewhat of a problem	Very much a problem	<b>Men</b>					Lack of sexual interest	219 (79.9)	28 (10.2)	15 (5.5)	12 (4.4)	Unable to relax and enjoy sex	218 (79.9)	24 (8.8)	24 (8.8)	7 (2.6)	Difficulty in becoming sexually aroused	232 (84.7)	22 (8.0)	12 (4.4)	8 (2.9)	Difficulty getting or keeping an erection	218 (79.6)	33 (12.1)	8 (2.9)	15 (5.5)	<b>Women</b>					Lack of sexual interest	190 (62.7)	54 (17.8)	31 (10.2)	28 (9.2)	Unable to relax and enjoy sex	197 (65.2)	47 (15.6)	34 (11.3)	24 (7.9)	Difficulty in becoming sexually aroused	199 (65.9)	52 (17.2)	30 (9.9)	21 (6.6)	Difficulty in having an orgasm	182 (60.5)	44 (14.6)	41 (13.6)	34 (11.3)		
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Recklitis, C. J., et al. (2010). <i>Psycho-Oncology</i>	This study aimed to address sexual dysfunction, but the prevalence and persistence of sexual problems in <b>Hodgkin's lymphoma (HL) survivors</b> by comparing sexual health in a large cohort of long-term HL survivors with a noncancer control group.	A mailed survey including questions about current sexual problems and sexual satisfaction was completed by HL survivors.	465 HL survivors (234 women) and 205 sibling controls (104 women). Survivors ranged from 20 to 82 years (median=44) and were treated >=7 years prior (median=18).	<p><b>Table 2. Prevalence of current sexual problems in survivors and controls</b></p> <table border="1"> <thead> <tr> <th rowspan="3">Sex variable</th> <th colspan="6">N (%)</th> </tr> <tr> <th colspan="2">All N = 699</th> <th colspan="2">Males N = 331</th> <th colspan="2">Females N = 338</th> </tr> <tr> <th>Patient N = 465</th> <th>Sibling N = 204</th> <th>Patient N = 231</th> <th>Sibling N = 100</th> <th>Patient N = 234</th> <th>Sibling N = 104</th> </tr> </thead> <tbody> <tr> <td>Decreased interest in sex</td> <td>162 (41.4)</td> <td>75 (43.1)</td> <td>54 (27.1)</td> <td>26 (29.9)</td> <td>108 (56.3)</td> <td>49 (56.3)</td> </tr> <tr> <td>Decreased sex activity</td> <td>212 (54.2)</td> <td>93 (53.4)</td> <td>88 (44.2)</td> <td>44 (50.6)</td> <td>124 (64.6)</td> <td>49 (56.3)</td> </tr> <tr> <td>Feeling sexually unattractive</td> <td>154 (39.4)</td> <td>70 (40.2)</td> <td>60 (30.2)</td> <td>26 (29.9)</td> <td>94 (49.0)</td> <td>44 (50.6)</td> </tr> <tr> <td>Decreased affection towards partner</td> <td>90 (23.0)</td> <td>47 (27.0)</td> <td>32 (16.1)</td> <td>23 (26.4)*</td> <td>58 (30.2)</td> <td>24 (27.6)</td> </tr> <tr> <td>Decreased acceptance</td> <td>76 (19.4)</td> <td>44 (25.3)</td> <td>39 (19.6)</td> <td>24 (27.6)</td> <td>37 (19.3)</td> <td>20 (23.0)</td> </tr> <tr> <td>Pain during intercourse</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>62 (32.3)</td> <td>22 (25.3)</td> </tr> </tbody> </table>	Sex variable	N (%)						All N = 699		Males N = 331		Females N = 338		Patient N = 465	Sibling N = 204	Patient N = 231	Sibling N = 100	Patient N = 234	Sibling N = 104	Decreased interest in sex	162 (41.4)	75 (43.1)	54 (27.1)	26 (29.9)	108 (56.3)	49 (56.3)	Decreased sex activity	212 (54.2)	93 (53.4)	88 (44.2)	44 (50.6)	124 (64.6)	49 (56.3)	Feeling sexually unattractive	154 (39.4)	70 (40.2)	60 (30.2)	26 (29.9)	94 (49.0)	44 (50.6)	Decreased affection towards partner	90 (23.0)	47 (27.0)	32 (16.1)	23 (26.4)*	58 (30.2)	24 (27.6)	Decreased acceptance	76 (19.4)	44 (25.3)	39 (19.6)	24 (27.6)	37 (19.3)	20 (23.0)	Pain during intercourse	—	—	—	—	62 (32.3)	22 (25.3)
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Abbott-Anderson, K. and K. L. Kwekkeboom (2012). <i>Gynecologic Oncology</i>	To identify physical, psychological and social sexual concerns reported by <b>gynecological (GYN) cancer survivors</b> .	systematic review	A total of 37 articles (3685 women) were located; 34 explored women's sexual concerns following gynecological cancer diagnosis and treatment and 3 tested interventions for sexual concerns in women with gynecological cancer.	Nineteen studies reported decreased interest in sexual activity.																																																													

The GRADE criteria were used to evaluate the quality of evidence presented in research articles reviewed during the development of this guideline. For more detailed information, see Appendix A.



DATE: October 2017

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## Appendix A. Search Strategy

Search strategy included:

- 
- 1 exp Libido/ (4758)
  - 2 exp Sexual Dysfunctions, Psychological/ (24675)
  - 3 exp Sexual Dysfunction, Physiological/ (27985)
  - 4 1 or 2 or 3 (34837)
  - 5 (libido\* or ((sex\* or coit\* or intercours\* or copulat\*) adj3 (driv\* or desir\* or arous\* or want\* or need\* or function\* or dysfunction\* or initia\* or participa\*))).mp. (45106)
  - 6 ((reduc\* or low\* or decreas\* or hypoactiv\* or rais\* or increas\* or high\* or elevat\*) adj3 (driv\* or desir\* or arous\* or function\* or dysfunction\* or want\* or need\* or function\* or initia\* or participa\*))).mp. (364319)
  - 7 exp Sexual Behavior/ (98928)
  - 8 5 or 6 (404317)
  - 9 7 and 8 (15626)
  - 10 4 or 9 (44632)
  - 11 exp climacteric/ (57479)
  - 12 (menopaus\* or perimenopaus\* or postmenopaus\*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (93291)
  - 13 11 or 12 (98117)
  - 14 exp prevalence/ (252482)
  - 15 10 and 13 and 14 (106)
  - 16 (prevalen\* adj10 ((menopaus\* or perimenopaus\* or postmenopaus\*) adj7 (libido\* or ((sex\* or coit\* or intercours\* or copulat\*) adj3 (driv\* or desir\* or arous\* or want\* or need\* or function\* or dysfunction\* or initia\* or participa\*))))).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (23)
  - 17 (prevalen\* adj10 ((menopaus\* or perimenopaus\* or postmenopaus\*) adj7 ((reduc\* or low\* or decreas\* or hypoactiv\* or rais\* or increas\* or high\* or elevat\*) adj3 (driv\* or desir\* or arous\* or function\* or dysfunction\* or want\* or need\* or function\* or initia\* or participa\*))))).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (12)
  - 18 15 or 16 or 17 (126)
  - 19 limit 18 to female (120)



DATE: October 2017

And

- 1 exp Libido/ (4758)
- 2 exp Sexual Dysfunctions, Psychological/ (24675)
- 3 exp Sexual Dysfunction, Physiological/ (27985)
- 4 1 or 2 or 3 (34837)
- 5 (libido\* or ((sex\* or coit\* or intercours\* or copulat\*) adj3 (driv\* or desir\* or arous\* or want\* or need\* or function\* or dysfunction\* or initia\* or participa\*))).mp. (45106)
- 6 ((reduc\* or low\* or decreas\* or hypoactiv\* or rais\* or increas\* or high\* or elevat\*) adj3 (driv\* or desir\* or arous\* or function\* or dysfunction\* or want\* or need\* or function\* or initia\* or participa\*))).mp. (364319)
- 7 exp sexual behavior/ (98928)
- 8 5 or 6 (404317)
- 9 7 and 8 (15626)
- 10 exp Neoplasms/ (3106401)
- 11 exp Antineoplastic Agents/ (1001490)
- 12 exp Radiotherapy/ (174126)
- 13 exp Antineoplastic Protocols/ (132555)
- 14 10 or 11 or 12 or 13 (3676993)
- 15 9 and 14 (1289)
- 16 limit 15 to humans (1284)
- 17 limit 16 to female (906)
- 18 limit 17 to (meta analysis or systematic reviews) (37)
- 19 limit 17 to (controlled clinical trial or guideline or randomized controlled trial) (69)
- 20 limit 17 to (comparative study or evaluation studies) (91)
- 21 exp Epidemiologic Studies/ (2177321)
- 22 17 and 21 (297)
- 23 18 or 19 or 20 or 22 (416)

**Filters/limits** included articles published in English in the last 10 years.