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Filling in the gaps: Sociodemographic and medical predictors of sexual health and other supportive care needs, and desire for help in gynecological cancer survivors

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ABSTRACT

Purpose: The goal of the present study was to evaluate predictors of unmet supportive care needs and readiness for help among gynecological cancer patients.

Methods: A sample of 113 gynecological cancer survivors completed a measure of needs and desire for help. Regression analyses identified sociodemographic and medical predictors of patient needs and desire for help.

Results: Younger age and shorter time since treatment were the strongest predictors of many unmet needs. Younger age and chemotherapy predicted greater unmet sexual health needs. Shorter time since treatment predicted readiness for help with informational needs.

Conclusions: Post-treatment unmet needs are diverse and may be greater in younger and recently treated survivors. Chemotherapy treatment may contribute to greater sexual health needs.

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Well documented are the multifaceted sequelae of treatment for gynecological cancer, which often diminish women's long-term quality of life (Bergmark, Avall-Lundqvist, Dickman, Henningsohn, & Steineck, 2002; Auchincloss, 1995; Andersen, Anderson, & deProse, 1989a; Stead, 2004; Lagana et al., 2005; Burns, Costello, Ryan-Woolley, & Davidson, 2007; Gilbert, Ussher, & Perz J, 2011). Cancer centres are increasingly adopting holistic, patient-centred mandates (Gamal, Grypdonck, Hengeveld, & Davis, 2001); unfortunately, healthcare providers have little scientifically-based guidance as to how gynecological cancer patients' post-treatment needs should be evaluated and addressed to maximize the quality of their care. This problem can be addressed through use of the supportive care need framework, which encompasses physical, psychological, social, emotional, practical, spiritual, and informational needs (Fitch, 2008). The framework was developed as a tool for needs assessments and program planning and is a useful resource for education and model development. The goal of the present study was to identify predictors of gynecological cancer patient needs and desire for help using this framework.

Descriptive studies have shown great variability in levels of unmet needs across patients (Steele & Fitch, 2008). Left unmet, these needs are linked to increased psychosocial distress and lower overall quality of life (Carpenter, Andersen, Fowler, & Maxwell, 2009). Most post-treatment needs appear to be non-physical in nature (Steele & Fitch, 2008; Beesley, Eakin, Steginga, Aitken, Dunn, & Battistutta, 2008; Hodgkinson et al., 2007). However, many healthcare providers feel they lack the resources, time, skills and knowledge to properly address psychosocial and sexual concerns (Stead, Brown, Fallowfield & Selby, 2003).

Currently, only three studies explore individual differences in unmet supportive care needs in gynecological cancer patients. First, Hodgkinson and colleagues (2007) reported that higher anxiety and a later stage of cancer at diagnosis predicted reporting at least one unmet need. Second, Beesley and colleagues (Beesley et al., 2008) were the first to explore predictors of unmet supportive care needs using a socio-ecological perspective. Living in a rural location, limited ability to work due to illness and experiencing lymphedema were the most consistently significant community and health factors, while several demographic variables predicted some unmet needs; these included being partnered, vaginal or open bowel surgery, receiving chemotherapy, and shorter time since treatment.

Finally, one small descriptive study of 51 patients found that unmet needs in the physical and practical domains were dependent on income and that minorities reported significantly higher support needs in the sexuality and psychological needs domains than their majority counterparts (Simonelli & Pasipanodya, 2014).

Despite research indicating that a majority of women recovering from gynecological cancer treatment experience significant levels of sexual dysfunction (Gilbert et al., 2011), to date only Beesley and colleagues (2008) and Simonelli and Pasipanodya (2014) evaluated unmet sexual health needs as a unique domain (that is, a category distinct from physical or psychological needs). Research has, however, identified potential risk factors for sexual dysfunction and/or distress across all gynecological cancer sites; these include having radiation therapy and/or chemotherapy, being partnered, poor body image, and a negative sexual self-schema, or view of oneself as a sexual being (Lagana et al., 2005; Carpenter et al., 2009; Bruner et al., 1993; Jensen et al., 2004a; Lutgendorf et al., 2000; Schover, 2012). Further exploration of these potential predictors of unmet needs would help identify at risk patient groups that would benefit most from preventative and treatment interventions (Hodgkinson et al., 2007)

The current literature also provides interesting research directions with regard to patient readiness for help with unmet needs. Some women report moderate to high needs, yet a low desire for help (Fitch, Gray, & Franssen, 2000), a finding that potentially complicates the interpretation of distress screening tools and findings from previous needs assessments. In one review, several psychological intervention studies for sexual sequelae of cancer reported low response rates and/or high attrition (Brotto, Yule, & Breckon, 2010), and another study reported that women who withdrew from a psychological intervention had higher distress rates at baseline than women who did not withdraw (Powell et al., 2008). Therefore, predicting readiness for help with endorsed needs may help health care providers identify patients who are more receptive to assistance; thereby both targeting patients in need and those interested in sometimes limited resources. To date, no needs assessment has examined predictors of desire for help with unmet supportive care needs in a gynecological cancer population.

To address the above-mentioned shortcomings of the literature, the current study sought to comprehensively evaluate levels and predictors of gynecological cancer patient needs and desire for help in a mixed gynecological cancer population, while using a comprehensive framework and a validated measure of needs. Predictor variables were selected based on current literature (in gynecological and other cancers) and available participant information. Two research questions were developed and hypotheses regarding the predictor variables were based on the available literature. When applicable, supporting references for hypotheses are provided below.

Research question 1: "Do sociodemographic and/or medical factors (i.e., age, time since treatment, radiation therapy, chemotherapy, surgery, marital status, menopausal status at cancer diagnosis) predict unmet supportive care needs?" For

this question, three hypotheses were derived: (A) Younger age (Tangjitgamol et al., 2007; Carmack Taylor, Basen-Engquist, Shinn, & Bodurka, 2004; Schover, 1994; Stewart, Wong, & Duff, 2001) and shorter time since treatment (Beesley et al., 2008; Donovan et al., 2007) will predict higher supportive care needs across multiple domains; (B) Radiation treatment will predict higher unmet physical needs (Jensen et al., 2004a; Tangjitgamol et al., 2007); (C) Chemotherapy will predict higher unmet needs in the physical, psychological, and emotional domains (Lagana et al., 2005; Lutgendorf et al., 2000; Schover, 2012). No specific hypotheses were set for the relationship between unmet supportive care needs and surgery, marital status, and menopausal status at cancer diagnosis, as these were exploratory variables.

Research question 2: "Do sociodemographic and/or medical factors predict desire for help with unmet needs?" For this question, the authors developed a fourth hypothesis; (D) Younger age (McCallum, Lefebvre, Jolicoeur, Maheu, & Lebel, 2012) and shorter time since treatment (Donovan et al., 2007) will predict greater readiness for help with needs across several domains. For some independent variables (e.g., marital status, menopausal status) no formal hypotheses were drawn due to a lack of consistent findings in the literature. They were included in the analysis as exploratory variables.

METHOD

Participants

The current sample consisted of women who were: (a) diagnosed and treated for a gynecological cancer; (b) receiving post-treatment follow-up services at a regional cancer centre; (c) 18 years of age or older; and (d) fluent in spoken and written English or French. The gynecological clinic in the cancer centre offers services through the regional gynecologic oncology program, which is comprised of a multidisciplinary team of health care professionals. The recruitment and data collection described in this article was the first of a two-part study (and needs assessment), and results from part 2 (which focuses more exclusively on sexual health needs) have been published separately (McCallum et al., 2014).

Measures

The self-report questionnaire package included: (a) a 14-item sociodemographic and medical characteristics questionnaire (developed by the authors), and (b) the Supportive Care Needs Survey – Gynecological Version (SCNS-gyne; Steele & Fitch, 2008).

The SCNS-gyne was adapted from the Supportive Care Needs Survey (SCNS), which was developed and validated to assess cancer patients' global needs; it has demonstrated good test-retest and internal reliability, and good face and construct validity (Bonevski et al., 2000). The SCNS-gyne was minimally altered from the SCNS and has demonstrated adequate internal reliability (Steele & Fitch, 2008). Each of the 67 items is divided into two parts. In Part A, respondents are asked to rate their level of difficulty experienced with an issue (e.g., pain) based on a 5 point Likert scale ranging from 1 ("I did not experience this issue") to 5 ("I am experiencing a high

level of difficulty with this issue"). A response of 3 or higher was scored as a need for the purpose of the regression analyses (low, moderate, or high level of difficulty with the item). In Part B, respondents are asked to rate their level of desire for help with each issue (when applicable) on a three-point scale that includes, "No, I do not want any help", "I feel uncertain about wanting help", and "Yes, I would like help". The item scores for parts A and B are clustered into scores for seven supportive care need domains, which were developed through factor analysis in previous studies (psychological, social, emotional, spiritual, information, practical, and physical needs; (Fitch, 2008). A sexuality domain (which exists in the original SCNS; Bonevski et al., 2000) was calculated using the mean of the four sexuality-related items on the SCNS-gyne. This score was created due to a large body of literature highlighting the importance of sexuality-related difficulties post-treatment (Andersen, Anderson, & deProse, 1989b; Lagana et al., 2005; Stead, 2004; Gilbert et al., 2011). With respect to internal reliability, Cronbach's alpha for the SCNS-gyne subscales in this study were as follows: .60 (practical needs), .69 (social needs), .82 (psychological and physical needs), .84 (emotional needs), .87 (informational and spiritual needs) and .88 (sexual health needs).

Procedure

Study approval was obtained from the research ethics boards of all co-investigators. Two recruitment strategies were employed. The first involved mailing an information sheet to patients who were scheduled for a follow-up appointment at the cancer centre. Eligible patients who were interested completed the questionnaire at their upcoming hospital visit, or at home (questionnaire and return envelope sent by mail). The second recruitment strategy, employed due to a low recruitment rate (approximately 12%) using the first strategy, consisted of direct recruitment through the nursing staff at the cancer centre. Patients waiting for their follow-up appointments were offered the opportunity to participate by completing the questionnaire on site or by taking the package home to complete and return in a pre-paid return envelope.

Data Analysis

Statistical analyses were conducted using SPSS 20. Univariate and multivariate assumptions for regression were verified, and data cleaning was conducted based on the guidelines of Tabachnick & Fidell (2007). Given the sample size recommendation of 50 + 8k observations ($k = \#$ independent variables), the sample size of $N=113$ provided sufficient power to conduct regression analyses with seven predictors. Estimation maximization was employed for data imputation.

Research question #1 (Predicting unmet supportive care needs with sociodemographic/medical variables). To create need domain scores, the mean of participant responses was calculated for all items within the seven supportive care need domains. Eight hierarchical multiple regressions were employed between level of need (by domain) and the seven predictors in four blocks: (a) time since treatment (years), (b) age, (c) radiation and (d) chemotherapy, surgery, marital status, and menopausal status at diagnosis. Based on the

literature review, variables shown to have stronger associations with unmet needs in gynecological and other cancer patients were entered in the first, second, and third blocks, while more exploratory variables were included in block four (see Table 2).

Research question #2 (Readiness to receive help with unmet needs). Due to a highly skewed distribution with a high frequency of "No help wanted" responses, a "readiness to receive help" variable was computed for each domain. Participants were attributed a value of 1 if they replied "Yes" or "Uncertain" on at least one item within the need domain, and a value of 0 if they reported no desire for help on all items within a given domain.

In all, eight standard logistic regression analyses were performed with the "Readiness to receive help" variables and the seven predictors. To the knowledge of the authors, current literature provides little to no scientific evaluations of predictors of desire for help with unmet supportive care needs; consequently, predictors were not entered in a hierarchical order as in research question #1. For both research questions, as eight regressions were conducted per research question, a Bonferroni correction was applied during interpretation, for a significance cut off level of $.05/8 = .006$ for all regressions (Tabachnick et al., 2007).

RESULTS

Participants

Table 1 presents the descriptive statistics for the sample. A total of 113 women treated for a gynecological cancer completed the questionnaire package. Age ranged from 27 - 89 ($M = 60$, $SD = 13$). Most participants were Caucasian (96%) and English-speaking (76%). Ovarian cancer was the most prevalent cancer type in this sample. The two groups of participants recruited (i.e., mail-outs versus direct recruitment at the clinic) were compared using chi-square and independent T test analyses on all predictor variables. No significant differences were found.

Supportive Care Needs

Seventy-eight percent of the sample reported at least one unmet need, and a range of 0 - 62% of the total 67 items were endorsed as unmet needs across the sample. To compare need domain scores, the individual items were summed and transferred to a 0-100 scale. When averaged across all participants, means were within a similar range for several domains ($M = 38 - 41$ for spiritual, psychological, sexual, emotional, and physical needs), while mean scores for social ($M = 35$), informational ($M = 33$), and practical ($M = 29$) need domains were slightly lower. The five most prevalent unmet needs were: fear of cancer recurrence/progression, lack of energy or tiredness, concerns about the well-being of caregivers, and changes in ability to have sex.

Predicting Needs

Table 2 presents the results of the 8 hierarchical multiple regressions analyzing predictions of supportive care need domain scores from the 7 sociodemographic and medical variables.

Table 1: Participant Characteristics, N=113

Variable	M	SD
Age (years)	61	13
Time since treatment (years)	2.7	5.8
	n	%
First language		
English	82	73
French	22	20
Other	9	8
Primary ethnic background		
Caucasian	109	97
Asian	2	2
African-Canadian	2	2
Marital status		
Married	76	67
Cohabiting	6	5
Single	9	8
Divorced/separated	10	9
Widowed	12	11
Education		
Primary school/High school	45	41
College	32	28
University	35	31
Income		
Less than 20,000	6	5
20 – 39,999	18	16
40 – 59,999	22	20
60 – 79,999	18	16
80 – 99,999	12	11
Over 100,000	21	19
Primary cancer site		
Uterus / Endometrium	26	23
Cervix	13	12
Ovary	60	53
Vulva / Vagina	9	8
Treatment regimen*		
Surgery	87	77
Chemotherapy	87	77
Radiation therapy	43	38
Menopausal status at diagnosis		
Pre-menopausal	33	29
Post-menopausal	70	62

Note. * Categories are not mutually exclusive.

Time since treatment was entered as a first variable in step 1 of each regression. This predictor accounted for significant variance in emotional (Fchange [1,111] = 8.67, $p \leq .006$), psychological (Fchange [1,111] = 8.45, $p \leq .006$), and spiritual (Fchange [1,111] = 11.9, $p \leq .006$) needs. Time since treatment alone predicted 7-10% of variance in these needs domains, with shorter time since treatment associated with higher unmet needs in these domains.

In step 2 of the regressions, age significantly predicted emotional (Fchange [1, 110] = 8.82, $p \leq .006$), social (Fchange [1,110] = 17.33, $p \leq .006$), and sexual health (Fchange [1, 110] = , $p \leq .006$) need domains. Younger age predicted higher unmet needs, contributing unique variances of 7% (emotional needs), 13% (social needs), and 19% (sexual needs).

In step 3, radiation treatment was entered as a third variable. This predictor did not add significant variance to any of the regression equations. After step 4, the four remaining predictor variables (i.e., marital status, chemotherapy, surgery, and menopausal status) predicted significant variance in sexual health needs, but at a less conservative alpha level, (Fchange [1, 105] = 3.48, $p \leq .01$). Chemotherapy emerged as an important predictor, explaining 8% of the variance, with having received chemotherapy associated with higher sexual health needs.

Based on R square values, the seven variables as a set predicted the following variance in needs: sexuality (29%), social (22%), psychological (20%), emotional (19%), spiritual (19%) informational (15%), practical (12%), and physical (8%).

Readiness to receive help with unmet needs

Across domains, 21-48% of patients indicated readiness to receive help with their identified needs. The most frequently reported needs for which patients reported readiness for help were in the psychological (e.g., fear of cancer recurrence/progression), social (e.g. concerns about those close to you), and physical domains (e.g., lack of energy and feelings of fatigue).

Predicting Readiness to Receive Help with Unmet Needs

Eight binary logistic regression analyses were conducted to evaluate whether the seven predictors, as a group and/or individually, predicted a participant's readiness to receive help (i.e., 0 = no desire for help with all items within a need domain, 1 = "yes" or "uncertain" to at least one item within a need domain) in the 8 supportive care need domains (see Tables 3 and 4). When tested as a group, the seven predictors of unmet supportive care needs were statistically significant for informational needs only ($\chi^2 = 20.77$ (7, N = 113, $p \leq .004$), indicating that the predictors, as a set, reliably distinguished between women who reported no desire for help from those who reported desire for help or uncertainty about wanting help. As a group, predictors of unmet supportive care needs correctly predicted readiness for help classification in 74% of the sample. Time since treatment was the only statistically significant predictor of readiness for help with informational needs at the $p \leq .004$ level, where shorter time since treatment predicted greater readiness to receive help with informational needs.

The logistic regressions also examined which individual predictors significantly predicted readiness for help scores.

Table 2: Hierarchical Multiple Regression Analyses Predicting Supportive Care Need Domain Scores From Sociodemographic and Medical Variables, N=113

Predictor	Emotional		Psychological		Spiritual		Information		Practical		Sexual		Social		Physical	
	â	ÄR²	â	ÄR²	â	ÄR²	â	ÄR²	â	ÄR²	â	ÄR²	â	ÄR²	â	ÄR²
Step 1		.07***		.07***		.10***		.03*		.06**		.00		.02		.01
Time since tx	-.27***		-.27***		-.31***		-.18*		-.24**		-.01		-.14		-.11	
Step 2		.07***		.04*		.03		.05**		.03*		.19***		.13***		.03
Time since tx	-.30		-.29***		-.33***		-.21*		-.26***		.05		-.18*		-.13	
Age	-.26***		-.20*		-.17		-.23**		-.18*		-.44***		-.37***		-.16	
Step 3		.01		.01		.01		.001		.003		.004		.00		.00
Time since tx	-.31		-.31***		-.35***		-.21*		-.25***		-.04		-.18*		-.12	
Age	-.07		-.20*		-.16		-.23**		-.18*		-.44***		-.37***		-.16	
Radiation	-.03		-.11		-.11		-.03		.06		-.07		.01		.03	
Step 4		.05		.08*		.05		.06		.03		.10**		.06		.04
Time since tx	-.29		-.27***		-.32***		-.22*		-.26***		.01		-.14		-.09	
Age	-.31		-.33**		-.19		-.29*		-.21		-.39***		-.41***		-.21	
Radiation	-.04		-.08		-.08		.02		.09		.06		.01		.035	
Chemotherapy	.16		.15		.19*		.04		.02		.28***		.22**		.17	
Surgery	.11		.05		.11		.15		.07		.03		.04		.05	
Marital status	-.03		-.15		-.02		-.18		-.15		.15		.07		.04	
Menopause	.14		.22		.10		.13		.04		-.00		.11		.11	
Total R ₂		.19		.20		.19		.15		.12		.29		.22		.08

Notes . tx = treatment.
*p≤.05. ** p≤.01. *** p≤.006

Table 3: Logistic Regression Analyses Predicting Readiness for Help with Unmet Informational, Sexual, Emotional, and Psychological Needs From Sociodemographic and Medical Variables, N = 113

Predictors	Informational domain			Sexual domain			Emotional domain			Psychological domain		
	B	Wald	OR(CI .95)	B	Wald	OR(CI .95)	B	Wald	OR(CI .95)	B	Wald	OR(CI.95)
Time since tx	-1.11	10.35***	.33(.17-.65)	.06	.02	1.06(.52-2.16)	-.74	5.48*	.48(.26-.89)	-.60	3.57	.55(.30-1.02)
Age	-.043	3.29	.96(.91-1.00)	-.08	6.9**	.92(.87-.98)	-.06	6.76**	.94(.90-.99)	-.05	3.96*	.96(.91-.99)
Radiation	1.12	5.27*	.33(.13-.85)	.10	.03	1.1(.39-3.03)	-.51	1.31	.60(.25-1.44)	-.77	2.96	.46(.19-1.12)
Chemotherapy	-.49	.98	.62(.24-1.61)	1.6	6.2**	5.02(1.4-17.1)	.06	.015	1.1(.43-2.64)	.24	.261	1.3(.51-3.14)
Surgery	.43	.55	1.5(.50-4.7)	.57	.74	1.76(.49-6.4)	.57	1.11	1.8(.61-5.1)	1.0	3.51	2.8(.96-8.2)
Marital status	-.29	3.8	.74(.29-1.03)	-.97	2.6	2.64(.81-8.6)	.18	.14	1.2(.48-3.01)	.35	.559	1.4(.57-3.59)
Menopause	.50	.63	1.65(.48-5.69)	.23	.11	1.26(.32-4.9)	1.3	4.38*	3.6(1.09-12.1)	1.02	2.81	2.8(.84-9.12)

Notes: * p≤.05. **p≤.01. ***p≤.006. Wald=Wald Chi-Square. OR=Odds Ratio. CI.95=95% Confidence interval. tx = treatment.

Table 4: Logistic Regression Analyses Predicting Readiness for Help with Unmet Practical, Physical, Social, and Spiritual Needs From Sociodemographic and Medical Variables, N = 113

Predictors	Practical domain			Physical domain			Social domain			Spiritual domain		
	B	Wald	OR(CI .95)	B	Wald	OR(CI .95)	B	Wald	OR(CI.95)	B	Wald	OR(CI.95)
Time since tx	-.41	1.6	.67(.35-1.25)	-.21	.49	.81(.45-1.46)	-.46	2.24	.629(.34-1.15)	-.87	7.39**	.42(.22-.79)
Age	-.02	.54	.98(.94-1.03)	-.05	4.98*	.95(.91-.99)	.02	.74	.98(.94-1.02)	-.03	1.4	.98(.93-1.02)
Radiation	-.23	.26	.79(.32-1.96)	-.68	2.49	.50(.21-1.18)	-.53	1.4	.59(.25-1.4)	-.48	1.17	.62(.26-1.5)
Chemotherapy	.75	2.2	2.12(.78-5.7)	-.69	.44	1.35(.56-3.27)	.79	2.7	2.2(.86-5.6)	-.18	.16	.83(.34-2.1)
Surgery	.48	.72	1.6(.53-4.9)	.29	.32	1.34(.49-3.66)	1.12	3.8*	3.1(.99-9.48)	1.1	3.81*	3.0(.99-0.05)
Marital status	-.87	3.6	.42(.17-1.03)	.29	.28	.78(.31-1.95)	.04	.01	1.05(.42-2.59)	1.4	.09	1.2(.46-2.89)
Menopause	.19	.11	1.2(.39-3.82)	.61	1.11	1.8(.59-5.72)	.29	.25	1.3(.42-4.2)	.53	.80	1.7(.53-5.4)

Notes: * $p \leq .05$. ** $p \leq .01$. *** $p \leq .006$. Wald=Wald Chi-Square. OR=Odds Ratio. CI.95=95% Confidence interval. tx = treatment.

While none of the findings met the Bonferroni-corrected alpha level ($p \leq .004$), many approached significance. Increased readiness for help with unmet sexual health needs was predicted by younger age ($p \leq .01$) and having received chemotherapy ($p \leq .01$). Increased readiness for help with emotional needs was also predicted by younger age ($p \leq .01$). Finally, increased readiness for help with spiritual needs was predicted by shorter time since treatment ($p \leq .01$).

DISCUSSION

The goal of the present study was to examine sociodemographic and medical predictors of both supportive care needs (including sexual health needs) and desire for help using a validated measure of needs within a mixed gynecological cancer population. Younger women and those who completed their treatment more recently reported higher unmet needs and a higher desire for help. Contrary to what we had hypothesized, treatment variables of radiation therapy or chemotherapy did not predict higher unmet needs, with the exception of chemotherapy being an important predictor of unmet sexual health needs.

The findings on age as an important predictor of unmet needs in this population lend support to other research noting this association (Tangjitgamol et al., 2007; McCallum et al., 2012). Younger participants appear to be experiencing greater difficulty with unmet emotional, sexual, and social needs, suggesting that interventions surrounding themes such as fertility, relationships/intimacy, gender/family roles, and anxiety are needed for this population (see also Zabrack, 2011).

The results indicate that women who were recently treated are more likely to desire help with informational needs (e.g., symptom management); that said, they should also have access to support within the spiritual, psychological, and emotional domains, given the significant distress in these areas as well. Further, while research has identified that some post-treatment symptoms decrease or are met over time (Jensen et al., 2004b), our study suggests that unmet sexuality and social

needs persist in survivorship. This reinforces research findings that sexual health and interpersonal concerns are insufficiently addressed both by the patient and her health care provider (Stead, 2004).

The finding that radiation therapy did not predict higher needs was surprising, given the well-documented literature on physical post-radiation vaginal changes (Jensen et al., 2004a; Tangjitgamol et al., 2007). This result may be explained by an over-representation of ovarian cancer patients who likely received chemotherapy and an underrepresentation of groups of patients receiving radiation therapy as a primary treatment in the present sample. This result could also be partially explained by the significant effort made in this particular gynecology program to develop and provide informational services on post-treatment difficulties, including sexual dysfunction for radiation patients. Consequently, radiation patients may be receiving more assistance with sexual health needs than patients with other cancer treatment in the sample. Future research with a larger sample size and stratified sampling techniques would allow for the exploration of potential differences in post-treatment difficulties by specific treatment type and cancer type.

Limitations

The well-known limitations of cross-sectional research (i.e., no baseline levels available) and self-report instruments (i.e., lack of objectivity) apply to the present study. Also, due to the multidisciplinary collaboration in participant recruitment, it was impossible to track the number of potential patients approached and to calculate a precise recruitment rate. As women with ovarian cancer are often diagnosed at a later stage, and as a previous study found that later stage of diagnosis predicted higher overall needs in a univariate analysis (Hodgkinson et al., 2007), it is possible that the over-representation of ovarian cancer patients resulted in higher unmet needs in the present sample.

The sample size contributed to some limitations in the analysis. Certain predictor variables of interest (i.e., cancer

site, education) could not be included in the analysis. Further, in order to have a sufficiently high cell count for logistic regression, the response categories for desire for help (i.e., “no”, “uncertain”, and “yes”) had to be dichotomized. This is less than ideal, since women who desire help may differ from those who are uncertain about wanting help.

Implications for research

Future studies with higher statistical power could address many of our study limitations by: (a) allowing a less stringent alpha level that may detect additional significant relationships; and (b) exploring other predictors such as socioeconomic variables (e.g., rural/urban settings, work status, income), gynecological cancer type, education, and baseline psychological factors such as sexual self-schema (Carpenter et al., 2009).

Implications for practice

Recognizing the need to better identify the unmet needs of cancer survivors, nurses are well positioned to assess unmet needs using a needs survey to normalize regular discussions about survivorship issues such as fear of cancer recurrence, sexual health and other unmet needs. The brief 34-item version of the Supportive Care Needs Survey (Girgis, Stojanovski, Boyes, King, & Lecathelinais, 2012), which contains 3 items on sexuality, could be an interesting alternative to the longer version used in the present study. We recommend that patients complete a needs survey at the end of treatment, followed by an intervention to address the unmet needs. This could address some of the common needs that were reported in this study. Based on our findings that young women appear to have more unmet needs, we need to develop strategies to target this group.

Younger women may experience a greater need for support and education on sexual and relational aspects of cancer and survivorship (e.g., infertility, relationships, family). Needs within the sexual and social domain appear to persist, and are evidently not presently being adequately addressed by the patients and their health care teams. In a recent qualitative

study, the authors developed a Model of Sexual Health Needs, to guide health care providers in their understanding and exploration (with the patient) of the factors that contribute to one's subjective impression of having unmet sexual needs, as well as different barriers to asking for help (McCallum et al., 2012). This model suggests that unmet sexual needs occur when patients experience a lack of overlap between their current and ideal sexual health. The model also describes 3 categories of factors contributing to unmet sexual needs; physical, psychological and interpersonal factors. The Model of Sexual Health Needs could be presented in a visual aid that would help nurses discuss the factors underlying a patient's unmet sexual health needs. This visual aid may provide patient and nurses with a more objective means to better understand patient needs, to provide the appropriate informational or practical support, as well as to offer pertinent referrals to other health care providers (i.e., social worker, psychologist, pelvic floor physiotherapist, or fertility specialist) (See McCallum et al, 2014, for suggestions on how to address sexual health needs). The model could serve to inform the patient education and assessment and interventions regarding sexuality as recommended by Cancer Care Ontario's sexuality best practice guideline (Barbera et al., 2016).

Based on previous research findings (McCallum et al., 2012) suggest that many gynecological cancer patients with needs and a desire for help hesitate to access services due to various barriers, it is vital that health care providers evaluate patient needs as well as barriers to accessing services. Women reporting any amount of readiness to receive help could be conceptually considered as patients that should be approached for further support. Nurses are arguably best positioned to systematically assess patients' changing unmet needs and desire for help at key point along the cancer trajectory (i.e.: diagnosis, start of treatment, end of treatment and recurrence). They also have the opportunity to develop and apply this knowledge to advocate for the provision of services to address the unmet needs of gynecological cancer patients and survivors.

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