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Cancer-Related Concerns among Women Newly Diagnosed with Gynecological Cancer: An Exploration of Age Group Differences

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Abstract

Objective—The study aimed to characterize cancer-related concerns among women newly diagnosed with gynecological cancer from a developmental life stage perspective. The study compared degree of cancer-related concern between young women (< 45 years), middle age women (46–64 years), and older women (> 65 years).

Methods/Materials—Data from women (N =243) diagnosed with primary gynecological cancer who were participating in a randomized control trial were analyzed. Women completed a measure that assessed degree of concern in twelve cancer-related domains (physical functioning, cancer treatment, emotional functioning, sexual functioning, disease progression/death, own well-being, partner well-being, relationship with spouse/partner, body image, relationship with others, employment, and finances). Multivariate comparisons were made between the three age groups on the cancer-related concerns.

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Results—There were age group differences in overall cancer-related concern and specific cancer-related domains. Young women reported the greatest cancer-related concern ($p < .001$). They reported greater concern over emotional functioning ($p < .001$) and sexual functioning ($p < .001$) compared to the middle and older age groups. Older women reported less concern over the impact of cancer on finances ($p = .007$). There were no differences between age groups in concern over physical impairment, cancer treatment, disease progression/death, own well-being, partner well-being, relationship with spouse/partner, body image, and relationship with others.

Conclusions—Age may play an important role in the impact of a gynecological cancer diagnosis in domains of functioning, specifically emotional functioning, sexual functioning, and finances. Other cancer-related areas may represent more universal degree of impact. Professionals may benefit from considering the impact of cancer from a developmental life stage perspective.

Keywords

gynecological cancer; cancer-related concern; age; developmental stage; quality of life

The diagnosis and treatment of gynecological cancer is often marked by physical and psychosocial challenges.^{1,2,3,4} While there is variation across different gynecological cancers for treatment, side effects, and prognosis, women report similar cancer-related concerns, including physical symptoms⁵, treatment effects⁵, sexual dysfunction^{6,7}, cancer recurrence/progression⁸, and financial problems.⁹ Qualitative research of ovarian cancer patients adds additional concerns, including adverse effects on personal relationships and inability to work.¹⁰ These cancer-related concerns can be distressing. Indeed, about one quarter of patients report clinical levels of depression¹¹, more than half endorse clinically significant cancer-specific distress¹², and distress upon initial screening.¹³ These data highlight the importance of addressing psychosocial needs of gynecological cancer patients. Identifying prevalent cancer-related concerns and factors associated with the concerns may assist in facilitating psychological adaption.

Age at diagnosis is a relevant factor when exploring cancer-related concerns. Developmentally, different stages of the life cycle are marked by specific biopsychosocial needs and characteristics¹⁴, which can be disrupted by a cancer diagnosis. Rowland¹⁵ provided approximate age groups representing these stages: (1) the young adult (< 30 years) focuses on goals related to independence and formation of relationships; (2) the mature adult (31–45 years) pursues marriage, childrearing, and career establishment/development; (3) the middle adult (46–65 years) adjusts to children leaving the home, experiences peaks in careers, and adapts to menopausal changes; and (4) the aging adult (>65 years) copes with losses of partners and loved ones, retirement, and decreased physical functioning. The age ranges are approximations as there is variability in match between age and developmental stage.

Gynecological cancer tends to be diagnosed in a woman's sixties, with the median age approximately 60 for endometrial¹⁶, 63 for ovarian and 68 for vulvar.¹⁷ Cervical cancer tends to be diagnosed at earlier age.¹⁷ Due to the average age for most gynecological cancers, this study focused on women in three developmental stages: young adult (< 45 years), middle adult (46–64 years), and older adult (> 65 years). Our young adult stage

combined women in their twenties and 31–45 years due to the low incidence of these cancers in the first age group^{16, 17} and relevant similarities in terms of relationship and family development.¹⁵ Furthermore, prior studies have combined these two age groups.¹⁸

Developmental life stage theory¹⁵ hasn't been specifically applied in studies of gynecological cancer patients, but there is evidence suggesting age-related differences in psychological distress and cancer-related concerns. Younger women tend to report greater psychological distress.^{12,13,19,20} Younger survivors of breast or endometrial cancer (18–55 years) reported more appearance-related concerns, sexual problems, and long-term treatment concerns than older survivors (≥ 65 years).²¹ Qualitative research indicated that ovarian cancer patients (≥ 45 years) express concerns over menopause symptoms, finances, and job-related issues.⁹

While these studies suggest age group differences, more research is needed to fully understand cancer-related concerns based on developmental life stage. First, greater frequency and intensity of cancer-related concerns is linked to psychological distress.^{22, 23} Second, identifying relevant concerns may assist in informing psychosocial assessment and intervention for specific age groups. Third, many studies focus on global distress and utilize correlational analyses^{12, 20}, which may hinder tailored recommendations.

The primary goal of the study was to utilize developmental life stage theory¹⁵ to explore cancer-related concerns among women newly diagnosed with gynecological cancer in three age groups: young (< 45 years), middle (45–64 years), and older (≥ 65 years). The cancer-related domains consisted of concerns nominated in prior research²⁴ and included physical functioning, cancer treatment, sexual functioning, body image, emotional functioning, disease progression/death, own well-being, partner well-being, relationship with partner, relationship with others, finances, and employment. The first aim was to characterize cancer-related concerns for each age group. The second aim was to compare age groups on overall cancer-related concern and degree of concern in each domain.

Method

Participants

This cross-sectional study utilized baseline data from an ongoing randomized clinical trial evaluating the efficacy of two psychological interventions for women diagnosed with primary gynecological cancer. Participants were recruited across seven cancer centers in northeastern United States (Manne, unpublished data). Inclusion criteria for the randomized trial were: a) 18 years or older; b) diagnosed within the past six months (at the time of recruitment); c) Karnofsky Performance Status of 80 and above or Eastern Cooperative Oncology Group (ECOG) score of 0 or 1; d) lived within a two-hour commute from recruitment center; e) English speaking; and f) no hearing impairment.

The sample (N = 243) was an average 55 years and majority Caucasian (80%), married (65%), college graduate (65%), diagnosed with ovarian cancer (57%), diagnosed with advanced disease (70%), and undergoing chemotherapy at the time of baseline survey (85%). Average time from diagnosis was 3.8 months. The sample was divided into three age

groups: young ($N = 36$), middle ($N = 168$), and older ($N = 39$). Table 1 presents full description of demographic and medical characteristics of each group.

There were significant age group differences in terms of primary cancer diagnosis [$\chi^2(2, N = 241) = 8.03, p = .018$], with a greater proportion of young women (78%) diagnosed with ovarian cancer compared with middle (55%) and older (46%) groups, stage of diagnosis [$\chi^2(6, N = 234) = 21.32, p = .002$], with a greater proportion of young women diagnosed with stage I disease (39%) compared with middle (14%) and older (8%) groups, and employment status [$\chi^2(6, N = 241) = 44.85, p < .001$]. A greater proportion of young (39%) and middle (46%) women were working full or part-time and a greater proportion of the older group were retired (46%). There were no significant group differences for race, marital status, income, education level, type of treatment at time of survey, or physical impairment.

Procedures

Eligible women were identified by study personnel, sent a letter describing the study, and contacted about participation. Interested women signed an informed consent document approved by an Institutional Review Board at each site. After informed consent was received, women were mailed a baseline survey with a stamped return envelope to complete prior to randomization in the study. The average time to complete the survey was one hour and women were paid \$15. The current study utilized data from the baseline survey.

Measures

Demographic data—Demographic data included age, ethnicity, income, education level, employment status, and marital status.

Medical data—Medical chart review captured primary cancer diagnosis, disease stage, date of diagnosis, and treatment at time of baseline survey (chemotherapy, radiation, hormone treatment).

Physical impairment—The 26-item functional status subscale of the Cancer Rehabilitation Evaluation System (CARES)²⁵ was utilized. Participants rated difficulty during the past month from 0 (*not at all*) to 4 (*very much*). A sample item is “I have difficult bending or lifting.” Higher scores indicated greater physical impairment (range = 0–104). Internal consistency was $\alpha = .92$.

Cancer-related concerns—A scale adapted from Pistrang and Barker²⁶ and used previously^{27, 28} assessed cancer-related concerns. Participants rated degree of concern in 12 cancer-related areas (e.g., treatment, sexual functioning, relationship with others) on a 6-point Likert scale including 0 (*not at all*), 3 (*somewhat*), 5 (*a lot*). The overall level of cancer-related concern is determined by the mean of all items. The scale has demonstrated good internal consistency in work with prostate cancer patients²⁸ and this study ($\alpha = .86$).

Statistical Analyses

We utilized the Statistical Package for the Social Sciences (SPSS) Version 19. The sample was divided into three age groups: young (< 45 years), middle (46–64 years), and older (≥ 65

years) women. For missing items on the total cancer-related concerns scale, mean substitution was utilized when <20% of the items were missing. Age groups were compared for differences on demographic and medical variables. For categorical variables, we utilized chi-square tests. For continuous variables, we utilized one-way analysis of variance (ANOVA). Demographic and medical variables that differed significantly between the age groups were included in further analyses.

To address the first aim, we examined the average degree of concern on each cancer-related item and the total scale for each age group. We examined demographic and medical correlates of overall cancer-related concern for each group utilizing Pearson correlational analyses for continuous variables and one-way ANOVA for categorical variables. To address the second aim, we conducted a multiple analysis of variance (MANOVA) to explore age group differences on the twelve cancer-related concern items. This approach is recommended for studies with multiple dependent variables and there is some indication that it is preferred when there is inflated experimentwise error.²⁹ Since the study utilized baseline data from an ongoing randomized control study, we could not control the number of participants in each age group and the groups were unequal in size. Levene's Test of Equality of Error Variances was nonsignificant, suggesting that the error variance of all dependent variables was equal across groups. Box's M Test of Equality of Covariance Matrices was $F(182, 15360.96) = 1.405, p < .001$, suggesting that covariance may not be equal across groups. Therefore, Pillai's trace and a more conservative level of significance ($p < .001$) were recommended.³⁰ Since there were differences between groups on specific demographic and medical variables (primary cancer diagnosis, stage, employment) we controlled for the effects of these covariates.

Results

Characterization of Cancer-Related Concerns

The means for each cancer-related item and total cancer-related concern for the three age groups and total sample are presented in Table 2. The greatest concerns among women in the young group were their own emotional functioning ($M = 3.81, SD = 1.19$), their partner well-being ($M = 3.77, SD = 1.30$), and sexual functioning ($M = 3.72, SD = 1.58$). These scores corresponded with a rating between 'somewhat' and 'a lot' of a concern. The area of least concern for this group was their relationships with others ($M = 2.51, SD = 1.72$), which corresponded with a rating of less than 'somewhat' of a concern.

The greatest concerns among women in the middle group were their partner well-being ($M = 3.57, SD = 1.31$), their own disease progression or death ($M = 3.50, SD = 1.50$), and their own well-being ($M = 3.44, SD = 1.35$). These scores corresponded with a rating of greater than 'somewhat' of a concern. The area of least concern was sexual functioning ($M = 2.15, SD = 1.82$) and their relationships with others ($M = 2.25, SD = 1.90$), which corresponded with a rating of less than 'somewhat' of a concern.

The greatest concerns among women in the older group were partner well-being ($M = 3.53, SD = 1.54$), own well-being ($M = 3.31, SD = 1.32$) and disease progression/death ($M = 3.21, SD = 1.25$), which corresponded with a rating of greater than 'somewhat' of a concern. The

areas of least concern were sexual functioning ($M = 1.28$, $SD = 1.63$), and employment ($M = 1.82$, $SD = 1.87$), which corresponded with a rating between 'not at all' and 'somewhat' of a concern.

Overall cancer-related concern was significantly correlated with greater physical impairment for young ($r = .418$, $p = .012$), middle ($r = .449$, $p < .001$), and older ($r = .438$, $p = .006$) groups. For all groups, level of cancer-related concern was not significantly correlated with primary diagnosis, disease stage, months from diagnosis, treatment, race, marital status, income, or education.

Age Group Comparisons

Multivariate analysis suggested an age group effect on overall degree of cancer-related concerns [$F(26,380) = 2.58$, $p < .001$]. Young women reported the greatest total cancer-related concern ($M = 3.37$), followed by the middle ($M = 2.92$), and older group ($M = 2.45$). There was a significant group effect on concerns related to sexual functioning [$F(2,204) = 12.15$, $p < .001$], emotional functioning [$F(2,204) = 6.90$, $p = .001$], employment [$F(2,204) = 5.45$, $p = .005$], and finances [$F(2,204) = 5.04$, $p = .007$]. Since the groups differed in terms of primary cancer diagnosis, stage, and employment status, analyses were conducted controlling for these covariates. The age group difference employment was no longer significant [$F(2,191) = 3.97$, $p = .020$]. All other group differences remained statistically significant. Young women reported greater concern over sexual functioning than the middle ($p = .001$) and older ($p < .001$) groups. Young women also reported greater concern over emotional functioning than the middle ($p = .008$) and older ($p < .001$) groups. Older women reported lower levels of concern over finances than the young ($p = .018$) and middle ($p = .025$) groups.

The groups did not differ significantly ($p < .01$) on degree of concern in the following domains: physical symptoms [$F(2,204) = 3.87$, $p = .023$], cancer treatment [$F(2,204) = 1.82$, $p = .165$], disease progression/death [$F(2,204) = 0.27$, $p = .763$], own well-being [$F(2,204) = 0.08$, $p = .928$], partner well-being [$F(2,204) = 0.72$, $p = .487$], relationship with spouse/partner [$F(2,204) = 2.56$, $p = .080$], body image [$F(2,204) = 3.83$, $p = .023$], and relationship with others [$F(2,204) = 0.68$, $p = .506$].

Discussion

This exploratory study examined specific cancer-related concerns among women newly diagnosed with gynecological cancer utilizing developmental life stage theory.¹⁵ The major finding confirmed that age at diagnosis, an approximation of developmental life stage, may influence degree of concern over specific cancer-related issues. Given that cancer-related concerns are linked to overall psychological distress^{22,23}, it becomes clinically important to explore these areas with women who may be at risk.

In terms of the first aim, women in the young group reported the greatest level of concern over their own emotional functioning. While there is evidence suggesting that younger women are at risk of greater psychological distress¹², our findings confirm that young women are concerned about the impact of cancer on emotional functioning. Therefore,

professionals may consider providing young women with information and support regarding the emotional impact of cancer. Young women also reported high levels of concern over their partners' well-being and sexual functioning, suggesting that these may also be areas to assess and treat. From a developmental life stage perspective, an important goal in this stage is likely partnership and establishing a family¹⁵, both of which may be related to sexual functioning and partner well-being.

The middle and older groups reported the greatest concern over their own well-being, their partners' well-being, and disease progression/death, suggesting that these may be areas to target for assessment and intervention. Existential concerns help to explain the priority attributed to these issues. Women in the middle group are likely faced with adult children leaving the house and starting their own families, potentially freeing them up to focus on their relationship with their partner. Women in the older group are likely to have experienced the loss of loved ones or friends who have lost partners due to aging and health-related issues, which may contribute to their concern over their partners, as well as concern over the possibility of their own disease progression. Both groups reported the least concern over the impact of cancer on sexual functioning, highlighting how this ceases to be as great a concern for older women. Physical impairment was the only other concern ranked a priority, consistent with clinical experience.

In terms of our second aim, there were age group differences in overall and specific cancer-related concern. Young women reported greatest overall cancer-related concern and differences in the impact of cancer on emotional functioning, sexual functioning and finances. Relationships, having children and raising a family are central tasks for this age group that become disrupted by cancer. Any related grief needs to be addressed by supportive clinical interventions.

Marital status did not impact the relationship between age and sexual functioning concern, suggesting the importance of considering sexual concerns regardless of marital status. A recent systematic review of sexual concerns among gynecological cancer survivors¹⁰ suggested that a substantial number of women report psychological concerns related sexuality (e.g., fear, sense of femininity), but the tendency is to focus on physical concerns (e.g., pain, vaginal dryness). Most studies included women post-treatment and further from diagnosis. Our findings suggest that cancer-related sexual concerns are prevalent, particularly in young women, shortly after diagnosis. Therefore, a thorough assessment of both physical and psychological concerns related to sexuality close to diagnosis may assist professionals in recommending interventions that have shown promise in improving sexual functioning or reducing sexuality-related distress in this population.^{32, 33}

Finally, older women reported significantly less concern over the financial impact of cancer. These women are likely to be transitioning from work to retirement. Young and middle women may experience more concern over the financial impact and professionals should consider how these concerns may influence a woman's overall adjustment.

The cancer-related concerns that did not differ significantly between age groups were physical symptoms, cancer treatment, partner well-being, relationship with partner, disease

progression/death, and relationship with others. These may be such relevant existential concerns for all patients that age-related differences do not emerge. Similarly, in terms of concern over disease progression/death, women in all age groups reported comparable levels of concern. While some studies have suggested that younger women report greater worry over death³⁴, other studies have found no age differences.³⁵ Regardless of developmental life stage, threat to one's life appears may be a universally significant concern.

There are limitations that should be taken into consideration. First, the study is exploratory in nature. We did not sample equally for age and thus there were not an equal number of women across the groups. Future studies could oversample women in the young and older groups to gain greater statistical power to determine group differences. Second, the sample was homogenous and represents women who agreed to participate in a randomized clinical trial. Results may not generalize to a broader population. Third, the cancer-related concerns were measured by a Likert rating and not a standardized measure. Finally, there may be additional variables that were not explored in the study that impact the degree of concern. For example, it may be important to consider the impact of having children and how this may contribute to cancer-related concern in specific domains.

Despite these limitations, the findings revealed clear age group differences in cancer-related concerns among women diagnosed with gynecological cancer. Professionals may benefit from considering the impact of cancer from a developmental life stage perspective. A thorough assessment of specific cancer-related concerns may assist professionals in recommending specific psychosocial interventions to address these concerns.

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Table 1

Demographic and medical variables by age group

Variables	Young age group (<46 years) N = 36	Middle age group (46-64 years) N = 168	Older age group (>64 years) N = 39	Age group significance <i>p</i>
<i>Demographic variables</i>				
Age (mean years)	36	56	68	
Married (%)	58%	67%	67%	0.455
Race (%)				0.101
Caucasian	69%	80%	87%	
African-American	11%	12%	13%	
Asian/Pacific Islander	14%	3%	0%	
Hispanic	3%	2%	0%	
Other	3%	2%	0%	
Employment status (%)				
Working full or part-time	39%	46%	23%	<.001 ***
On leave of absence	33%	33%	18%	
Unemployed	25%	10%	13%	
Retired	0%	11%	46%	
Education (%)				0.630
Less than high school	5%	3%	5%	
High school graduate	6%	15%	15%	
Some college/trade school	20%	17%	10%	
Completed college or beyond	69%	64%	69%	
Income (mean)	\$105,000	\$157,300	\$123,500	0.544
<i>Medical variables</i>				
Primary cancer (%)				0.018*
Ovarian	78%	55%	46%	
Endometrial/Uterine	11%	25%	26%	
Fallopian	5%	9%	15%	
Cervical	3%	5%	5%	
Peritoneal	0%	3%	3%	

Variables	Young age group (<46 years) N = 36	Middle age group (46–64 years) N = 168	Older age group (>64 years) N = 39	Age group significance <i>p</i>
Missing	3%	3%	4%	
Stage of cancer (%)				0.002***
I	39%	14%	8%	
II	11%	10%	5%	
III	44%	48%	56%	
IV	3%	24%	26%	
Missing	3%	4%	5%	
Time from diagnosis (mean months)	3.6	3.8	4.2	0.268
Physical Impairment (mean)	36.8	33.6	29.1	0.240
<i>Treatment at time of study</i>				
Currently receiving chemotherapy (%)	86%	83%	89%	0.449
Currently receiving radiation (%)	3%	8%	5%	0.447
Currently receiving hormone treatment (%)	8%	3%	5%	0.334

Note. Physical impairment was measured by the Cancer Rehabilitation Evaluation System (CARES).

* $p < .05$,
** $p < .01$,
*** $p < .001$

Table 2

Mean Cancer-Related Concerns by age group

Variables	Young age group (<46 years) N = 36	Middle age group (50-64 years) N = 168	Older age group (>64 years) N = 39	Total Sample N = 243	Age group significance <i>p</i>
Physical symptoms	3.22	2.97	2.19	2.88	0.023
Cancer Treatment	3.42	2.96	2.46	2.95	0.165
Sexual Functioning	3.72	2.15	1.28	2.24	0.001*
Emotional Functioning	3.81	3.11	2.50	3.12	0.001*
Disease Progression/Death	3.22	3.50	3.21	3.41	0.763
Own Well-being	3.53	3.44	3.31	3.44	0.928
Partner Well-being	3.77	3.57	3.53	3.58	0.487
Relationship with Partner	2.83	2.46	1.99	2.44	0.080
Body Image	3.56	2.66	2.37	2.74	0.023
Relationship with Others	2.51	2.25	1.95	2.23	0.506
Finances	3.34	3.03	2.21	2.96	0.007*
Employment	3.09	2.73	1.82	2.65	0.005*
Total Cancer-Related Concerns	3.37	2.92	2.45	2.91	0.001*

Note.

* $p < .01$