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A Systematic Review of Ovarian Cancer and Fear of Recurrence

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Abstract

Objective—To assess demographic, medical and psychological factors that are associated with fear of recurrence (FCR) in ovarian cancer patients.

Methods—We searched PubMed, EMBASE, Cochrane, CINAHL, and PsycINFO. For PubMed, a search using Medical Subject Headings (MeSH) was run, as well as a textword search from 1990 to July 2014. Search terms that were used consisted of ovarian terms, fear terms, and recurrence/progression themes. Title and abstract reviews were conducted by two independent reviewers to determine eligibility, and discrepancies were decided by a third reviewer. Full-text reviews of potentially eligible articles were conducted by the review team, which met regularly to ensure the reliability of eligibility ratings across all articles.

Results—Fifteen articles met our inclusion criteria. Nine were quantitative studies that utilized a cross-sectional design, and six studies consisted of three qualitative studies, two small intervention studies, and one study that utilized content analysis to explore written correspondence among ovarian cancer patients. FCR was reported as a significant concern for both older and younger women at both early and advanced stages. Women were distressed about recurrence at various times during their treatment and post-treatment. FCR was noted to be prevalent around cancer follow-up examinations. Many women report not receiving adequate support for recurrence. FCR was also shown to be linked in some way to hopelessness, faith/spirituality, and PTSD. FCR was

also linked to patients' anxiety about death and dying and the uncertainty of the future of their medical health.

Conclusions—This review demonstrates that FCR is prevalent in the ovarian cancer population. Cancer recurrence fears are not adequately assessed or treated. More information is needed on the factors that may be related to women's fears about recurrence in the ovarian cancer population. In addition, a validated measure of FCR among ovarian cancer patients as well as a treatment intervention are needed.

Introduction

The American Cancer Society estimated that 21,980 women will be newly diagnosed with ovarian cancer in the United States in 2014. Ovarian cancer has the highest mortality rate of any other gynecological cancer (NCI, 2013). It is the fifth leading cause of cancer death among women in the United States (Spiegel 2014). The majority of women are diagnosed at advanced stage. While survival rates vary depending upon stage of diagnosis, the 5-year relative survival rate for all stages of 44% (ACS, 2014). The disease course for ovarian cancer is often difficult. Initial treatments often include surgery and chemotherapy which may cause significant physical, psychological, and social side effects (Holland 2010). Women who undergo successful initial treatment then require additional follow-up care to monitor for recurrence. Follow-up care generally includes ongoing physical examinations, CT scans, and blood tests (e.g., Ca-125).¹ It is estimated that between 70% and 75% of women diagnosed with ovarian cancer will experience a recurrence (Armstrong et al., 2006; Sugimoto & Thomas 1998). Therefore, fear of cancer recurrence (FCR) is commonly reported among ovarian cancer patients (Shinn et al., 2009; Steginga & Dunn, 1997; Wenzel et al., 2002). While FCR has been recognized as a common challenge for ovarian cancer patients, there has not been a comprehensive summary of the research on FCR in this population.

Cancer Recurrence

Cancer recurrence has been defined as the return of cancer after completing treatment and having a length of time during which the cancer has not been detected (ACS, 2014). The period in which no cancer is detected is typically referred to by physicians as "no evidence of disease" (NED) or in "remission." Recurrence after a period of remission differs from cancer progression, which is when an existing cancer spreads or worsens. It can be difficult to differentiate between recurrence and progression, especially when there is only a short time period between the completion of treatment without evidence of disease and the cancer returning, because there is no specific timeline to define a true remission. A recurrence or progression of the cancer will, in turn, lead to more work-ups and treatments, and will most likely evoke many emotions and questions.

¹Ca-125 is a protein that is found more in ovarian cancer cells than in other cells. It is a blood test used to monitor those who have ovarian cancer. The test is usually performed every 3 months during chemotherapy treatment and after the treatment has ended.

Fear of Cancer Recurrence

While there is not a universal definition of fear of cancer recurrence (FCR), it is often defined as: “fear that the cancer will return or progress in the same place or a different part of the body” (Simard et al., 2010; Simard et al., 2013; Vickburg, 2003). FCR has been recognized as a common concern among cancer patients (Baker et al., 2005). Indeed, FCR has received growing attention in research with adult cancer survivors. There have been several literature reviews on FCR (Crist et al., 2012; Koch et al. 2012; Lee-Jones et al., 1997), including a systematic review which provided an overview of quantitative research conducted over the past twenty years on FCR among adult cancer survivors of various cancer diagnoses (Simard et al., 2013). The authors concluded that cancer survivors consider FCR to be one of their greatest concerns and that many survivors’ psychosocial needs are not met when it comes to FCR, suggesting that it is an important area for future research.

There are limitations to the existing FCR research. These limitations include: a lack of well-validated measures of FCR (Simard et al., 2013; Thewes et al., 2012), few longitudinal studies (Simard et al., 2013), and majority of studies focusing on breast cancer patients (Lee-Jones et al. 1997). Indeed, a recent review found that 42 of the 130 studies on FCR focused specifically on breast cancer (Simard et al., 2013). Therefore, current research on FCR may not be generalizable to individuals with other types of cancer. Another 37 of the studies reported in the review included a mixed sample of cancer sites (Simard et al., 2013). This is also problematic because there are significant differences between recurrence rates for different cancer types, which may influence the degree of FCR.

Fear of Cancer Recurrence and Ovarian Cancer

The natural tendency of ovarian cancer is of recurrence and remission (ACS 2014). The most common histopathological type of ovarian cancer is epithelial, accounting for 90% of the cases. (McCorkle 2003) Approximately 80% of patients diagnosed with ovarian epithelial cancer will relapse after standard first-line treatment, which includes platinum-based and taxane-based chemotherapy (NCI 2014). Given the disease course, prognosis, and recurrence rates associated with ovarian cancer (NCI and ACS), FCR may be a particularly important area to understand when working with this population. Fear of recurrence has been identified as an ovarian cancer-specific symptom and a patient reported outcome that is prevalent and severe. In all cancer types worry and anxiety are prevalent. However, in ovarian cancer, fear of recurrence or fear of progression reflects the high likelihood that the cancer will recur. Additionally, the frequent follow-up testing that is standard after treatment for ovarian cancer may elevate FCR. (Donovan et al., 2014) Many ovarian cancer patients identify Ca-125 levels with their disease status (Hamilton, 1999), which can be distressing. Indeed, there is evidence that anxiety when getting Ca- 125 testing is common (Mirabeau-Beale et al., 2009) and preoccupation with Ca- 125 is associated with increased depression and anxiety symptoms (Parker et al., 2006).

There has been increased attention to the importance of quality of life and psychological well-being among ovarian cancer patients (McCorckle et al. 2003). Some studies have suggested that while many ovarian cancer survivors report few unmet physical needs, they endorse significant unmet psychological needs (Matulonis et al., 2008). Therefore, there is a

need to better understand factors which may impact psychological well-being in this population, such as FCR. The literature on psychological adjustment among ovarian cancer survivors has suggested that FCR is an important issue that many women face (Hamilton, 1999). It is a commonly reported concern by ovarian cancer survivors (Matulonis et al., 2008). Researchers suggest similar levels of FCR between early and advanced stage ovarian cancer patients (Mirabeau-Beale et al., 2009), indicating its prevalence across various stages of ovarian cancer.

Overall, the evidence suggests that FCR is an important issue among ovarian cancer patients. However, there has not been a synthesis of the research on this topic. There is a need to better understand FCR among ovarian cancer patients. This information will guide further research and aid in the development of interventions aimed at assisting ovarian cancer patients coping with FCR. The purpose of this systematic review was 1) to identify research studies that have explored FCR among ovarian cancer patients, 2) to characterize FCR in this population in terms of prevalence and specific concerns, 3) to identify demographic, medical, and psychological factors associated with FCR and 4) to discuss the implications for treatment interventions and clinical practice.

Methods

Comprehensive literature searches were conducted in five databases for English language references between 1990 and July 2014. The databases searched were: PubMed, EMBASE, Cochrane, CINAHL, and PsycINFO. For PubMed, a search using Medical Subject Headings (MeSH) was run, as well as a textword search. For EMBASE, a search using Emtree (EMBASE vocabulary) terms was run, as well as a textword search. For Cochrane, a search using MeSH terms was run, as well as a textword search. For CINAHL, a search using CINAHL vocabulary terms was run, as well as a textword search. For PsycINFO, a search using PsycINFO vocabulary terms was run, as well as a textword search. The search strategy had three components, which were linked together using the AND operator: 1) ovarian terms, 2) fear terms, and 3) recurrence/progression terms. Table 1 contains the complete key word search strategy and Table 2 contains the complete MeSH search strategy.

All search results were combined in a bibliographic management tool (EndNote) and duplicates were eliminated using the capabilities in EndNote. Any duplicates missed by the software were eliminated manually. Title and abstract reviews were conducted by two independent reviewers to determine eligibility, and discrepancies were decided by a third reviewer. Full-text reviews of potentially eligible articles were conducted by the review team, which met regularly to ensure the reliability of eligibility ratings across all articles.

Results

A total of 15 articles met our inclusion criteria. Nine were quantitative studies that utilized a cross-sectional design. Of those nine studies, three studies utilized the same larger database to conduct separate analyses on specific subgroups of ovarian cancer patients based on age. An additional three of the quantitative studies utilized a larger database to conduct separate analyses on specific subgroups of ovarian cancer patients based on stage of diagnosis. All

other quantitative studies utilized separate samples. The remaining six studies consisted of three qualitative studies, including interviews with ovarian cancer patients, two small intervention studies that did not target FCR specifically, but reported ovarian cancer patients' FCR in findings, and one study that utilized content analysis to explore written correspondence among ovarian cancer patients. The majority of studies relied upon open-ended questions to glean information about FCR. One study utilized the Fear of Relapse/Recurrence Scale. Table 3 provides information specific to the sample, procedures, measures and FCR findings identified in each of these studies.

Characterization of FCR among Ovarian Cancer Patients

The methods of assessing FCR varied widely across studies, resulting in rates ranging from 22% (Wenzel et al., 2002) to 80% (Cesario et al., 2010) of ovarian cancer patients reporting FCR. Among the survey-based studies, approximately half of ovarian cancer patients report ever experiencing FCR and slightly less than half reported that they did not receive adequate help coping with FCR. For example, a large study (N = 315) conducted by Fitch and colleagues (1999) found that 54% of Canadian women with ovarian cancer reported FCR and 43% reported inadequate help for coping with this fear. Sub-studies from this survey divided the sample into older women (≥ 60 years) and younger women (< 45 years). Among older women (N = 146), 43% reported FCR since diagnosis, 22% reported FCR within the past month, and 37% reported receiving adequate support to manage this fear (Fitch et al., 2001). Among younger women (N = 39), 64% reported FCR since diagnosis, 46% reported FCR in the past month, and 18% reported receiving adequate help for this problem (Fitch et al., 2000). A second cross-sectional survey by Fitch and colleagues (2010) found that FCR was the top-reported unmet need among women with ovarian cancer, with 78% (N=50) listing it as an unmet need.

Kornblith and colleagues (2010) administered the Fear of Relapse/Recurrence Scale (Greenberg et al., 1997) and reported a mean score of 2.5 among women diagnosed with advanced ovarian cancer at least 3 years previously who were currently relapse-free (N=42). The mean score indicated uncertainty about greater FCR. However, the majority of women agreed or strongly agreed with statements regarding FCR (66.7%). In similar studies, FCR was reported in 56% of early stage ovarian cancer survivors (Matulonis et al., 2008; Mirablaeu-Beale et al., 2009) and 48% of advanced stage cancer survivors. Among long-term, early stage ovarian cancer survivors (> 5 years) the prevalence of FCR was slightly lower, with 22% reporting FCR (Wenzel et al., 2002). Cox and colleagues (2008) found that 33% of women who participated in a pilot study of nurse-led, phone-based follow-up care (N=52) discussed FCR during their calls with the nurse.

In terms of specific recurrence concerns, many studies identified concerns related to health and the future, as well as evidence that these concerns are significantly challenging for women. For example, Kornblith and colleagues (2010) found that 63.4% of the women they surveyed reported uncertainty to strong agreement with the statement that they would experience a relapse within 5 years, 54.8% reported worrying about their health, and 40.5% reported feeling unsure about the future (40.5%). Stewart and colleagues (2001) assessed views about recurrence among relapse-free ovarian cancer survivors (N=200). Of those

women, 45% believed their risk of recurrence was less than average, 28.5% believed their risk to be average, 23% perceived above average risk, and 3.5% stated not to know their risk. In terms of time spent thinking about recurrence, 35% reported hardly ever thinking about the possibility of recurrence, 28% thought of it at least monthly, 24.5% at least weekly, and 12% at least daily. In terms of specific fears, 53% were afraid of what their futures held for them and 12% were very afraid of dying of ovarian cancer. Similarly, Wenzel and colleagues (2002) found that 10% of long-term ovarian cancer survivors said that FCR or death was one of their greatest problems during treatment and 14% indicated that it was currently their greatest challenge after all of this time.

The qualitative studies all noted FCR as a predominant theme that emerged among ovarian cancer patients. For example, an on-line qualitative survey of women diagnosed with ovarian cancer (N = 360) found that approximately 80% of women expressed worry about recurrence at some point. Women described recurrence as being denied a future. The most common response to a question about worry in all age groups was a single-word response: Recurrence (Cesario et al., 2010). Qualitative interviews with ovarian cancer patients yielded four themes, two of which focused on recurrence: waiting for recurrence and facing the diagnosis of recurrence. Women who had experienced recurrence (N=11) reported feeling shock and devastation, despite awareness of the statistics regarding the prevalence of ovarian cancer recurrence (Howell et al., 2003). Reb (2007) conducted Interviews with women diagnosed with stage III or IV ovarian cancer within the past years and had completed an initial course of chemotherapy and had no evidence of recurrence (N=20) suggested significant fear and anxiety related to recurrence (Reb, 2007). Negative communications with their health care providers about these topics was associated with greater anxiety and less hopefulness. Several women reported recurrence and death as their greatest fear. Content analysis performed on women's correspondence with the founding editor of *Conversations! The International Newsletter for those Fighting Ovarian Cancer* found that for women in remission, letters about stress and anxiety were more common than letters celebrating survival (Ferrell et al., 2003). Similar to previously mentioned findings, women expressed that fears of recurrence dominated their lives due to the awareness that recurrent ovarian cancer is common and indicates a poorer prognosis. For those who experienced a recurrence, letters focused on the distress caused by recurrence and the need to accept ovarian cancer as a chronic condition.

Factors Associated with FCR among Ovarian Cancer Patients

Few studies specifically explored demographic, medical, or psychological factors associated with FCR. Qualitative studies found that FCR was often heightened during follow-up appointments and the end of active treatment (Cesario et al., 2010; Ferrell et al., 2003; Reb, 2007). In written correspondence, women indicated that ending active treatment triggered new fears and anxieties because they were not actively fighting the disease (Ferrell et al., 2003). Similarly, in qualitative interviews women stated that they found the end of treatment to be distressing because they felt that they were no longer under the protection of the treatment (Reb, 2007). Women also reported feeling anxiety about recurrence prior to follow-up appointments (Reb, 2007). Stewart and colleagues (2001) found that 62.5% reported high to extreme anxiety at cancer check-ups and Mirabeau- Beale and colleagues

found that 50% were anxious when tested for Ca-125. There is some evidence that greater FCR is associated with less favorable psychosocial outcomes. For example, greater FCR correlated with lower scores on spirituality, greater negative impact of cancer, lower positive well-being, and more PTSD symptoms (Kornblith et al., 2010; Matulonis et al., 2008).

Discussion

In order to understand how women with ovarian cancer are affected by FCR of their cancer a systematic review of literature was carried out. Findings showed strong evidence that FCR is a problem amongst this population and research in this area is lacking.

General Trends and Unmet Needs

There were several general trends found in the literature. Most notably, FCR is a significant concern among women diagnosed with ovarian cancer. FCR is reported by women across various ages and disease stage. It is reported by women during treatment, after treatment has ended, and when faced with a recurrence of ovarian cancer. Factors that appeared to be associated with the reported FCR were cancer follow-up examinations and tests, such as the Ca-125 test. Another notable trend was that many women report not receiving adequate support in regard to FCR. Some women have developed their own strategies for coping with distress around recurrence, but this may not be true of all women diagnosed with ovarian cancer. The lack of adequate support regarding FCR is further concerning in light of the trend indicating that FCR is associated with psychosocial outcomes such as hopelessness, faith/spirituality, PTSD, anxiety about death and dying, and uncertainty about one's future medical health.

While there were several trends noted in the literature, there were also limitations in the extant literature. First, it is not clear whether the current literature represents an adequate breadth of cultural and demographic diversity. Much of the literature was based on English or French speaking women and the samples were majority Caucasian. Given this information, it is inconclusive whether the findings in these studies can be generalized to more diverse samples. Second, much of the literature focused on women who had survived two or more years after diagnosis. As ovarian cancer is a diagnosis with poor prognosis and is rapidly fatal, many women may be excluded in these samples. Furthermore, the literature may not be adequately capturing FCR during the time period following diagnosis or initially completing treatment. Third, there is a lack of consistent use of a valid measure of FCR. The majority of studies utilized open-ended questions to assess FCR or focused on general psychosocial issues rather than specifically assessing FCR. Therefore, conclusions about the prevalence and severity of FCR in this population cannot be made. Fourth, the majority of studies did not explore the impact of FCR on a woman's quality of life or psychosocial functioning. Finally, the literature does not provide sufficient information on the assessment and treatment of FCR among women with ovarian cancer. It is not clear how, or if, medical providers are assessing FCR among patients. It is also unclear what type of support is provided or available to women experiencing FCR. Moreover, it is unclear what type of support would be most effective.

Future Directions

This review demonstrates that FCR is prevalent in the ovarian cancer population and that it is often not adequately addressed or treated. The review also highlights significant limitations in the research on FCR among ovarian cancer patients. These general trends and limitations suggest important areas for future research and practice. First, there is a need for further research on FCR in this population, particularly among more diverse samples and among women who are more recently diagnosed. We also recommend longitudinal research that can examine the trajectory of FCR over time, the relationship between FCR and psychosocial outcomes, and factors that play a role in the maintenance of FCR. Second, there is a need for better assessment of FCR in this population, for both research and clinical purposes. A validated measure of FCR among ovarian cancer patients is needed to better understand FCR in this population. This would allow for more conclusive information on the prevalence of FCR. Additionally, it is suggested that assessment not only include the presence of FCR, but also the severity of FCR. It is important to differentiate FCR that is normal and expected from a level of FCR which may be having a significant impact on a women's overall functioning. There are existent measures of FCR that have been utilized with broad cancer populations which may be adapted for use in this population. For example, the Concern about Recurrence Scale (CARS) has been validated among breast cancer patients (Vickburg, 2003). The CARS assesses overall fears, as well as including subscales that assess FCR in specific domains of worry (e.g., health, death, womanhood). There are additional measures of FCR that have demonstrated promising psychometric properties in other cancer populations which may inform assessment of FCR among ovarian cancer patients, such as the Fear of Relapse/Recurrence Scale (Greenberg et al., 1997), the Fear of Recurrence Questionnaire (Northouse, 1981), and the Fear of Cancer Recurrence Inventory (Simard et al., 2013). In addition to the need for validated measures for research purposes, there is a need for clinical assessment of FCR by providers. Since FCR is a significant concern in this population, it may be important for providers to assess FCR in order to provide adequate support or to refer patients to further support services. Brief measures, such as the overall fear index of the CARS, which consists of xx items or the 5-item Fear of Relapse/Recurrence Scale may be considered. Alternately, providers may consider a brief one-question assessment of FCR, similar to the Distress Thermometer (NCCN, 2007) that is often used in oncology settings. Further research is needed in the assessment of FCR in this population in order to identify those at risk and refer to the appropriate treatment. Finally, given the reported FCR and the lack of adequate support reported in the existing studies, there is a need for the development and implementation of interventions that address FCR among ovarian cancer patients. Treatment interventions aimed at ovarian cancer specific FCR do not currently exist. However, there are existing interventions that have been applied across broad cancer populations which may inform intervention among this population. For example, Humphris and colleagues developed a structured psychological intervention to address fears of recurrence among head and neck cancer patients (Humphris, 2008). The intervention, which included cognitive-behavioral therapy techniques aimed at helping patients adjust to fears, showed initial promise and acceptability by patients. Another intervention developed by Butow and colleagues (2013) utilized mindfulness-based techniques and meta-cognitive therapy techniques to help patients change the way they regulate and respond to FCR. Herschbach and colleagues

(2010) evaluated two types of group therapy, cognitive-behavioral therapy and supportive-expressive therapy, aimed at reducing fear of progression among individuals with various cancer diagnoses. Fear of progression decreased in both intervention groups compared to a control group, suggesting that these therapeutic techniques might be beneficial in addressing FCR specifically among ovarian cancer patients. Indeed, there is evidence that interventions that include cognitive-behavioral techniques, such as cognitive restructuring, coping skills to manage emotional reactions, and behavioral tasks, have led to improved general psychological functioning among gynecological cancer patients (Manne et al., 2007). Therefore, these techniques may be incorporated into interventions designed to specifically target FCR among ovarian cancer patients.

In conclusion, this systematic review highlighted the relevance of FCR among ovarian cancer patients, as well as the need for further research and clinical recommendations in this area. Future efforts should focus on the assessment of FCR in this population and the development of appropriate interventions. The development of a validated scale to assess FCR would enable quantitative analysis which could be utilized by various physicians and psychosocial providers who, in turn, could make appropriate referrals for treatment and interventions. Interventions that specifically target FCR in the ovarian cancer population is currently an undeveloped area. Further research aimed at development of an assessment tool/ intervention and accurate timing of implementing these constructs may allow us to identify and treat woman with ovarian cancer most at risk for FCR and those most disabled by these fears. Decreasing cancer recurrence fears in this population may lead to better adherence to cancer surveillance and improved quality of life.

References

1. American Cancer Society. When cancer doesn't go away. 2014 Available at <http://www.cancer.org/treatment/survivorshipduringandaftertreatment/when-cancer-doesnt-go-away>.
2. National Cancer Institute. A Snapshot of ovarian cancer. 2013. Available at <http://www.cancer.gov/researchandfunding/snapshots/ovarian>
3. National Cancer Institute. Recurrent or persistent ovarian epithelial cancer treatment. 2014. Available at <http://www.cancer.gov/cancertopics/pdq/treatment/ovarianepithelial/HealthProfessional/page6>
4. Seigel R, Ma J, Zou Z, Jemal A. Cancer Statistics, 2014. CA: Cancer J for Clini. 2014; 64(1):9–29.
5. Armstrong D, Bundy B, Wenzel L, et al. Intraperitoneal cisplatin and paclitaxel in ovarian cancer. New England J Med. 2006; 354:34–43. [PubMed: 16394300]
6. Baker F, Denniston M, Smith T, et al. Adult cancer survivors: how are they faring? Cancer. 2005; 104(11 Suppl):2565–2576. [PubMed: 16258929]
7. Cesario SK, Nelson LS, Broxson A, Cesario AL. Sword of Damocles cutting through the life stages of women with ovarian cancer. Oncol Nurs Forum. 2010; 37(5):609–617. [PubMed: 20797952]
8. Cox A, Bull E, Cockle-Hearne J, Knibb W, Potter C, Faithfull S. Nurse led telephone follow up in ovarian cancer: a psychosocial perspective. Eur J Oncol Nurs. 2008; 12(5):412–417. Epub 2008 Oct 8. [PubMed: 18845479]
9. Crist JV, Grunfeld EA. Factors reported to influence fear of recurrence in cancer patients: a systematic review. Psychooncology. 2013; 22(5):978–986. [PubMed: 22674873]
10. Donovan KA, Mitchell SA, Dueck AC, et al. Recommended patient-reported core set of symptoms and quality-of-life domains to measure in ovarian cancer treatment trials. J Natl Cancer Inst. 2014; 106(7):1–8.

11. Ferrell B, Smith SL, Cullinane CA, Melancon C. Psychological well being and quality of life in ovarian cancer survivors. *Cancer*. 2003; 98(5):1061–1071. [PubMed: 12942576]
12. Fitch MI, Gray RE, Franssen E. Perspectives on living with ovarian cancer: older women's views. *Oncol Nurs Forum*. 2001; 28(9):1433–1442. [PubMed: 11683313]
13. Fitch M, Gray RE, Franssen E. Perspectives on living with ovarian cancer: young women's views. *Can Oncol Nurs J*. 2000; 10(3):101–108. [PubMed: 11894277]
14. Fitch MI, Gray RE, DePetrillo D, Franssen E, Howell D. Canadian women's perspectives on ovarian cancer. *Cancer Prev Control*. 1999; 3(1):52–60. [PubMed: 10474753]
15. Fitch MI, Steele R. Identifying supportive care needs of women with ovarian cancer. *Can Oncol Nurs J*. 2010; 20(2):66–74. [PubMed: 20572429]
16. Howell D, Fitch MI, Deane KA. Women's experiences with recurrent ovarian cancer. *Cancer Nurs*. 2003; 26(1):10–17. [PubMed: 12556708]
17. Fitch, MI. Gynecologic Cancer. In: Holland, JC., et al., editors. *Psycho-Oncology*. New York: Oxford Pres; 2010. p. 167–171.
18. Greenberg DB, Kornblith AB, Herndon JE, et al. Quality of life for adult leukemia survivors treated on clinical trials of Cancer and Leukemia Group B during the period 1971–1988: predictors for later psychologic distress. *Cancer*. 1997; 80(10):1936–1944. [PubMed: 9366296]
19. Herschbach P, Book K, Dinkel A, et al. Evaluation of two group therapies to reduce fear of progression in cancer patients. *Supportive Care in Cancer*. 2010; 18(4):471–479. [PubMed: 19865833]
20. Humphris G, Ozakinci G. The AFTER intervention: a structured psychological approach to reduce fears of recurrence in patients with head and neck cancer. *British journal of health psychology*. 2008; 13(2):223–230. [PubMed: 18492319]
21. Kornblith AB, Mirabeau-Beale K, Lee H, et al. Long-term adjustment of survivors of ovarian cancer treated for advanced-stage disease. *J Psychosoc Oncol*. 2010; 28(5):451–469. [PubMed: 20730659]
22. Koch L, Jansen L, Brenner H, et al. Fear of recurrence and disease progression in long term (5 years) cancer survivors: a systematic review of quantitative studies. *Psychooncology*. 2013; 22(1): 1–11. [PubMed: 22232030]
23. Lee-Jones C, Humphris G, Dixon R, et al. Fear of cancer recurrence—a literature review and proposed cognitive formulation to explain exacerbation of recurrence fears. *Psychooncology*. 1997; 6(2):95–105. [PubMed: 9205967]
24. Manne SL, Rubin S, Edelson M, Rosenblum N, Bergman C, Hernandez E, Winkel G. Coping and communication-enhancing intervention versus supportive counseling for women diagnosed with gynecological cancers. *J Clin Consult Psychol*. 2007; 75(4):615.
25. Matulonis UA, Kornblith A, Lee H, et al. Long-term adjustment of early-stage ovarian cancer survivors. *Internat J Gyn Cancer*. 2008; 18(6):1183–1193.
26. McCorkle R, Pasacreta J, Tang ST. The silent killer: psychological issues in ovarian cancer. *Holist Nurs Pract*. 2003; 17(6):300–308. [PubMed: 14650572]
27. Mirabeau-Beale KL, Kornblith AB, Penson RT, et al. Comparison of the quality of life of early and advanced stage ovarian cancer survivors. *Gyn Oncol*. 2009; 114(2):353–359.
28. National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology: Distress management, version 1. 2007 (Available from: http://www.nccn.org/professionals/physician_gls/PDF/distress.pdf).
29. Northouse LL. Mastectomy patients and the fear of cancer recurrence. *Cancer Nurs*. 1981; 4(3): 213–220. [PubMed: 6909039]
20. Parker PA, Andrzej K, Basen-Engquist K, Kavanagh J, de Moor J, Cohen L. The associations between knowledge, CA125 preoccupation, and distress in women with epithelial ovarian cancer. *Gyn Oncol*. 2006; 100(3):495–500.
31. Reb AM. Transforming the death sentence: elements of hope in women with advanced ovarian cancer. *Oncol Nurs Forum*. 2007; 34(6):E70–E81. [PubMed: 18024333]
32. Shinn EH, Carmack Taylor CL, Kilgore K, et al. Associations with worry about dying and hopelessness in ambulatory ovarian cancer patients. *Palliat Supp Care*. 2009; 7(3):299–306. doi.org/10.1017/S1478951509990228.

33. Simard S, Savard J, Ivers H. Fear of cancer recurrence: specific profiles and nature of intrusive thoughts. *J Cancer Surviv.* 2010; 4(4):361–371. [PubMed: 20617394]
34. Simard S, Thewes B, Humphris G, et al. Fear of cancer recurrence in adult cancer survivors: A systematic review of quantitative studies. *J Cancer Surviv.* 2013; 7:300–322. [PubMed: 23475398]
35. Steginga SK, Dunn J. Women's experiences following treatment for gynaecological cancer. *Oncol Nurs Forum.* 1997; 24:1403–1408. [PubMed: 9380595]
36. Stewart DE, Duff S, Wong F, Melancon C, Cheung AM. The views of ovarian cancer survivors on its cause, prevention, and recurrence. *Medscape Womens Health.* 2001; 6(5):5. [PubMed: 11698927]
37. Sugimoto, A.; Thomas, G. Early-stage ovarian carcinoma. In: Kavanah, J.; Singletary, S.; Einhorn, N., et al., editors. *Cancer in Women*. Malden: Blackwell Science; 1998.
38. Thewes B, Butow P, Zachariae R, et al. Fear of cancer recurrence: a systematic literature review of self-report measures. *Psychooncology.* 2012; 21(6):571–587. [PubMed: 22021099]
39. Vickberg SMJ. The Concerns About Recurrence Scale (CARS): a systematic measure of women's fears about the possibility of breast cancer recurrence. *Ann Behav Med.* 2003; 25(1):16–24. [PubMed: 12581932]
40. Wenzel LB, Donnelly JP, Fowler JM, et al. Resilience, reflection, and residual stress in ovarian cancer survivorship: A gynecologic oncology group study. *Psycho-Oncology.* 2002; 11:142–153. [PubMed: 11921330]
41. Walker LM, Bischoff TF, Robinson JW. Supportive expressive group therapy for women with advanced ovarian cancer. *Int J Group Psychother.* 2010; 60(3):407–427. [PubMed: 20590436]

Table 1

After records were added to the EndNote library, the total figures on 7-22-14 were:

All References	1,635
PubMed	380
Embase	851
Cochrane	299
CINAHL	71
PsycINFO	34

Table 2

After duplicates were removed, the total figures on 7-23-14 were:

All References	1,204
PubMed	360
Embase	540
Cochrane	282
CINAHL	14
PsycINFO	8

The number of duplicates removed was 431.

Table 3

Author Team	Sample	Method	Instrument/Measures	Fear of Recurrence Findings
Cesario et al., 2010 Ref # []	N = 360 women diagnosed with ovarian cancer	Qualitative One-time interview Qualitative analysis of narrative data from interview	Online interview; Interview included questions about worries related to ovarian cancer	Approximately 80% of the women in the study expressed worry about recurrence at some point during the interview
Cox et al., 2008 Ref # []	N = 52 women who had completed treatment for ovarian cancer; Stages I–IV	Pilot intervention study; One group pretest-posttest design	FACT-O Satisfaction; Experience with Follow-Up Care Questionnaire	One-third of women discussed fear of recurrence
Fitch et al., 1999 Ref # []	N = 315 women diagnosed with ovarian cancer; Stages I–IV	Quantitative Cross-sectional; One-time survey	Survey designed by researchers;	Fear of recurrence reported by 54% of women
Fitch 2000 Ref # []	N = 39 women diagnosed with ovarian cancer; Age 45 years	Quantitative Cross-sectional; Re-analyzed a sub-sample of Fitch et al., 1999 study	Survey designed by researchers described in Fitch et al., 1999	Fear of recurrence reported by 65% of women. Only 18% reported receiving adequate help
Fitch 2001 Ref # []	N = 146 women diagnosed with ovarian cancer; Age 61 years	Quantitative Cross-sectional; Re-analyzed a sub-sample of Fitch et al., 1999 study	Survey designed by researchers described in Fitch et al., 1999	Fear of recurrence reported by 45% of women
Fitch et al., 2010 Ref # []	N = 50 diagnosed with ovarian cancer; Included both women who had completed treatment and still in treatment	Quantitative Cross-sectional; One-time survey	Supportive Care Needs Survey (adapted by researchers)	The most common psychological needs were fear of recurrence (78%) and fear of cancer spreading (70%)
Ferrell et al., 2003 Ref # []	21,806 pieces of correspondence from ovarian cancer newsletter	Non-human subjects design; Content analysis of archived correspondence	No measures administered	Four themes: diagnosis, treatment, remission, and recurrence. Two themes among women with recurrent disease: coping with recurrence and distress over recurrence. 62 letters included strategies to cope with recurrence and 23 about distress related to recurrence.
Howell et al., 2003 Ref # []	N = 18 women who had experienced a recurrence of ovarian cancer	Qualitative One-time telephone interview;	Interviewing explore the perspectives of women living with ovarian cancer and experience with recurrence	Four themes emerged from the Interviews: Waiting for recurrence, facing the diagnosis of recurrence, managing treatment-related concerns, and attempting to

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				regain control.
Kornblith et al., 2010 Ref # []	N = 42 women diagnosed with stage III or IV ovarian cancer; 3 years from diagnosis without recurrence; Majority Caucasian (90%)	Quantitative Cross-sectional; One-time survey	Impact of Cancer Scale MHI- 17; FACT-NTX (Neurotoxicity); FACT-Sp (Spirituality) Beck Hopelessness Scale Fear of Relapse/Recurrence (5-item scale); PCL-C; MOS-Social Support Survey; Survey of sexual problems related to cancer	Mean score on Fear of Relapse/Recurrence was 2.5, which corresponded to "uncertain" about statements related to fears of recurrence; 63.4% reported they were not certain-to-strongly agree with statement that they would have a relapse in 5 years; Greater fear of recurrence was related to lower scores on spirituality, greater negative impact of cancer, lower positive well-being (MHI), and more PTSD symptoms
Matulonis et al., 2008 Ref # []	N = 58 ovarian cancer survivors diagnosed with stage I or II disease	Quantitative Cross-sectional; One-time survey	Same measures in Kornblith et al., 2010 study	61% reported anxiety when tested for CA-125; 56% reported fear of cancer recurring
Mirabeau-Beale et al., 2009 Ref # []	N = 100 ovarian cancer survivors; diagnosed with early stage ovarian cancer (N=58) and advanced stage ovarian cancer (N=42)	Quantitative Cross-sectional; One-time survey	Same measures in Kornblith et al., 2010 study	Fear of recurrence was prevalent in both survivor groups; 56% of early stage and 48% of advanced stage were afraid of the cancer recurring
Reb 2007 Ref # []	N = 20 women diagnosed with stage III or IV ovarian cancer; Women had completed treatment and no evidence of recurrence; Majority Caucasian (85%)	Qualitative; One-time interview	Personal data form; Interview guide that included open-ended questions about women's experiences of hope	Women reported fears related to uncertainty and the possibility of early death. Facing the death threat emerged as women's main concern, and the basic social process or core variable in dealing with the concern was transforming the death sentence. Women reported significant distress and fears of recurrence at various time points.
Stewart et al., 2001 Ref # []	N = 200 women in remission from ovarian cancer for 2 years; Majority Caucasian (87%)	Cross-sectional; One-time survey	Questionnaire designed by study team: To what did ovarian cancer survivors attribute the cause and lack of recurrence of their ovarian cancer?; How did they perceive their personal risk of	45% of women believed their risk of recurrence was less than average, 28.5% average, 23% above average, and 3.5% did not know their risk; 35% of women reported hardly ever thinking about the

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			recurrence?; How often did they think about recurrence? What would they report as their current health behaviors?	possibility of recurrence, 28% thought of it at least monthly, 24.5% at least weekly, and 12% at least daily; 62.5% reported high to extreme anxiety at cancer check-ups, 53% were afraid of what their futures held for them. 12% were very afraid of dying of ovarian cancer.
Walker et al., 2010 Ref # []	N = 8 women diagnosed with advanced ovarian cancer	Intervention study; Qualitative analysis	Semi-structured interviews	Patients found it troubling when other group members experienced recurrences, but they took comfort in knowing that the group would be there to support them if they experienced recurrence. They thought facing these emotions was part of the process of coping with their illness.
Wenzel 2002 Ref # []	N = 49 early stage ovarian cancer survivors (> 5 years); Majority Caucasian (90%)	Quantitative Cross-sectional; One-time survey	Quality of Life of Cancer Survivorship (QOL-CS); Impact of Events Scale (IES-R)	22% reported fear of recurrence; 10% said that at the time of treatment fear of recurrence or death was one of their greatest problems; 14% said fear of recurrence was presently their greatest challenge.