Psychological aspects of gynecologic surgery

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ABSTRACT Gynecologic surgery has many of the same psychological concomitants that accompany surgery in general. However, because gynecologic surgery can have a direct effect on a woman’s reproductive system, it creates its own distinct psychological difficulties, both pre-operatively and postoperatively. While the literature is somewhat dated, it does suggest that certain pre-surgical ‘risk factors’ increase the likelihood of adverse psychological sequelae following gynecologic surgery. Specifically, difficulties with depression, anxiety, chronic pain, body image, sexual functioning, and the couple’s relationship likely increases the probability of poor postoperative psychological adjustment. Consequently, patients would benefit from increased awareness on the part of surgeons and other medical professionals for these pre-existing psychological and psychosocial problems in the pre-operative period. Alternatively, the use of a psychological screening measure to identify these risk factors in the pre-operative period may also help the surgeon in identifying potentially “at risk” patients, and referring them for further psychological evaluation and treatment with an experienced behavioral health professional. Such treatment would be tailored to the individual woman’s (or couple’s) needs and could involve supportive counseling, relaxation techniques, and cognitive-behavioral techniques to enhance coping and improve postoperative adjustment. Clearly, research is needed to determine the efficacy of such interventions with the gynecologic surgery population. Behavioral health professionals can assist surgeons in these endeavors addressing the psychological and psychosocial needs of both the woman and her family. The major challenge will be expanding and translating the existing research literature on psychological aspects of gynecologic surgery into clinical practice.

Key words gynecologic surgery, psychological aspects

INTRODUCTION Gynecologic surgery has many of the same psychological concomitants that accompany surgery in general. However, because gynecologic surgery can have a direct effect on a woman’s reproductive system, it creates its own distinct psychological difficulties, both pre-operatively and post-operatively. There are many types of gynecologic surgery, although differing levels of attention have been paid to each in the research literature. The majority of the literature has focused on hysterectomy for benign conditions, while a smaller body of literature exists for other types of gynecologic surgery for malignant conditions. Psychological aspects of gynecologic surgery performed for benign conditions are not necessarily the same as those for malignant conditions. For example, each type of gynecologic cancer has different risk factors and prognoses, making generalizations about medical treatments or psychological impact difficult. Similarly, psychological aspects of gynecologic surgery may differ depending upon the type of surgery performed. This paper reviews the literature to date on the psychological aspects of four main types of gynecologic surgery: hysterectomy, oophorectomy, vulvectomy, and pelvic exenteration. It is important to acknowledge that the majority of the available literature on psychological aspects of gynecologic surgery is largely outdated, emphasizing the need for research in this area. Shortcomings in the existing research literature as well as directions for future research on psychological aspects of gynecologic surgery will be presented. Practical suggestions for addressing psychological aspects of gynecologic surgery in the clinical setting will also be provided.

HYSTERECTOMY Hysterectomy is one of the most common surgical procedures for women over the age of 35 in the US. The majority of hysterectomies are performed for elective indications, and it is considered to be a discretionary procedure; that is, hysterectomy is a procedure for which there is uncertainty among physicians about its benefits in some cases (1). Common indications for hysterectomy include leiomyomata (fibroids) of the uterus, abnormal uterine bleeding, symptoms accompanying pelvic inflammatory disease, ovarian diseases such as endometriosis, carcinoma of the endometrium, and carcinoma of the cervix (2). In addition to these six indications, there is also a “combined syndrome” in which women display a multitude of physical and/or psychological symptoms (2). Elective bilateral oophorectomy is commonly performed at the time of hysterectomy in a large number of women, and hormone replacement therapy (HRT) is commonly prescribed (3).

Hysterectomy has been extensively studied because of the large numbers of these surgeries that are performed annually. Most of the literature examines hysterectomy for benign conditions. Although hysterectomy is medically indicated for clearly defined conditions
in the majority of instances, many women receive a hysterectomy when there is no demonstrable uterine pathology, such as for dysfunctional uterine bleeding (4). Indeed, hysterectomy is occasionally performed on the basis of the patient’s subjective assessment of her physical problems, rather than objective medical evidence of gynecologic abnormality (5). Postoperative review of the patient by the gynecologist usually occurs only once, a few weeks after the operation, and is mainly concerned with physical recovery. The psychological dimension of the procedure typically receives minimal attention (6).

The research literature on the preoperative status of these women and the psychological consequences of hysterectomy for benign conditions is fraught with controversy. Original explanations regarding psychological distress associated with hysterectomy arose from psychodynamic and analytic models, however, we will not be reviewing these explanations in any detail. It is important to be aware, however, that psychodynamic and analytic models were instrumental in directing the attention of clinical researchers to the relationship between hysterectomy and problems of sexual functioning as well as the symbolic role of the uterus and its relationship to self-concept. However, major criticisms of the psychodynamic models have been well documented (7), with particular emphasis on their lack of refutability and the difficulty in operationalizing the concepts; i.e., these models and concepts were scientifically untestable.

Biological explanations of psychological aspects of hysterectomy have also been put forward, particularly those emphasizing hormonal influences. However, Coppen et al. (8), in a review of the complex biochemical factors involved, imply that psychological reactions to hysterectomy cannot be solely accounted for in terms of hormonal changes. The present paper will focus on more contemporary conceptualizations and research findings on both preoperative and postoperative psychological aspects of hysterectomy. Methodological difficulties that contributed to the controversy surrounding the proposed relationship between hysterectomy and psychological distress will also be discussed.

PREOPERATIVE PSYCHOLOGICAL ASPECTS The prevalence of preoperative psychological disorders in hysterectomy patients has been reported to be four to five times higher than that observed in the general population (9). Gaith et al. (10) found that 58% of hysterectomy patients displayed preoperative psychopathology, as measured by the Present State Examination. A number of authors have reported a high incidence of depression among women before they undergo hysterectomy (11-12) that decreases after surgery because of the relief of physical symptoms.

Thornton et al. (12) examined women who had received abdominal hysterectomies where 90% of the women also underwent bilateral oophorectomy. They observed clinically significant levels of anxiety for the majority of the women 3 weeks prior to surgical hysterectomy. They point out that while this may be an anticipated outcome prior to major surgery, the associated high levels of depression are atypical of those seen with other surgical procedures. Thus, it is important to consider the fact that observed high levels of preoperative anxiety might be a consequence of the relatively close temporal proximity of when anxiety was assessed and surgery. Future studies might include measures of anxiety well in advance of the surgery to attempt to address this issue.

The high rate of preoperative psychiatric disorders in hysterectomy patients has also been hypothesized to be due to the fact that many women with psychological disorders also experience psychophysiological correlates (13). It has also been suggested that women who are diagnosed as having a preoperative psychological disorder are more likely to repeatedly present with physical complaints of nonorganic origin, prompting the gynecologist to use increasingly more invasive physical treatment methods (13).

Regardless of the reasons for such a high level of preoperative psychological problems, more recent research suggests that postoperative psychological problems are likely more a reflection of preoperative morbidity, than the effects of the hysterectomy itself (14). Ryan et al. (14) and Strauss et al. (15) contend that the best predictor of psychological distress following hysterectomy is the preexistence of psychological problems, rather than the surgery itself. The controversial research literature regarding post-surgical psychological distress is presented and discussed in the next section.

POST-SURGICAL SIDE EFFECTS A variety of psychological and physical phenomenon have been suggested to be direct effects of hysterectomy. Kincey and McFarlane (5) categorized three sets of difficulties that have been reported in the literature: 1. Anxiety and depression, attributed to the operation. 2. Sexual dysfunction presenting as diminished libido, pain, discomfort, or anxiety associated with postoperative sexual activity, and 3. Reactions which relate to the “self-concept” of the woman who has undergone hysterectomy, in particular to changes in self-esteem or perceptions of femininity. This last set of difficulties is more ambiguous and vague and difficult to operationalize and assess, thus making it less amenable to research. Thus, the present review will focus primarily on anxiety, depression, and sexual functioning.

1. Mood. Various psychological symptoms, particularly depression, have often been attributed to hysterectomy (5). In the past, hysterectomy was thought to cause depression by the “emotional crisis” that resulted from a perceived loss of femininity, a fear of aging, the end of reproductive potential, and diminished sexuality (16). Indeed a “post-hysterectomy syndrome” has been described (17). However, there is much debate as to whether or not this condition exists or is instead the outcome of methodologically flawed retrospective studies in which the patient’s preoperative psychological status was unknown (11). Early cross-sectional retrospective studies (18, 19, 20) suggested that depression was a serious consequence of hysterectomy, and more recent studies (21-23) have continued to highlight postoperative psychological problems for some women. However, an important criticism of these studies, especially the earlier ones, is that they are retrospective or
anecdotal and it is unclear to what extent there were psychological problems present even before the operation.

Recent prospective studies do not support the psychologically detrimental effect of hysterectomy. Instead they report a relatively higher incidence of preoperative depressed mood (16-58%) that improved in most patients after hysterectomy, reducing the incidence to 8-32% (10, 14, 24). These studies have also suggested an association between preoperative and postoperative mood status (10, 14, 24-26), implying that the negative psychological sequelae reported in earlier cross-sectional studies are not a consequence of the operative procedure.

Thornton et al. (12) examined changes in negative mood states in women undergoing hysterectomy. They observed that although, for the majority of patients, levels of anxiety declined 2 months after hysterectomy, clinically significant levels were evident for a minority of patients, and remained elevated 6 months post-surgery. Furthermore, the authors found that the best predictor of postoperative anxiety was preoperative anxiety. Similarly, Ryan et al. (14) assessed psychological distress prospectively within two weeks of the operation and again post-operatively after 4 months and 14 months. This study confirmed the high incidence of psychological morbidity present in women who are about to undergo hysterectomy and supported the findings of Gath et al. (10). However, the level of symptomatology decreased in over half of the women post-operatively. This finding suggests that the operation itself likely did not cause adverse psychological sequelae. Rather, the authors observed that postoperative outcome was reflective of preoperative psychological adjustment.

Despite the accumulating pre- and postoperative data on the mood status of hysterectomy patients, there is little information on what specific personality constructs or individual attributes may make one more susceptible to negative postoperative psychological symptoms. Nathorst-Boos and Von Schoultz (21) observed greater "neuroticism" in those women with higher levels of depression post-surgery and Singh et al. (27) observed increased postoperative depression in women with higher preoperative expectations. Clearly, it will be important to better define what women are "at risk" for postoperative psychological difficulty.

It has been hypothesized that a past history of sexual assault may precipitate post-hysterectomy psychological sequelae (28). The rationale put forth is that hysterectomy, for the patient, may have a parallel with sexual abuse (e.g., violation of bodily boundaries, disruption of sexual identity, loss of control, and pain). Thus, the parallels between a hysterectomy and a sexual assault or abusive experience may stir up unresolved feelings from a prior sexual assault. Wukasch (29) conducted a cross-sectional study to examine the impact of a history of rape and/or incest on post-hysterectomy psychological adjustment. Ninety-two women were interviewed at several time points after their elective hysterectomy. The majority of patients (78%) had an abdominal hysterectomy. Comparing abused and non-abused women, Wukasch (29) found that abused women had a significantly higher level of depression in the first year after hysterectomy, but not in the second year after surgery. Thus, Wukasch (29) suggests that a history of sexual abuse may be a contributing factor to post-hysterectomy psychological sequelae in the subset of women who have been found to experience negative psychological symptoms post-surgery.

Women with past memories of an abusive experience might have a poor surgical adjustment that includes episodes of depression, panic attacks, or multiple physical complaints (29). Such problems may be attributed by the patient to surgery alone, especially when the history of sexual abuse was never discussed with the physician, let alone resolved through effective counseling (28). It has been suggested that women be asked specifically about a history of sexual abuse prior to undergoing hysterectomy, especially because this sensitive information is rarely volunteered. If a woman does have such a history, preoperative assessment and intervention regarding her thoughts and fears about the upcoming surgery (as well as the past sexual abuse) should be considered (29).

As major surgery, hysterectomy has direct and significant physical health effects, at least in the short term. A major challenge is to discriminate between those physical symptoms and reactions that are the physical effects of surgery and those that have psychological causes. Pain intensity and duration, for example, have been shown to be influenced by psychological determinants (30). Declining ovarian function has been put forward as another possible cause of incomplete remission of depression following hysterectomy, as the procedure is commonly performed during the perimenopausal age and may also result in premature ovarian failure even if the ovaries are conserved (11). Khastgir and Studd (11) reviewed evidence from basic neuroscience and clinical studies that suggest that the risk of depression is higher at the time of ovarian failure. It has been suggested that the use of HRT in these women may be beneficial. Controlled clinical trials have shown that estrogen enhances mood and improves depression scores following hysterectomy in a dose dependent manner (11).

There is ample evidence in prospective trials that the surgical cure of heavy painful periods, chronic pelvic pain, deep dyspareunia, and PMS will ease or remit depression in many women (11). Rarely, primary depression will be masked as gynecologic complaints. However, in some women where this is the case, depression is likely to continue or recur after hysterectomy. In fact, Thornton et al. (12) suggest that many women who are anxious may instead present as medical cases with gynecologic symptoms. If this is accurate, then presumably the focus of treatment should be on the psychological symptoms rather than the reported gynecologic symptoms of the patient. However, for the large majority of preoperatively anxious women in this study, there was a decline in anxiety symptoms post-surgery that was sustained for at least 6 months. So, there may be a subset of patients who present as anxious pre-surgically who may receive greater benefit from psychological care than surgical care.
2. Sexual functioning. The impact of hysterectomy on female sexuality has been reported to result in outcomes ranging from a positive influence, to a negative impact on women’s sexuality (31). There is still considerable debate as to what surgical variables affect sexuality and what these potential effects might be (32). Few previous studies have specified which aspects of the sexual response cycle (i.e., desire, arousal, orgasm) were studied and instead describe sexuality in broader terms (33).

In a study of 156 women undergoing gynecologic surgery, Gath et al. (10) did not find a decrease in sexual functioning following hysterectomy. Clarke et al. (34) found that while the frequency of sexual activity was the same before and after hysterectomy, the women’s reported sexual desire changed. Thus, it may be that a woman’s sexual desire is impacted, although her level of sexual activity does not change. Previous studies of sexual desire and hysterectomy are difficult to compare, with differences arising in three main areas: the definition of sexual desire, differing methods used to measure sexual desire, and the type of surgery (32). Certain hormonal factors may also be important to consider in research involving hysterectomy, as these hormones may influence sexual desire (32). The indication for surgery is also a factor that needs to be considered in future research studies. For example, Ferroni (35) reported that women who have surgery for malignant conditions might have different perceptions of the success of surgery as compared to those who were not at risk for cancer and had surgery for benign conditions.

The type of surgical procedure (i.e., abdominal vs. vaginal) could potentially affect sexuality after surgery, although the research data to date is mixed. For example, Bernhard (31) found that the scar left by abdominal hysterectomy was a concern for some women, whereas those women who had undergone vaginal hysterectomy rated lack of external scarring as a positive aspect of the surgical procedure. The presence of visible scarring could in turn affect body image, which could influence a woman’s desire to be sexual with her partner. However, Webb and Wilson-Barnett (36), from a review of 60 articles in medical journals, found that women recovering from hysterectomy might find their self-image radically changed even though there is no visible alteration to the body. Galver et al. (32) examined post-surgery sexual desire in women who had undergone abdominal or vaginal hysterectomy and compared their post-surgery self-report responses with women who had undergone nongynecologic abdominal surgery of a similar complexity. Women were assessed 6-18 months post-surgery. Unlike Bernhard (33), Galver et al. (32) observed no differences in sexual desire for gynecologic surgery versus nongynecologic surgery, or across the different types of hysterectomy. Furthermore, having bilateral oophorectomy in addition to hysterectomy also did not make a difference. Thus, additional research is needed to determine if the type of surgery plays a role in affecting body image, and in turn sexuality.

Research has also examined how a woman’s sexual partner can impact sexual functioning post-hysterectomy. Galver et al. (32) observed qualitatively that for the majority of women, their partners’ behavior was a major variable that affected sexual desire. For example, one woman in their study commented that, although she felt content after her hysterectomy, her husband viewed her as less of a woman and had stopped sexual contact since the procedure. In fact, the males in Bernhard’s (37) study had limited communication and understanding about most aspects of hysterectomy and believed negative myths about the procedure’s effects on sexual activity between them and their partner. The above studies highlight the importance of providing both the woman and her partner with information about hysterectomy. In particular, myths about hysterectomy need to be dispelled. In terms of future research, partner variables need to be considered in mediating the potential impact of surgery on sexuality.

Cultural differences in males’ perceptions of hysterectomy may also be important to consider in the clinical setting and in future research. Williams and Clark (38) conducted a qualitative study to elicit women’s perceptions of their experiences with hysterectomy, oophorectomy, and surgical menopause. Focus group and individual interviews were used to obtain information from a sample of women having hysterectomies for benign reasons. Many participants expressed a need for more information about women’s gynecologic health for themselves and their male partners. African American women, constituting two thirds of the sample in this study, expressed a need for change in the attitude and beliefs in the black community about women undergoing hysterectomy. They reported that many of their male family members and friends were unsupportive of their undergoing hysterectomy, and a few women revealed that they had not told a new partner about the surgery. Bernhard’s (37) qualitative study including 25 men (11 African-American and 14 Caucasian), revealed that many men did not know much about hysterectomy and perceived that it had negative effects on women. Some men believed there could be negative effects from hysterectomy for men as well, including an inability to perform sexually and a change in a man’s experience of sexual intercourse. Other concerns centered on disruption in the couple’s relationship, and three men, all African American, stated that they personally would leave a woman who had a hysterectomy because of the woman’s inability to have children and sexual concerns such as feeling less virile or masculine. Although the above qualitative studies provide valuable information, more well-designed studies of men’s views about hysterectomy are needed. Such studies could also examine the perceptions of hysterectomy held by males and females of other cultures.

CLINICAL APPLICATIONS

PREOPERATIVE SCREENING

Since many studies indicate a significant relationship between preoperative and postoperative psychological distress, what can the practitioner do pre-operatively to lessen the likelihood of adverse psychological sequelae following hysterectomy? Stockman (13) discusses several conditions that should raise “red flags”, leading the practitioner to consider further examination of a particular patient’s situation. When these “red flags” are present, it may be beneficial for the practitioner to consider
referring the patient to a behavioral health professional for further evaluation and perhaps necessary psychological treatment (13). According to Stockman (13), these potentially “high-risk” conditions include the following: numerous previous surgeries, chronic pelvic pain, a history or current evidence of a psychological disorder, and multiple indications for surgery.

The polysurgical patient is particularly vulnerable to negative psychological reactions to hysterectomy (39). The polysurgical patient is one who repeatedly requests, and usually obtains surgical treatment, typically for vague physical complaints without any verified organic pathology. Undergoing such repeated surgeries for nonorganic pathology may be suggestive of somatization disorder and, in fact, many studies of hysterectomy note a high pre-operative level of somatization disorder followed by denial of symptom relief post-hysterectomy (40). Therefore, a thorough medical history including reasons for previous surgeries as well as degree of post-surgical satisfaction, should be taken and behavioral health referrals made as necessary (13).

The patient reporting chronic pelvic pain is also at increased vulnerability to post-hysterectomy dissatisfaction (39). The patient with chronic pelvic pain may or may not have organic pathology, but similar to the polysurgical patient, they have made repeated visits to the doctor for treatment. Surgery for women with chronic pelvic pain typically also fails to provide permanent relief from physical complaints, and may in some rare cases lead to a perceived increase in pain (41). This in turn frequently leads to dissatisfaction with the medical treatment services provided. In fact, a cognitive-behavioral approach incorporating modifications in diet, exercise, and coping with pain and stress through cognitive restructuring, relaxation, and other techniques could provide more appropriate and permanent relief from chronic pelvic pain than hysterectomy (13, 42). In the only randomized prospective trial comparing multidisciplinary nonsurgical treatment to traditional medical management for women with chronic pelvic pain, women receiving the cognitive behavioral approach experienced significantly lower pain severity, disability, and total somatic symptomatology (43). In addition, many women suffering from chronic pelvic pain were victims of childhood sexual abuse (44). Thus, health care professionals working with chronic pelvic pain patients should always include questions on this topic in their routine history and consider a behavioral health referral prior to hysterectomy if abuse is an issue (13).

Patients with a previous history of psychiatric disorder, or who are currently displaying symptoms of psychopathology (in particular depression or anxiety) are also at increased risk for postoperative difficulties (45). More recent research indicates that a past history of sexual assault/abuse may also contribute to a patient being at increased risk for postoperative difficulties. Thus, a psychiatric history (including past history of sexual abuse) should be included as part of the routine physical health history prior to hysterectomy. To assess for the existence of current psychopathology, surgeons also need to be aware of some of the basic symptoms of depressive, anxiety, and somatization disorders as delineated by DSM-IV (46). Alternatively, an experienced behavioral health professional could routinely screen all potential hysterectomy patients for the presence of psychiatric disorder and abuse history, or a brief screening questionnaire could be used.

Finally, approximately one third of all hysterectomies are performed because of the “combined syndrome” (2). Thus, the physician should take into consideration whether there is a single medical condition necessitating hysterectomy, or whether the patient is presenting with a multitude of symptoms, of which no one is a sufficient indication for surgery. Identifying patients who have any of the above risk factors could help eliminate not only post-surgical psychological morbidity and dissatisfaction, but also some unnecessary surgeries (13). However, formal psychological assessment does not usually factor into the decision about hysterectomy (5). Thus, there is a need for research to devise and test combined approaches between gynecologists and psychologists in an effort to identify the patients for whom hysterectomy may not be the best solution for their physical complaints and symptoms. Incorporating such a pre-surgical screening process would be extremely beneficial for the patient as well as the practitioner.

PREOPERATIVE PREPARATION: Given the large number of hysterectomies performed each year, improving the outcome for those women who choose to undergo this procedure should also be an important consideration. One such approach is through pre-surgical preparation. Again, proper assessment of both the physical and psychological state of the potential hysterectomy patient is essential in order to avoid some of the negative psychological sequelae that may be associated with gynecologic surgery. Preoperative preparation tailored for each patient may decrease potential negative responses to surgery. Ideally, preoperative preparation would involve both the patient and her partner, with possible benefits to both. Preoperative education could consist of information regarding the surgical treatment procedures as well as the sexual implications of the surgery. Preoperative behavioral interventions such as relaxation techniques can help in reducing postoperative pain and anxiety. Understanding the patient’s psychological history and coping mechanisms can also be helpful. Coping skills can be taught if the individual has demonstrated ineffective coping in the past (13). Some studies of intervention strategies to influence the psychological outcome of hysterectomy have been conducted, though there are very few controlled studies to assess the value of psychological interventions with hysterectomy patients. The majority of studies to date have used an informational booklet or informational meeting with the patient prior to and/or after surgery as an intervention strategy. Direct intervention measures, such as the use of a highly informational preoperative preparatory booklet have been found to increase knowledge and decrease anxiety about surgery post-operatively (47). However, depending on one’s style of coping, other studies have found that too much preoperative
information may cause increased levels of anxiety in some individuals. Preoperative education regarding the role of the uterus in sexual functioning, and physiological changes which might affect sexuality post-operatively is considered crucial for both the patient and her sexual partner (48-49). Concurrent with this education should be an exploration of both partners' expectations and possible misconceptions of postoperative sexual functioning. Behavioral preparation, consisting of relaxation training and information about the sensations patients may experience with their surgery, was found to reduce hospital stay, pain, and pain medication use in surgical patients in one study (50).

Psychological outcome may be improved by providing information about the nature and effects of surgery and advice about cognitive behavioral strategies to deal with these. Ridgeway and Matthews (51) reported data on a sample of 60 women undergoing simple hysterectomy. Patients were assigned randomly to one of three types of psychological preparation prior to surgery. Twenty patients received information about the surgical procedure and its effects, 20 received instructions in cognitive coping techniques, and 20 were assigned to a control group who received comparable though non-specific attention. Information was given to each group in the form of a written manual on admission to the hospital. While in the hospital, the cognitive coping group received less postoperative analgesia than the other groups. The major benefits were that significant differences in household activity were reported by the three groups, with the cognitive-coping group performing the most household activities. Patients in the cognitive group also reported fewer worrying thoughts than other patients.

In sum, for those patients who do have a hysterectomy, it is important that there be appropriate and adequate information and advice preoperatively as well as cognitive-behavioral intervention if warranted. A multidisciplinary approach, which integrates the knowledge and expertise from both physical and behavioral health domains, is necessary in effectively preparing patients for hysterectomy.

**OOPHORECTOMY**

**MALIGNANT CONDITIONS** Ovarian cancer accounts for a small percentage of all cancers in women, but it has the fourth highest death rate (52). Cancer of the ovary is the most frustrating and discouraging of gynecologic diseases for physicians, due to the difficulty of diagnosing early stage disease (53). The diagnosis of ovarian cancer may well arise following a chance finding during a routine pelvic physical examination, a pelvic scan, or in the course of a fertility work-up. Typically there are very few symptoms until the tumor is large and the disease advanced. The diagnosis may therefore be totally unexpected and young women, in particular have difficulty with the diagnosis. The lack of warning signs may contribute to a sense of loss of control, as does the speed of events once a diagnosis is made and treatment is implemented. Early-stage disease is usually treated with a total abdominal hysterectomy, bilateral salpingo-oophorectomy, and omentectomy. Women with advanced disease may receive cytoreductive surgery or "debulking" where removal of primary tumors and metastases are the goal. Adjunctive chemotherapy and/or radiation treatments usually follow surgery (54).

Usually, the surgery consists of a total abdominal hysterectomy with bilateral salpingo-oophorectomy; however limited data are available on psychological aspects of oophorectomy in isolation because the majority of women undergoing this procedure simultaneously undergo hysterectomy (13). The circumstances of the woman undergoing hysterectomy and oophorectomy after being only recently diagnosed with ovarian cancer is vastly different from the woman who has for years been highly troubled by uterine problems (e.g., menorrhagia, dysmenorrhea, anemia, dyspareunia), and who therefore elects hysterectomy and bilateral oophorectomy in response to this benign but highly symptomatic disease process (55).

Following surgery for cancer of the ovaries, the area of a woman's life most adversely affected is her sexual functioning. Removal of both ovaries leads to sudden loss of estrogen in the premenopausal and perimenopausal woman. If estrogen is not replaced (or is not continued for the post-menopausal woman already on replacement therapy), sexual problems are more likely (55). Women may experience a variety of common sexual concerns including: reduced desire; reduced genital and non-genital arousal; difficulties with orgasm; and dyspareunia (painful intercourse). For women accustomed to a strong sexual desire, the marked change can be extremely distressing. Many women, for example, complain of "loss of feminality" (55). Younger women describe impaired sexual confidence once they are rendered infertile (55). This may be the case even if they had previously decided against further pregnancies; fertility loss may be seen as a loss of sexuality. For a variety of reasons, the woman's sexual partner may also experience sexual disinterest. The woman may misinterpret her partner's lowered desire and she may worry that she is no longer sexually attractive (55).

Women may be hesitant to ask questions about sexuality if their physicians do not specifically inquire about sexual health during checkups (55). The younger woman may wonder if she is justified in requesting help in this area given that doctors have "saved her life" (55). Similarly, the older woman might wonder if her doctors consider sexual well being to be an inappropriate concern at her age (55). Basson (55) has suggested the following intervention strategies in the prevention and management of sexual changes arising from surgery for ovarian cancer: 1. enable the woman to maintain some semblance of control (this also pertains to the dealing with the actual diagnosis of ovarian cancer), 2. provide information about sexuality, including the effects of sex hormones to both the patient and her partner, 3. provide adequate hormonal replacement (unless contraindicated), and 4. provide opportunity for sharing other women's experiences regarding continued but different sexuality.
PROPHYLACTIC  Research has also focused on psychological aspects of prophylactic oophorectomy in women with a family history of ovarian cancer. Psychological and functional (sexual and social) adjustment to hysterectomy and oophorectomy in women undergoing surgery for benign conditions has long since been a subject of debate. Early retrospective studies suggested that hysterectomy might increase the incidence of psychiatric disorder. Although Richards (56) described a "post-hysterectomy syndrome", characterized by depression, fatigue, and urinary symptoms, the relation between bilateral oophorectomy and symptomatology were not fully explored. Chakravarti et al. (57) suggested that bilateral oophorectomy in pre-menopausal women may create special problems, the most common being depression. Later prospective studies, however, suggested that any excess psychiatric morbidity following hysterectomy was due to an increased prevalence of psychological disorder prior to surgery (10, 40, 58). Again the incidence of concurrent oophorectomy in these studies is not always stated (59).

Psychological issues and factors affecting outcome after prophylactic oophorectomy may be different than those for women undergoing oophorectomy for malignant conditions. For women with a strong family history of ovarian cancer who choose to undergo oophorectomy for prophylactic reasons, adverse psychological effects may be less severe. On the other hand, since the severity of side effects after oophorectomy is unpredictable and could be worse than anticipated, there may be regrets about the removal of healthy tissue in the absence of gynecologic symptoms (59). To our knowledge, only one study to date has examined psychological adjustment to prophylactic oophorectomy. Specifically, Fry et al. (59) conducted a retrospective controlled study of women who had undergone prophylactic oophorectomy between one and 5 years prior. They included a comparison group of women at increased risk of ovarian cancer who had not undergone prophylactic oophorectomy. The group of women who had undergone prophylactic surgery reported greater interference with work and social activities due to physical or emotional problems and reported higher levels of generalized psychological distress. However, methodological issues such as the retrospective nature of the study leave open the question of whether the surgical group was psychologically equivalent to the non-surgical group prior to surgery. Thus, prospective studies examining psychological adjustment to prophylactic hysterectomy are needed.

The few studies to date on decision-making about prophylactic surgery indicate that anxiety and intrusive thoughts about developing cancer play a role in the decision-making process (60, 61). More recently, Fry et al. (59) identified cancer worry as the single best predictor of group membership, in that a woman was more likely to be in the surgical group if she rated this factor as more important. Thus, a woman’s desire to reduce her cancer worry may be an important factor in her decision to proceed to prophylactic oophorectomy. Meiser et al. (61) conducted a qualitative study and conducted in-depth interviews with 14 women, between 4 months and 7 years after prophylactic oophorectomy. They observed that women’s anxiety about developing ovarian cancer decreased and all but one of the women was satisfied with their decision to undergo oophorectomy. Hurley et al. (62) interviewed 94 women who were enrolled in an ongoing program for women with a family history of ovarian cancer. The authors found that among women in the sample who were currently considering prophylactic oophorectomy, the desire to reduce anxiety and uncertainty was the strongest predictor of interest in the procedure, independent of family history of perceived risk. In fact, several women in the lowest risk categories had some of the highest levels of intrusive ideation about their risk of ovarian cancer and some of the strongest interest in prophylactic oophorectomy. Hurley et al. (62) observed that desire to reduce anxiety/uncertainty was associated with higher perceived efficacy of prophylactic oophorectomy and in some cases, with the erroneous belief that the procedure offers 100% protection from ovarian cancer. In fact, data from one recent study indicates a nonsignificant reduction of ovarian cancer incidence of approximately 75% following prophylactic oophorectomy in women from families with a breast/ovarian cancer predisposition (63).

Based on the research findings to date regarding the role of anxiety with prophylactic oophorectomy, there may be reason to be concerned that some women are motivated solely by worry, opting for surgery unadvisedly. Additionally concerning is that some medical practitioners view anxiety as an indication for surgery. Thus, some practitioners may recommend the procedure to a patient if she appears “cancer phobic” even if she does not have a marked family history (62). Treating a woman’s anxiety about cancer through prophylactic surgery incurs medical consequences, both through the immediate impact of surgery and through the long-term effects of surgical menopause (62). Furthermore, prophylactic oophorectomy may not provide complete relief from anxiety because the literature to date suggests that the procedure substantially reduces, but does not completely eliminate, a woman’s risk of ovarian cancer (62).

There are also several ways that anxiety can interfere in making a fully informed decision to undergo prophylactic oophorectomy. High levels of anxiety and stress-related ideation have been shown to interfere with the ability to recall threat-related information (64). If a woman is distressed about her risk for cancer to the extent that she cannot recall important information related to the decision, her desire for immediate relief of her anxiety may interfere with a full consideration of the implications of undergoing prophylactic oophorectomy, such as the residual risk for peritoneal cancer and the need to weigh the risks and benefits of HRT. For women contemplating prophylactic mastectomy in Edinburgh and other centers within the United Kingdom, there is a strict protocol that includes rigorous psychological preparation for the procedure (59). This is not currently the case for prophylactic oophorectomy. However, Hurley et al. (62) suggest that for women considering prophylactic oophorectomy as a means to relieve their anxiety about developing ovarian cancer, a fully informed decision about whether to undergo prophylactic oophorectomy should include the...
following: 1. information about medical risks and benefits, 2. information about the nature of cancer-related anxiety and intrusive ideation, 3. how anxiety and intrusive ideation affect decision-making; and 4. the availability of effective treatments for these psychological conditions.

Incorporating a protocol for psychological preparation and screening prior to prophylactic oophorectomy appears warranted for some patients. Empirical studies have demonstrated that effective, short-term therapy exists for the management of anxiety and intrusive ideation, including cognitive-behavioral therapy (CBT) and exposure therapy. Targeted psychological interventions for cancer-related intrusive thoughts and anxiety offer a less physically invasive option for women whose primary indication for prophylactic surgery is fear of cancer. Thus, after undergoing a psychological intervention such as CBT, if a woman still wanted to undergo prophylactic oophorectomy, she may be in a better position to give informed consent. For women who are postponing prophylactic oophorectomy until they have completed childbearing, strategies for managing cancer-related intrusive thoughts may help them cope with their worries while they are waiting to undergo the procedure (62).

**VULVECTOMY** Cancer of the vulva is rare and mostly occurs among older women. Treatment is usually by wide local excision (i.e., removing the small, cancerous tissue and a surrounding area of healthy tissue) or may include a radical vulvectomy, which removes all labial tissue and often the clitoris. The lymph nodes in the groin are also removed to detect spread to this region. Skin flaps from the abdomen, buttocks, or thigh may be necessary. Typically, surgery is conducted to ensure that the cancer is completely removed, while also preserving as much healthy tissue as possible. However, this treatment can produce extreme genital disfigurement and many women have difficulty adjusting to the physical changes (65). Most women feel shocked and upset by the idea of having surgery to the vulva.

High rates of sexual dysfunction, loss of sexual desire, concerns about loss of femininity and lowered self-esteem may occur after any gynecologic procedure, however, this is particularly common when a gynecologic procedure has been necessitated by the discovery of cancer or where there is external disfigurement (66). Surgery to a part of the body that is normally associated with the most intimate and private area of our lives – sexuality and womanhood – can evoke many kinds of feelings – from shame to fear and anger. It may affect how one feels about sexuality and womanhood and may affect the patient’s needs and wants in relation to their sex life. In fact, 50-90% of women with vulvar cancer who are treated with radical surgery report cessation of sexual activity (65).

Corney et al. (66) retrospectively interviewed 105 women between 6 months and 5 years after undergoing radical gynecologic surgery (radical vulvectomy, Wertheim’s hysterectomy, or pelvic exenteration) for carcinoma of the cervix and vulva. The authors were interested in postoperative psychosocial and sexual problems. Corney et al. (66) observed a considerable degree of sexual dysfunction in the group as a whole. The younger women nearly all attempted intercourse but found many difficulties and much distress. Many of the single women felt unable to begin any new intimate relationships. Younger women also indicated more marital problems than the older women. The majority of women over age 65 did not resume intercourse after the operation; however, this group indicated few marital problems or distress. One criticism of this study is that the authors included patients with Wertheim’s hysterectomy, which is a less disfiguring surgery compared to radical vulvectomy or pelvic exenteration, thus making it difficult to draw conclusions based on the sample as a whole.

Marital relationships have been altered to varying degrees after radical gynecologic surgery. Sewell and Edwards (67) interviewed 46 women 6 months after surgery and found that younger patients reported severe deterioration in their relationships while the older women reported only minor changes or even some improvement. This may be attributed to the fact that younger women especially may struggle with body image difficulties after undergoing radical vulvectomy. Understandably, if a woman is not comfortable about the way her body looks, it may affect her feelings about sex and intimacy. The woman who has undergone radical vulvectomy may also begin to worry about her partners’ sexual feelings towards her. A woman may be concerned that she may be rejected by her partner or by any potential new partner because of the changes to her body (66).

Research on psychological aspects of vulvectomy is severely lacking. In fact, psychological, social, and sexual adaptation in women following mutilating surgery of the external genitalia is one of the least studied areas of oncologic psychology. There are several reasons for this: 1) there is a lower percentage of vulvar carcinoma than other major neoplasms of the female genitalia; 2) the patient population is elderly, with the average age being 65 years and more than 30% of these patients being over 70 years old (68); and 3) there may also be a failure to recognize psychological aspects of vulvectomy. Older studies have observed a considerable disruption in sexual activity post-surgery, such that engagement in sexual intercourse is permanently stopped in about half of the patients (68-69). Furthermore, women report decreased libido (68-69), an increased depression (69), a disruption of body image (65), and a large deterioration in quality of life (65, 68). Quality of life has been so altered that post-vulvectomy young women may even develop suicidal inclinations (70). The majority of the above studies, however, were carried out on older women, not giving a clear picture of post-vulvectomy psychological effects. More recently, surgery of the vulva has become less aggressive which has resulted in less postoperative morbidity and no deterioration of survival rates (52).

Although there are limited research data on the quality of life in patients who undergo mutilating surgery of the external genitalia, the existing data are convergent: radical vulvectomy can have...
severe psychological and sexual consequences for the patient. Thus, the needs of these patients need to be taken seriously. Tamburini et al. (68) emphasize the importance of telling the patient about the treatment as well as its consequences, including sexual ones. It may be important for these patients to discuss their sexuality during the preoperative period and immediately post-operatively (71). Corney et al. (66) reported that many women who had undergone gynecologic surgery would have liked more information on the aftereffects of the operation, including physical, sexual, and emotional aspects. These women also indicated their need for emotional support, discussion and counseling, and a desire for their partners to be included in the discussions. Research in this area is clearly needed in order to develop effective psychological assessments and interventions for these women.

**PELVIC EXENTERATION** Pelvic exenteration (removal of the pelvic viscera including the uterus, tubes, vagina and/or vulva, ovaries, bladder, and/or rectum) may also be necessary for the removal of more advanced tumors. Because this surgery is so extensive, vaginal reconstruction may be required. Cessation of sexual activities has been reported for the majority of women whose cancer has been treated with pelvic exenteration (65, 66). Thus, similar to radical vulvectomy, pelvic exenteration also appears to adversely affect sexual functioning. Very early, in view of the magnitude of pelvic exenteration and the resulting physical changes, surgeons recognized the need for an intensive psychological preparation of the patient, and whenever possible, family members. In fact, Lamont et al. (74), described a comprehensive program for the psychosocial rehabilitation of pelvic exenteration patients and reported good postoperative adjustment.

Few studies have specifically examined the psychosocial consequences of pelvic exenteration (65, 72-74) and these early studies have not yet been replicated in more recent years (75). This may be due to the relative infrequency of pelvic exenteration. As a result, existing studies have very small sample sizes and the issues they address are limited, making it difficult to draw conclusions about the psychological impact of pelvic exenteration. We can speculate that the psychological impact of pelvic exenteration may be similar in some respects to radical vulvectomy, however, more research is clearly needed.

**SUMMARY AND CONCLUSIONS** This paper reviewed the psychological aspects of four types of gynecologic surgery. Research on psychological aspects of other types of gynecologic surgeries is nonexistent. It is clear from our review of the literature that more recent research is needed examining psychological aspects of gynecologic surgery as well as the effectiveness of pre-surgical psychological screening and intervention. Much of the existing literature is outdated. Nevertheless, existing data highlight the importance of psychological factors in patients’ adjustment to gynecologic surgery. This importance has become more widely recognized in other types of surgeries. In fact, the National Comprehensive Cancer Network (NCCN) has formulated specific guidelines for the management of psychosocial distress (76).

These guidelines advocate screening all oncology patients at their initial clinic visit for the presence of psychological distress. Furthermore, they outline guidelines for when to refer an oncology patient to a mental health professional. Cancer centers across the country are now increasingly adding psychological components to address these aspects of their patients needs. It would seem reasonable to extend such psychological care and research to the gynecologic surgery patient. Thus, there is not only a need for more recent research in this area, but also a need for the results of this research to be applied to patient care.

It is clear that the bulk of the research literature on psychological aspects of gynecologic surgery stems from hysterectomy for benign conditions. However, we cannot be certain how the hysterectomy experience may be different for the woman being treated for a malignant condition. The hysterectomy literature, while fraught with controversy and methodological limitations, has, for the most part, concluded that hysterectomy does not in and of itself cause psychological distress. Rather, certain pre-surgical “risk factors” increase the likelihood of adverse psychological sequelae following hysterectomy. Limited data are available on psychological aspects of oophorectomy in isolation because the majority of women undergoing this procedure simultaneously undergo hysterectomy. Rather, more recent research has focused on the psychological factors contributing to the decision to undergo prophylactic oophorectomy. Limited data are available on psychological aspects of vulvectomy and pelvic exenteration due to the low frequency of these surgical procedures. However, even based upon the relatively limited research literature on oophorectomy, vulvectomy, and pelvic exenteration it is apparent that similar psychological difficulties may be seen as with hysterectomy. Specifically, difficulties with depression, anxiety, body image, sexual functioning, and the couple’s relationship may be apparent for some patients, although to varying degrees depending upon the type of surgery.

Patients would benefit from increased awareness on the part of surgeons and other medical professionals for certain pre-existing psychological and psychosocial problems (i.e., a history or current evidence of depression, anxiety, body image difficulties, sexual dysfunction) in the preoperative period. In the case of hysterectomy, numerous surgeries, chronic pelvic pain, and multiple indications for surgery may also be red flags. The presence of any of the above risk factors may increase the likelihood of post-surgical psychological adjustment difficulties. Thus, an awareness of and sensitivity to these factors may optimize patients’ postoperative adjustment. Alternatively, the use of a psychological screening measure to identify these risk factors in the preoperative period may also be help the surgeon in identifying potentially “at risk” patients, and referring them for further psychological evaluation and treatment with an experienced behavioral health professional. Such treatment would be tailored to the individual woman’s (or couple’s) needs and could involve supportive counseling, relaxation techniques, and cognitive-behavioral techniques to enhance coping and improve postoperative adjustment. Clearly, research is

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needed to determine the efficacy of such interventions with a gynecologic surgery population. Behavioral health professionals can assist surgeons in these endeavors addressing the psychological and psychosocial needs of both the woman and her family. The major challenge will be expanding and translating the existing research literature on psychological aspects of gynecologic surgery into clinical practice.

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