

# Psychological distress in women with breast and gynecological cancer treated with radical surgery

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## Abstract

**Objectives:** The objective of this study is to compare psychological distress (body image disturbance, self-esteem, depression, and anxiety) in women with breast or gynecological cancer treated by radical surgery. Additionally, another objective is to analyze the association between psychological distress and sociodemographic characteristics, medical history, and social support to produce a prediction model for the outcome measures.

**Methods:** A cross-sectional study was carried out with 100 women who had undergone radical surgery for breast or gynecological cancer. Both groups were divided into the following: younger than 50 years old and 50 years old or older. Body Image Scale, Rosenberg's Self-Esteem Scale, Beck Depression Inventory, and Beck Anxiety Inventory were used.

**Results:** Age had a significant main effect on psychological distress but the type of cancer did not. Younger women showed significantly greater distress than older women ( $p$ -values < 0.001). A significant interaction between age and type of cancer was found, indicating that older women with breast cancer had worse body image and more depression than those with gynecological cancer ( $p$ -values 0.001); no significant differences were found between younger groups.

The prediction model for increased body image disturbance and depression included the joint effect of the following variables: being younger, inactive occupational status, and post-adjuvant therapy side effects. For lower self-esteem, the variables were: being younger, post-adjuvant therapy side effects, and dissatisfaction with social support. And for higher anxiety, the sole variable included was post-adjuvant therapy side effects.

**Conclusions:** Both mastectomy and hysterectomy/oophorectomy cause similar psychological distress in younger women, but mastectomy causes greater distress in older women than hysterectomy/oophorectomy.

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## Background

Breast cancer (BC) and gynecological cancer (GC) are two of the most commonly diagnosed cancers in women worldwide [1]. In western countries, cancer survival rates have increased over the past 25 years as a result of early detection and more effective treatments [1–4]. However, survival is not synonymous with quality of life and welfare, and many survivors experience significant psychological distress (PD) for years, as a consequence of the disease and its treatments [5–8].

To date, research into distress due to cancers affecting women has primarily focused on BC [9], concluding that mastectomy may cause greater depression/anxiety [10,11], more body image disturbance (BID) [12–16], and lower self-esteem [17,18] than breast-conserving surgery. Comparatively, GC has received much less attention [19], despite the high proportion of hysterectomy/oophorectomy patients reporting severe emotional symptoms [20–22].

Consequently, it is of interest to explore which condition causes greater PD among women, especially

as the loss of any of these organs means the partial loss of female identity.

However, there is still scant information about differential effects of radical surgery in women with BC or GC. The few published studies suggest that mastectomy patients have more depression than hysterectomy patients [8,23], whereas hysterectomy patients have more sexual and relationship problems than mastectomy patients; BID seems to affect both groups equally [8]. Furthermore, research suggests that age may be particularly relevant in PD, showing that younger women (under 50 years old) tend to have better physical functioning than older women but worse emotional well-being and quality of life [24–30].

This paper seeks to provide new data in this scenario, comparing PD (BID, self-esteem, depression, and anxiety) among women with BC and women with GC, both treated with radical surgery, considering the influence of age (younger than 50 vs. 50 years old or older). This cutoff point has been widely used, possibly as most cancers occur in those aged around 50 years or older [3,4,30] and enables researchers to form groups to compare

younger (proxy premenopausal) and older (broadly postmenopausal) women [25,31–33]. Furthermore, we analyzed possible associations between sociodemographic characteristics, medical history, and social support with PD. Finally, we conducted a multiple regression analysis to produce a good predictive model for the outcome measures.

Mastectomy and hysterectomy/oophorectomy are very stressful events for women, as they involve the loss of body parts associated with womanhood and femininity, causing significant changes in women's bodies. This generates a large discrepancy between body image (BI) before disease, ideal standards, and the new corporality, therefore questioning the woman's gendered identity [8,34,35]. Regarding their post-surgery body, most experience feelings of mutilation, strangeness, loss of physical and sexual attractiveness, BI concerns, and emotional distress [35,36].

Physical attractiveness is highly valued in western societies, where sociocultural norms of ideal bodies are imposed [37,38]. Therefore, we expected mastectomy women to experience more PD than hysterectomy/oophorectomy women, as the loss of a breast/breasts is an obvious daily reminder of their appearance and disease.

According to previous studies [37–41], we also expected to see more PD among younger than among older women regardless of the type of cancer or surgery. It is likely that the loss of reproductive organs or breasts has a larger impact on younger than among older women as it affects directly their potential life plans. Additionally, research shows that the importance of body appearance tends to decrease with increasing age [42].

## Methods

### Participants

A cross-sectional study was carried out in the Regional Cancer Center, University General Hospital 'Gregorio Marañón' (Madrid, Spain) with 100 women (aged 18–83 years), who had undergone radical surgery for BC or GC.

Eligibility criteria included the following: women over 18 years old with a confirmed diagnosis of primary BC or GC (endometrium, cervix, or ovarian), stages T1–T3; had undergone mastectomy or hysterectomy/oophorectomy, respectively; were on no current cancer therapy other than hormone therapy; had finished adjuvant treatment 24 months (maximum) prior to the study; had menopause (by age or secondary to treatment), and signed informed consent. Exclusion criteria were the following: not born in Spain, stage T4, had a previous diagnosis of primary cancer in a different location, and suffering severe chronic diseases or significant physical/cognitive disabilities that might invalidate informed consent or interview outcomes.

The patients were consecutively selected and distributed into the following groups: 'BC group', 50 patients with BC treated by mastectomy, divided into 'younger' (younger than 50 years old;  $n=29$ ) and 'older' (50 years old or older;  $n=21$ ); and 'GC group', 50 patients with GC treated by hysterectomy/oophorectomy, also divided into 'younger' ( $n=28$ ) and 'older' ( $n=22$ ).

### Measures

*Body image disturbance* was evaluated using the Body Image Scale (BIS) [43], a 10-item instrument that assesses concerns about BI in cancer patients. BIS has four response options, with a total score ranging 0–30 points, with higher scores meaning greater concerns.

To our knowledge, BIS had not been translated and adapted to Spanish; so, we proceeded with a back-translation technique by two English-speaking natives. Both translations were reviewed by an expert panel and merged into a single version. A pilot test was conducted on a reduced sample of patients (excluded from study) to assess comprehension of the translation, together with a brief questionnaire to ascertain the difficulties encountered. The scale was adapted, and the final version was used; Cronbach's Alpha was 0.96.

*Self-esteem* was evaluated with the Spanish version of the Rosenberg's Self-Esteem Scale [44,45]. Rosenberg's Self-Esteem Scale comprises a 10-item with a four-point intensity scale, with a total score ranging 0–40 points. Higher scores indicate better self-esteem. Cronbach's Alpha was 0.96.

*Depression and anxiety* were assessed with the Spanish version of the Beck Depression Inventory [46–48] and the Beck Anxiety Inventory [49,50], respectively. Both instruments consist of 21 items, and each of these rates on a four-point intensity scale; total score ranges 0–63 points. Higher scores reflect more severe depression or anxiety. Cronbach's Alpha was 0.96 and 0.92, respectively.

*Sociodemographic* data were obtained through an *ad hoc* questionnaire to ascertain the following: age, marital status (with/without a partner), children (number and plans of having more), education (years), occupation [managerial/professional (professional, technical personnel, executive, or manager); intermediate professions (staff of administrative services, own account workers, etc.); housemaids, homemakers], occupational status (active: employed; inactive: unemployed, retired), and socioeconomic status (self-ranking measure on a 3-point Likert scale: low–medium–high).

*Medical information* was obtained from the participants and completed with medical records, including the following: type of cancer, surgery, disease stage, time since diagnosis, antineoplastic treatment history, breast reconstruction, post-adjuvant therapy side effects, menopausal complaints, and disease recurrence.

*Social support* was measured through two questions: 'How much support do you feel you have received from the people around you (family, friends, coworkers, and others) during your disease? (ranging 0–10)', and 'do you feel satisfied with the social support received during your oncological process? (yes/no)'.

### Procedure

Potential participants were approached by oncologists during routine hospital checkups and invited to participate. Women who agreed to take part in the study were referred to the first author for assessment. Before evaluation, the researcher presented the study, answered the participant's questions, and presented the consent form for signature. The average time spent on administration was 30–45 min. Patients were recruited consecutively until the sample size was sufficient for each group. Data collection was conducted between September 2005 and January 2007.

All patients provided an informed consent according to the hospital ethic guidelines. Research protocol followed ethical standards as outlined in the Helsinki Declaration.

### Statistical analysis

Descriptive analysis was performed for each of the variables studied. Quantitative variables were analyzed using two-way analysis of variance with 'type of cancer' (BC/GC) and 'age' (younger/older) as factors, and PD measures as dependent variables. We tested for assumptions of normality and homogeneity of variances; if they were not satisfied, we performed the Kruskal–Wallis test with *post hoc* calculations. Qualitative variables were analyzed using Pearson's Chi-square test and Cramer's V. Effect size using Cohen's *d* was calculated for the outcome variables and significant differences.

Correlation analyses were conducted among socio-demographic, medical and social support variables, and PD measures, and also between the PD measures. Subsequently, a multiple regression analysis using the Enter method was performed to evaluate the joint influence of independent variables (socio-demographic, medical history, and social support) on each PD variable. Variables significantly associated with outcome measures in the correlation analysis were entered in the multiple regression analysis.

Statistical significance was set at  $p$ -value < 0.05. Statistical processing of the data was performed with SPSS software (version 19.0, SPSS Inc., Chicago, Illinois) [51].

## Results

### Descriptive data

Patient characteristics are shown in Table 1. The mean age of participants was 48.59 years (SD = 13.79). There

**Table 1.** Sample characteristics

	Breast cancer	Gynecological cancer
	( <i>n</i> = 50)	( <i>n</i> = 50)
Age		
Global sample	48.36 (13.27), 27–83	48.82 (14.43), 19–75
Younger (<50 years)	39.41 (6.49), 27–49	37.79 (7.32), 19–48
Older (≥50 years)	60.71 (9.81), 50–83	62.86 (6.96), 50–75
Marital status (%)		
Without partner	38	34
Children (number)	1.80 (1.62)	1.66 (1.52)
Planning more children (no) (%)	65.5 (younger)	50 (younger)
Education (years)	13.06 (6.23)	14.20 (6.52)
Occupation (%)		
Managerial/professional	18	24
Intermediate professions	46	42
Housemaids	4	10
Housemakers	32	24
Occupational status (%)		
Active	30	34
Socioeconomic status (%)		
Low	52	42
Medium	32	36
High	16	22
Disease stage (%)		
T1	52	32
T2	28	48
T3	20	20
Time since diagnosis (months)	15.64 (7.97)	14.44 (7.91)
Antineoplastic treatment (%)		
One treatment	46	56
Two treatment	42	40
Three treatment	12	4
Side effects	2.94 (2.46)	2.94 (1.93)
post-adjuvant therapy		
Menopausal complaints	3.54 (3.25)	4.24 (2.50)
Disease recurrence (yes) (%)	20	22
Social support (amount)	5.13 (2.57)	6.33 (2.14)
Satisfaction social support (yes) (%)	76	70

Mean (standard deviation), range, and percentages (%).

were statistically significant differences between sociodemographic variables that reflect the nature of each specific age group. Thus, younger women tended to have fewer children than older ones ( $F(1.96) = 60.42$ ,  $p < 0.001$ ,  $\eta^2 = 0.39$ ), had spent significantly more years in education ( $F(1.96) = 40.02$ ,  $p < 0.001$ ,  $\eta^2 = 0.29$ ), and were more likely to perform managerial or professional roles than older women ( $\chi^2(9) = 41.36$ ,  $p < 0.001$ ,  $V = 0.37$ ).

In terms of medical data, the number of months since diagnosis for the overall sample ranged from 3–41 (mean = 15.04 (SD = 7.92), median = 13); T1/T2 were the most common stages of disease (42% and 38%, respectively). There were no statistically significant differences for medical variables between groups.

In the BC group, 22% of women had breast reconstruction, 40% had planned to do so, whereas 38% did not

contemplate it. A higher proportion of younger women had undergone reconstruction or had plans to do so compared with older ones (27.6% vs. 14.3%; 48.3% vs. 28.6%, respectively), whereas older women decided against reconstruction more often than younger women (57.1% vs. 24.1%) ( $\chi^2(2)=5.65$ ,  $p=0.059$ ,  $V=0.34$ ). In the GC group, the most frequently affected organ was the uterus (58% vs. 42% ovarian).

With regard to social support, there was a significant effect of the type of cancer and an interaction effect between the age and type of cancer ( $F(1,96)=4.47$ ,  $p=0.037$ ,  $\eta^2=0.04$ ). Thus, the older GC group had received significantly more social support than the older BC group, and the younger BC group more than the older BC group. Furthermore, a higher percentage of older women were satisfied with the social support received compared with younger women ( $\chi^2(3)=9.64$ ,  $p=0.022$ ,  $V=0.31$ ).

### Psychological distress

Age was found to have a significant main effect on PD variables but the type of cancer was not (Table 2). Thus, younger women showed significantly greater distress than older ones ( $p$ -values  $< 0.001$ ), but there were no significant differences between breast and GC groups. Data also showed a significant interaction effect between age and type of cancer, indicating that older BC women had worse BI and more depression than their GC counterparts ( $p$ -values  $< 0.001$ ), but no significant differences were found in these two variables between younger groups ( $p=0.711$ ;  $p=0.171$ , respectively). Also, we found a marginally significant interaction for self-esteem ( $p=0.059$ ), showing a similar pattern to the previous results: the older BC group had less self-esteem than the older GC group ( $p=0.067$ ).

The correlation matrix (Table 3) showed that being younger, having fewer children, planning to have more children, having a higher educational level, having an

inactive occupational status, suffering post-adjuvant therapy side effects, and being dissatisfied with social support were associated with more PD. All PD measures were strongly interrelated ( $p$ -values  $< 0.001$ ), showing a marked comorbidity between BID, lower self-esteem, high depression, and high anxiety.

Finally, in the multiple regression analysis (Table 4), the percentage of variance explained by the four prediction models ranged 19.4%–51.5%. The variables that jointly predict higher BID and depression included in the model were: being younger, inactive occupational status, and post-adjuvant therapy side effects. For lower self-esteem, the variables included were: being younger, post-adjuvant therapy side effects, and dissatisfaction with social support. And for higher anxiety, the sole variable included was post-adjuvant therapy side effects.

### Discussion

Overall, our data suggest that age plays a larger role than cancer type/surgery, given that it was found to have a significant main effect on all PD domains, whereas the type of cancer did not. As expected, younger women had greater PD than older ones, regardless of the type of cancer they had or surgery they underwent. These findings are consistent with previous research showing a consistent pattern of younger women having greater psychological morbidity and poorer quality of life than older women in both, BC [12,25,29,31,39] and GC [21,23,24,40,52]. Nevertheless, these age-related differences are not surprising, if one considers that younger patients must suddenly face a series of anomalous changes not connected to their current stage in life, such as the loss of fertility, menopause symptoms, and problems with relationships, sexual functioning, and BI [31,36]. These factors may explain the greater distress experienced by younger rather than older women [25,52].

**Table 2.** Psychological distress

	Breast cancer			Gynecological cancer			Statistical
	Total (n=50)	Younger (n=29)	Older (n=21)	Total (n=50)	Younger (n=28)	Older (n=22)	
Body image disturbance	17.50 (10.63)	22.07 (8.16) <sup>a</sup>	11.19 (10.57) <sup>ac</sup>	13.56 (11.30)	21.11 (8.34) <sup>b</sup>	3.95 (6.00) <sup>bc</sup>	Kruskal–Wallis(3) = 47.385 $p < 0.001$
Self-esteem	24.90 (8.95)	22.34 (8.83) <sup>a</sup>	28.43 (8.03) <sup>a</sup>	26.14 (10.53)	20.57 (10.23) <sup>b</sup>	33.23 (5.49) <sup>b</sup>	$F^1(1,96) = 0.776$ $p = 0.380$ $F^2(1,96) = 29.794$ $p < 0.001$ $F^3(1,96) = 3.664$ $p = 0.059$
Depression	22.88 (16.57)	29.28 (15.90) <sup>a</sup>	14.05 (13.34) <sup>ac</sup>	22.64 (19.90)	34.64 (17.11) <sup>b</sup>	7.36 (10.52) <sup>bc</sup>	$F^1(1,96) = 0.049$ $p = 0.357$ $F^2(1,96) = 50.915$ $p < 0.001$ $F^3(1,96) = 4.092$ $p = 0.027$
Anxiety	18.86 (13.01)	23.52 (12.89) <sup>a</sup>	12.43 (10.35) <sup>a</sup>	15.94 (13.61)	19.93 (15.11) <sup>b</sup>	10.86 (9.50) <sup>b</sup>	$F^1(1,96) = 0.824$ $p = 0.366$ $F^2(1,96) = 14.453$ $p < 0.001$ $F^3(1,96) = 0.370$ $p = 0.544$

Mean (standard deviation).

$F^1$ , type of cancer;  $F^2$ , age;  $F^3$ , interaction.

<sup>a</sup>Significant differences between younger and older BC groups.

<sup>b</sup>Significant differences between younger and older GC groups.

<sup>c</sup>Significant differences between older BC and older GC groups.

**Table 3.** Correlations between psychological distress and sample characteristics

	Body image disturbance	Self-esteem	Depression	Anxiety
Age	-0.643**	0.440**	-0.559**	-0.327**
Marital status (with/without partner)	-0.011	-0.060	0.056	0.086
Children (number)	-0.524**	0.290**	-0.419**	-0.348**
Planning more children (no/yes)	0.425**	-0.409**	0.516**	0.250*
Education (years)	0.372**	-0.216*	0.295**	0.204**
Occupational status (inactive/active)	0.458**	-0.290**	0.404**	0.283**
Socioeconomic status <sup>a</sup> (low/medium/high)	0.114	-0.023	0.104	0.083
Cancer (gynecological/breast)	0.178	-0.064	0.007	0.110
Disease stage <sup>a</sup> (T1/T2/T3)	-0.118	0.085	-0.043	-0.110
Time since diagnosis	-0.013	0.113	-0.019	-0.148
Side effects post-adjuvant therapy	0.336**	-0.351**	0.481**	0.334**
Menopausal complaints	0.127	-0.141	0.087	0.106
Disease recurrence (no/yes)	0.095	-0.002	0.122	0.018
Social support (amount)	-0.038	0.105	-0.047	0.011
Satisfaction social support (no/yes)	-0.242	0.349**	-0.250*	-0.192
Self-esteem	-0.733**			
Depression	0.832**	-0.832**		
Anxiety	0.564**	-0.473**	0.491**	

<sup>a</sup>Spearman correlation.

\**p* < 0.05.

\*\**p* < 0.01.

**Table 4.** Multiple regression for psychological distress variables

	Adjusted R <sup>2</sup>	F	B(95% CI)	SE	Beta	sr <sup>2</sup>
Body image disturbance	51.5%	18.34				
Constant			24.27 (13.39–35.15)	5.48		
Age			-0.37 (-0.54–(-0.20))	0.84	-0.46***	-0.31
Occupational status			5.87 (2.48–9.26)	1.71	0.26**	0.24
Side effects post-adjuvant therapy			0.65 (-0.001–1.14)	0.33	0.15*	0.14
Self-esteem	28.9%	7.62				
Constant			15.55 (4.00–27.10)	5.82		
Age			0.26 (0.08–0.44)	0.09	0.37**	-0.25
Side effects post-adjuvant therapy			-0.84 (-1.54–(-0.15))	0.35	-0.21*	-0.21
Satisfaction with social support			5.35 (1.49–9.20)	1.94	0.25**	0.24
Depression	45.0%	14.35				
Constant			39.00 (19.89–58.11)	9.62		
Age			-0.58 (-0.87–(-0.29))	1.21	-0.44***	-0.29
Occupational status			6.43 (0.48–12.37)	2.99	1.18*	0.16
Side effects post-adjuvant therapy			2.39 (1.24–3.54)	0.58	0.32***	0.31
Anxiety	19.4%	4.93				
Constant			18.13 (1.27–34.98)	8.49		
Side effects post-adjuvant therapy			1.36 (0.34–2.37)	0.51	0.25**	0.24

Model adjusted for age, children, planning to have more children, education, occupational status, post-adjuvant therapy side effects, and satisfaction with social support.

SE, standard error; sr<sup>2</sup>, squared semi-partial correlation.

\**p* < 0.05.

\*\**p* < 0.01.

\*\*\**p* < 0.001.

Interestingly, our results also showed a significant interaction between age and type of cancer/surgery for BI and depression and a marginally significant interaction for self-esteem, indicating that older mastectomy women had worse BI, more depression, and lesser self-esteem than older hysterectomy/oophorectomy women. These

findings suggest that dealing with the loss of the breast can be a major challenge for older women than dealing with the loss of the uterus/ovaries. One possible explanation is that mastectomy produces bodily changes that are hard to ignore, as they are visible daily [36], whereas hysterectomy/oophorectomy does not create any visible body



disfigurement [8]. Thus, mastectomy women are more likely to become self-conscious of their body and physical appearance and to experience problems with their BI compared with hysterectomy/oophorectomy women. In our study, the magnitude of BID score among older mastectomy patients was high compared with hysterectomy/oophorectomy patients and to the scores reported for several BC samples in other studies using the same measure scale [32,43,53], therefore suggesting that BI is a major issue for these women regardless of whether or not they have fewer concerns about BI than younger patients. Other researchers have found that BI is an important issue for older women who underwent mastectomy, indicating that prior assumptions about BI not being important for them may not always be true [54]. Similarly to other studies [38,55], our results showed that BID was strongly correlated with depressive symptoms and poor self-esteem, which would help to understand why women in the older mastectomy group present more depression and lower self-esteem than their GC counterparts.

Another key issue is the role of social support. Our findings showed that older BC group had received significantly less support than the older GC group; indeed, compared with the others, this group received the least amount of support. Given that social support has been widely acknowledged as a protective factor for PD and mental well-being [56–58] and that lower levels of social support have been associated with high levels of depression [59], it is reasonable to think that the lower support received could have contributed to increased psychological problems for these women. Our data do not confirm this assumption because we found no relationship between the amount of support received and PD measures. By contrast, satisfaction with social support was significantly associated with fewer BI problems, less depression, and better self-esteem, but there were no statistically significant differences between groups (older BC vs. older CG) in the proportion of women who were satisfied with the support received. Thus, it seems that neither the amount of support nor satisfaction with it can explain the differences found in depression and BI among older BC and older GC groups.

In the multiple regression analysis, few sociodemographic and medical factors were related to PD; inactive occupational status predicted more BID and depression, whereas satisfaction with social support was a predictor for better self-esteem; younger age and post-adjuvant therapy side effects were related to all PD domains, predicting poor outcomes. Several studies have shown that physical sequelae from cancer treatment affect adversely the quality of life [39], emotional state [21,23], self-esteem [60], and BI [61]. Thus, it appears that side effects from adjuvant therapy could be a major potential disadvantage for women in their daily life, which may

affect their psychological equilibrium, producing more distress. As mentioned before, and similarly to other studies [41], we found no relationship between the amount of perceived social support and PD measures; instead, a relationship was seen between satisfaction with social support and better self-esteem. This suggests that social support should fit the needs of the person in order to be beneficial for their psychological status [61]. Consequently, and given the association between negative self-esteem and depressive symptoms [59] and between higher self-esteem and mental well-being [56], health services should aim to meet the specific needs of women undergoing mastectomy and hysterectomy/oophorectomy in order to target unmet needs and provide quality services [58,62].

This study has several limitations. First, our sample may not be representative of the general population of women with BC or GC because of the incidental and relatively small sample recruited from a single hospital center. Second, the cross-sectional design used restricts the generalizability of our findings to similar groups of cancer survivors. Third, we have not been able to obtain reliable data about the overall response rate and characteristics of patients who refused to participate. This was due to the fact that eligible participants were approached by different oncologists during their routine clinical practice, and only some of them recorded how many accepted or declined the invitation to participate. Finally, we did not consider time since surgery or since completion of treatment; thus, it is not possible to know if these factors have influenced the results. Nevertheless, we believe that we have controlled this through the inclusion criteria required to participate in the study and the variable time since diagnosis, which showed no effect on any of the measures of PD. Likewise, other researchers have not found any relationship between time since diagnosis and different measures of distress or quality of life [21,31] or between time since the end of treatment and BID [36,39].

Despite these limitations, to our knowledge, this is the first report which compares the PD in women with BC or GC treated with radical surgery, considering the influence of age and other sociodemographic, medical, and social factors. Furthermore, our study shows some results worthy of consideration, as both mastectomy and hysterectomy/oophorectomy surgeries produce more distress in younger women compared with older women; mastectomy is associated with a higher BID and depression in older women (above 50 years old) than hysterectomy/oophorectomy; that suffering side effects from adjuvant treatments increases PD, whereas remaining occupationally active decreases depressive symptoms, and being satisfied with the social support received increases self-esteem. These findings have some

implications for clinical care. First, to improve the mental health status of BC or GC survivors, healthcare providers should pay more attention to the psychological effects of surgery and of adjuvant treatments in follow-up services. Second, oncology professionals should be more aware of the importance of BI concerns in older women with BC and offer them the same treatment options as they do to younger women, especially when taking into account that clinician preferences for mastectomy may be significantly influenced by increasing patient age [63]. Finally, younger women with BC or GC

may require specific interventions to prepare them to face the challenges of radical surgery and adjuvant treatments.

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