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## Assessment of Distress Among Chemotherapy Patients: A Comparative Study of Gender

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**Abstract:** The aim of this study was to evaluate, analyze and understand distress levels experienced during chemotherapy treatment, comparing men and women. The sample was composed of 328 patients recruited from an Oncology center. Data collection included the application of the Distress Thermometer at three stages of chemotherapy: beginning, middle and end. Incidence of distress decreased in both genders over the course of assessments. Comparatively, the incidence was higher among women, who also reported the highest number of problems in the practical, family, emotional, spiritual and physical domains. The results corroborate the international literature on the subject. Clinical interest of systematic assessment of distress was confirmed to develop routines of therapeutic monitoring adapted to the specific needs of cancer patients.

**Keywords:** cancer patient, gender, evaluation, psycho-oncology

## Avaliação de *Distress* Entre Pacientes em Quimioterapia: Um Estudo Comparativo de Gênero

**Resumo:** A presente investigação teve por objetivo avaliar, analisar e compreender os níveis de *distress* vivenciados durante o tratamento quimioterápico, comparando-se homens e mulheres. A amostra foi constituída de 328 pacientes, recrutados em um centro especializado em oncologia. A coleta de dados envolveu a aplicação do Termômetro de *Distress* em três etapas da quimioterapia: início, meio e fim. Constatou-se queda dos escores de *distress*, em ambos os gêneros, no decorrer das avaliações. Comparativamente, a incidência foi maior entre as mulheres, as quais também reportaram maior número de problemas, nos domínios prático, familiar, emocional, espiritual e físico. Os resultados obtidos corroboram a literatura internacional. Comprovou-se o interesse clínico da avaliação sistemática do *distress* para estruturação de rotinas de acompanhamento terapêutico ajustadas às necessidades específicas de pacientes com câncer.

**Palavras-chave:** paciente de câncer, gênero, avaliação, psico-oncologia

## Evaluación de *Distress* Entre Pacientes en Quimioterapia: Un Estudio Comparativo de Género

**Resumen:** El objetivo de esta investigación fue evaluar, analizar y comprender los niveles de *distress* experimentados durante el tratamiento con quimioterapia, comparando hombres y mujeres. La muestra fue constituída por 328 pacientes reclutados en un centro especializado en oncología. Para recopilar los datos fue aplicado el Termómetro de *Distress* en tres etapas de la quimioterapia: principio, medio y final. La incidencia de *distress* en ambos sexos cayó en el curso de la evaluación. En comparación, la incidencia fue mayor entre las mujeres, que también reportaron el mayor número de problemas en los campos práctico, familiar, emocional, espiritual y físico. Los resultados obtenidos corroboran la literatura internacional. Se comprobó la importancia clínica de la evaluación sistemática del *distress* para estructurar las rutinas de acompañamiento terapéutico adaptadas a las necesidades específicas de los pacientes con cáncer.

**Palabras clave:** paciente de cáncer, género, evaluación, psico-oncología

Differences between men and women are the focus of interest in various fields of knowledge. So far, few topics have raised so many questions and so much debate as the distinction between genders. Various studies have been conducted to clarify similarities and peculiarities of each (Boquiren, Esplen, Wong, Toner, & Warner, 2013; Fávero, 2010; Poeschl, Múrias, & Ribeiro, 2003; Rogers & Rogers, 2001; Steensma, Kreukels, de Vries, & Cohen-Kettenis, 2013; Toner et al., 2012).

In short, it is possible to organize beliefs concerning the differences between men and women into two general axes: (a) instrumentality – masculinity is characterized by focusing on

objectives, emotional inhibition, establishment of relationships useful to achieving goals, the ability to perform tasks and act independently; and (b) expressiveness and ‘commonality’ – femininity is revealed by the expression of emotions and feelings, a concern with family needs, flexibility, valorization of others and an ability to care of others (López-Sáez, Morales, & Lisbona, 2008; Poeschl et al., 2003; Silva, Mendonça, & Zanini, 2010).

Gender stereotypes may change among different societies. Additionally, ideologies constructed around masculinity and femininity focus on conceptions concerning emotions and body, influencing individuals’ self-esteem and self-care (Fávero, 2010). In regard to health, it is essential to understand and reflect upon gender roles given the need to provide therapeutic guidance and develop programs and public policies for each health specialty.

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## **Health and Disease: A Matter of Gender**

In recent years, there has been growing clinical and scientific interest in regard to the relationship between gender and health and disease. Differences in health conditions, use of services, and adjustment to chronic diseases stand out among the subjects addressed (Snooks, 2009). Various studies suggest that the need for care is a predominantly female demand, contrary to the masculine standard – women seek health services more frequently than men and are more active during consultations, asking more questions and showing greater interest. As a consequence, health professionals would spend more time attending female patients. Apparently, they live longer, and report more morbidities and psychological problems (Bernardes, Silva, Carvalho, Costa, & Pereira, 2013; Gomes, 2003; Macintyre, Ford, & Hunt, 1999; Mast, Klöckner, & Hall, 2010; Verbrugge, 1989).

There is a cultural belief that the male body does not require care since it is synonymous with power, performance and invulnerability, impervious to physical or psychological disorders. For some authors, the refusal to practice self-care and adopt preventive health measures suggest the discomfort men experience in situations associated with submission and dependence on someone with more knowledge, such as a physician or other health worker. The literature highlights that men tend to adopt problem-focused coping strategies, while women emphasize emotion-focused strategies (Gomes, 2003; Good & Sherrod, 2001; Verbrugge, 1989).

In Brazil, studies also reveal that women more frequently seek health services to implement preventive measures. This evidence may explain the larger number of men hospitalized for severe conditions, as well as the fact they do not live as long as women. Brazilian women are more likely to become sick due to stress and depressive symptoms, while men are more prone to professional stress and the abuse of substances such as alcohol and tobacco (Bernardes et al., 2013; Figueiredo, 2005; Gomes, Nascimento & Araújo, 2007; Pinheiro, Viacava, Travassos, & Brito, 2002; Rabasquinho & Pereira, 2007). Costa-Júnior and Maia (2009) reported that a male sample only sought medical care when symptoms resulted in physical and/or occupational restrictions or when the limitations imposed by the disease anticipated more severe consequences.

Among current common illnesses, diverse types of cancer and their repercussions on the personal and collective spheres are highlighted. In this sense, both clinical practice and scientific studies warn of the need to increase our understanding of certain variables that are clearly gender-related variables.

## **Gender and Cancer**

The ongoing development of early detection techniques, as well as diagnostic procedures and treatments, has progressively reduced the fear, fatalism, and the stigma associated with cancer. The current survival rate for breast cancer patients in the initial stages is 98%, while survival may reach 88% in more advanced clinical states. Despite

these achievements at the technical level, there is still a need to deepen knowledge at the psychosocial level (American Cancer Society, 2006; Hagedoorn, Sanderman, Bolks, Tuinstra, & Coyne, 2008; Salander & Hamberg, 2005).

According to Loscalzo, Kim and Clark (2010), gender is a primary variable that has been seldom explored in Oncology. These authors consider it essential to clarify the inclinations of men and women to deal with distress, their possibilities for social support and repercussions of the disease and treatment on quality of life. It is worth clarifying that distress in Oncology is defined as an unpleasant and multifactor emotional experience that may interfere in one's ability to effectively deal with the diagnosis and treatment of cancer (Holland et al., 2013).

Data from scientific studies show similar conditions between women with cancer and women with other chronic diseases. Apparently, female patients are more willing to share their anxieties and fears; asking for help does not decrease their self-esteem. On the other hand, the responses of men experiencing similar situations mainly include 'fight or flight'. When facing uncontrollable stressors, men seek internal resources to solve the problem. As opposed to women, men may experience low self-esteem when manifesting their vulnerability and tend to minimize their suffering and physical symptoms. They prefer to receive scientific information from the health staff instead of emotional support (Greimel, Padilla, & Grant, 1998; Hagedoorn et al., 2008; Loscalzo et al., 2010; McCaughan, Prue, Parahoo, McIlpatrick, & McKenna, 2012).

The literature is inconsistent in regard to differences between genders when it comes to distress, which is established by the American Cancer Society as the 'sixth vital sign'; that is, it is a key indicator for the monitoring of patients' clinical conditions (Decat, Araújo, & Stiles, 2011; Holland & Bultz, 2007). Clark, Loscalzo, Trask, Zabora and Philip (2010) noted that men with pancreatic cancer expressed more distress when compared to women. In contrast, various authors (Admiraal, Reyners, & Hoeskstra-Weebers, 2013; Akechi et al., 1998; Dunn et al., 2013; Giese-Davis et al., 2012; Hamama-Raz, 2012) reported higher levels of distress among women than men. Fife, Kennedy and Robinson (1994) also reported higher scores for women, though the same female sample established better coping strategies in the sexual, social and professional domains. Hagedoorn, Buunk, Kuijer, Wobbles and Sanderman (2000) reported a greater incidence of distress and lower quality of life in the female population they addressed.

A meta-analysis of studies published between 1980 and 2005 verified the relationship between distress and gender among couples in which one of them was affected by cancer. The sick women reported more distress than their partners and studies addressing male patients reported distress was higher among the female partners. No statistical significance was found in samples of couples in which one of the partners was diagnosed with cancer without identifying gender (Hagedoorn et al., 2008).

In a comparative study between prostate cancer and breast cancer patients, Kiss and Meryn (2001) detected differences in terms of physical impact, sexual activity, quality of life, and

coping, as well as the response of their spouses. The authors observed that between 20% and 30% of women manifested anxiety and depression six months after their diagnosis. In contrast, men expressed more specific symptomatology: intolerance, impulsivity, alcohol consumption, and aggressive behavior. For these authors, the attempt of patients with prostate cancer to ignore the diagnosis was related to a limited perception of the need for help, fear of stigmatization, the requirements of a professional occupation and a desire to escape the disease.

Confirming these perspectives, Salander and Hamberg (2005) perceived that women and men respond differently to the diagnosis. Women developed long and detailed narratives, and their reports were personal and emotional, with an emphasis on social support, while men favored impersonal reports and only 26% mentioned feelings. According to Nicholas (2000), the worse psychosocial adaptation of men undergoing oncological treatment is due to their less adaptive responses, such as not seeking social support.

In summary, the literature indicates there are gender distinctions not only in biological processes, but also in relation to life conditions, environmental experiences, risk behavior, and response to stressors (Baider & Bengel, 2001; Rezende et al., 2010). Such evidence needs to be better known because the prevalence of cancer in the world population has not receded.

On the contrary, rates are growing and cancer is a major cause of mortality worldwide. Brazilian estimates of new cases projected for 2012 are of 257,030 new female patients and 260,640 new male patients (Ministério da Saúde, 2011).

Therefore, acknowledging the importance of the relationship between gender and cancer is essential. There is a lack of longitudinal studies addressing this topic in Brazil. For this reason, this study's objective was to assess, analyze and understand levels of distress between men and women at the beginning, in the middle and at the end of chemotherapy.

## Method

### Participants

A total of 118 (36%) men and 210 (64%) women composed the sample and were selected according to the following criteria: established diagnosis of cancer; minimum age of 18 years old and maximum age of 86 years; and being able to answer the distress assessment instrument. The mean age was 54.7 years old (men: 55.2;  $SD = 18$ ; women: 54.5;  $SD = 14.6$ ). Most were married and 43.6% reported having a bachelor's degree. Gastrointestinal and hematological cancer predominated among men, while breast cancer and gastrointestinal cancer were the most frequent diagnoses in the subsample of women. Table 1 presents the participants' socio-demographic characterization.

Table 1  
*Socio-Demographic Characteristics of Patients According to Gender (N = 328)*

Characteristics	Male		Female		Total	
	n = 118	%	n = 210	%	N = 328	%
Marital status						
Single	18	15.2	27	12.9	45	13.7
Married	87	73.7	116	55.2	203	61.9
Divorced	8	6.8	35	16.7	43	13.1
Widowed	5	4.3	32	15.2	37	11.3
Education						
Illiterate	5	4.3	4	1.9	9	2.7
Elementary	12	10.2	39	18.6	51	15.6
High School	37	31.4	43	20.5	80	24.4
Undergraduate	50	42.4	93	44.4	143	43.6
Graduate studies	14	11.7	31	14.6	45	13.7
Types of cancer						
Breast	0	0	78	37.2	78	23.8
Gastrointestinal	46	38.9	46	21.9	92	28
Hematologic	37	31.4	37	17.6	74	22.6
Gynecologic	-	-	29	13.8	29	8.8
Genitourinary	10	8.5	4	1.9	14	4.3
Head and Neck	9	7.6	0	0	9	2.7
Lungs	8	6.8	10	4.8	18	5.5
Sarcoma	6	5.1	4	1.9	10	3.1
Melanoma	2	1.7	2	0.9	4	1.2
Stage of Cancer						
I	7	5.9	26	12.4	33	10.1
II	16	13.6	46	21.9	62	18.9
III	27	22.9	61	29	88	26.8
IV	53	44.9	57	27.1	110	33.5
Missing data	15	12.7	20	9.5	35	10.7

There was variation in the sample size throughout the assessment stages: beginning ( $N = 328$ ), middle ( $N = 285$ ), and end ( $N = 261$ ) of treatment for various reasons, such as: death (22% men and 13.8% women); change of the cancer treatment facility (2.5% men and 0.9% women); return to hometown (1.7% men and 1.4% women); and abandonment of treatment (0.8% men and 0.4% women).

### Instruments

A socio-demographic questionnaire and the Distress Thermometer (DT), proposed by the National Comprehensive Cancer Network (2007), adapted and validated by Decat, Laros and Araujo (2009), were used. DT presents an illustration of a thermometer that assesses the level of distress on an 11-point scale, 0 (no distress) to 10 (extreme distress), with a score equal or higher than 4 that indicates distress (sensitivity of 82% and specificity of 98%). DT includes a List of Problems (LP) with 35 items to identify potential causes of distress, which is subdivided into practical, family, emotional, spiritual and physical domains (Decat et al., 2011).

### Procedure

**Data collection.** This was performed in a private treatment center, specializing in the care of cancer patients – the Brasília Cancer Center (CETTRO) – from September 2008 to February 2012. All the patients initiating chemotherapy in this center were contacted by the psychologist and invited to participate in the study. Those who consented signed free and informed consent forms and answered the socio-demographic questionnaire and the DT on the first day of their chemotherapy. The DT was reapplied in similar conditions in the subsequent stages of treatment. The parameters that determined the assessment stages were established by the assistant physician according to the chemotherapy protocol prescribed for each case, having an average interval of two and a half months. At the end of each assessment, analysis and clinical discussion took place with the assistant physicians to establish therapeutic measures adjusted for each patient.

**Data analysis.** The statistical program SPSS 17.0 for Mac was used in all the analyses. Descriptive analysis was employed for the participants' socio-demographic characterizations, as well as the frequency of problems reported in the LP. Logistic regression was employed to determine the discriminatory/predictive power of the problems reported according to gender. For that, we adopted the Stepwise method for each stage of assessment. The ANOVA repeated measures test was used to identify potential relationships between the means of levels of distress and gender in the three stages of treatment. This analysis was performed only with the data provided by the patients who participated in all the assessment stages (86 men and 175 women).

### Ethical Considerations

As specified by Resolution 196/96, National Council of Health, the project was submitted to and approved by the Institutional Review Board at Faculdade de Ciências da Saúde, Universidade de Brasília (UnB) with protocol No. 056/2007.

## Results

Table 2 presents the main problems reported by men and women over the course of treatment. Among the practical problems reported at the beginning of treatment, 'insurance/financial' was the most frequent, followed by 'work', reported by men, and 'housing', reported by women. Problems related to 'work' were the third most frequently item reported by women. Both groups reported that 'dealing with children' was the main family problem. Among emotional issues, the participants reported 'worry', 'nervousness' (men) and 'sadness' (women). The physical problems most frequently reported by men were 'sleep', 'pain', 'fatigue', and 'eating'. In turn, women reported 'memory/concentration', 'sleep', 'appearance' and 'fatigue'.

At the second stage of evaluation, similar results were verified, though women reported 'appearance' and described difficulties concerning 'housing' and 'work'. Spiritual problems were also more frequently reported by women. At the end of the chemotherapy, the items most frequently reported by both men and women were 'insurance/financial', 'work', 'dealing with children' and 'worry'.

Table 3 presents the regression coefficients, probability (Odds Ratio) and a confidence interval of 95% for the probability of variables able to significantly discriminate between men and women. These results show that, in general, women acknowledge more problems than men in the three stages of assessment, with the exception of 'changes in urination' (at the beginning of the treatment); 'work', 'changes in urination', 'eating', 'pain' (middle of treatment); and 'work' and 'eating' (at the end of the treatment).

The results of the ANOVA repeated measures indicate problems of homogeneity of variance and the normality of distributions in the conditions of the research. Consequently, a level of significance of 0.025 was chosen to compensate for the increase in the level of Type I errors due to the non-normality or heterogeneity of variance. A significant main effect was found for the variable gender  $F(1,259) = 914.31$ ;  $p < .001$ ;  $\eta^2 = 0.71$ ; and stages of assessment,  $F(2, 258) = 138.20$ ;  $p < .001$ ;  $\eta^2 = 0.35$ . Means and standard deviations for the six conditions are presented in Table 4. In this case, those who participated in the three stages were considered: 67 patients were excluded, as previously mentioned.

The means are also presented in Figure 1. The levels of distress significantly decreased among the stages. Apparently, the women's levels of distress decreased more strongly than that of men, though interaction between these variables was not observed. Additionally, the levels of distress reported by female patients remained significantly higher than those reported by male patients.

## Discussion

A larger number of female patients initiated chemotherapy, showing the predominance of females among the public cared for by the facility where the study was

Table 2  
Percentage of Occurrence of Problems According to Gender (N = 328)

Problems	Male			Female		
	Beginning	Middle	End	Beginning	Middle	End
Practical problems	49.5	40.5	46.8	58.6	43.7	37.3
Child care	0.9	0	0	1	0.6	1.4
Housing	9.2	8.3	3.1	20.1	13.2	9.8
Insurance/financial	28.4	30.9	31.2	41.3	28.9	27.5
Transportation	7.3	2.4	3.1	15.7	11.3	4.9
Work/school	23.8	16.7	18.7	18.8	13.2	11.2
Family problems	44	27.4	28.1	55.5	40.6	39.4
Dealing with children	31.2	21.4	23.4	44	30.8	29.6
Dealing with partner	22	11.9	9.3	23.6	16.3	16.2
Emotional problems	88.1	65.5	71.8	97.9	81.2	73.9
Depression	43.1	19	12.5	54.9	39	31.7
Fears	37.6	11.9	15.6	63.9	30.2	33.8
Nervousness	61.5	42.8	40.6	67.5	48.4	42.9
Sadness	56.8	35.7	32.8	78.5	55.3	53.5
Worry	68.8	45.2	53.1	82.7	64.7	63.4
Loss of interest in usual activities	34.9	20.2	23.4	36.1	30.2	26.7
Spiritual problems	7.3	1.2	3.1	7.8	6.8	3.5
Physical problems	90.8	89.3	84.3	97.9	95.6	93.6
Appearance	32.1	28.6	35.9	51.3	69.8	52.8
Bathing/dressing	10.1	4.7	1.5	9.4	8.2	3.5
Breathing	15.6	7.1	10.9	28.8	13.8	15.5
Changes in urination	13.8	8.3	7.8	9.4	5.6	2.8
Constipation	22	13.1	12.5	31.4	27.7	17.6
Diarrhea	10.1	10.7	9.4	10.5	13.8	12.7
Eating	36.7	29.7	31.2	35.6	24.5	23.2
Fatigue	38.5	35.7	29.7	42.4	42.1	35.2
Feeling swollen	13.8	17.8	21.9	24.6	35.2	29.6
Fever	8.2	4.7	4.7	6.3	1.8	2.8
Getting around	22	20.2	18.7	30.9	24.5	17.6
Indigestion	5.5	4.7	0	7.8	5.6	1.4
Memory/concentration	29.3	25	26.6	64.4	41.5	37.3
Mouth sores	4.6	9.5	7.8	7.8	20.1	9.8
Nausea	18.3	20.2	23.4	29.3	35.2	26.1
Nose dry/congested	14.7	15.5	10.9	23	26.4	19.7
Pain	41.3	28.6	17.2	40.8	24.5	26.8
Sexual	25.7	19	23.4	28.3	22	22.5
Skin dry/itch	30.3	22.6	23.4	37.7	44	34.5
Sleep	50.4	42.8	48.4	59.7	51.6	48.6
Tingling in hands/feet	18.3	23.8	31.2	16.2	21.4	22.5

conducted. This fact cannot be explained by epidemiological data since, according to the National Institute of Cancer (Ministério da Saúde, 2011), men are more frequently diagnosed with cancer than women. It may, however, suggest that women use health services more frequently than men, as other studies have already reported (Doyal, 2001; Gomes, 2003; Macintyre et al., 1999; Macintyre, Hunt, & Sweeting, 1996; Mast et al., 2010; Verbrugge, 1989).

In regard to health conditions and mortality, a higher incidence of men diagnosed in advanced stages (III and IV) of cancer was observed. Additionally, in terms of sample loss, a higher incidence of deaths was observed in the male group, which is also in agreement with previous studies

(Costa-Júnior & Maia, 2009; Figueiredo, 2005; Gomes et al., 2007; Pinheiro et al., 2002; Rabasquinho & Pereira, 2007).

The higher incidence of distress in the female group confirms previous studies (Admiraal et al., 2013; Akechi et al., 1998; Baider et al., 1997; Dunn et al., 2013; Giese-Davis et al., 2012; Hagedoorn et al., 2000; Hamama-Raz, 2012). We assumed that the higher number of items selected by women from the List of Problems reflected a greater facility of women to express and communicate physical, emotional and social problems, a fact already emphasized in the literature (Hagedoorn, Sanderma, Buunk, & Woobes, 2002; Loscalzo et al., 2010). That is, women tend not to minimize their physical or emotional problems and seem to assume proactive behavior.

Table 3  
*Logistic Regression of Patients' Genders on the List of Problems Reported at the Beginning, Middle and End of Treatment (N = 328)*

Variables	B (SD)	Odds Ratio	95% Confidence Interval	
			Low	High
Beginning				
Fear	0.95 (0.25)	2.59	1.58	4.26
Appearance	0.63 (0.26)	1.88	1.12	3.14
Changes in urination	-0.83 (0.40)	0.43	0.19	0.95
Feeling swollen	0.76 (0.34)	2.14	1.09	4.20
Memory/concentration	0.76 (0.26)	2.14	1.28	3.57
Middle				
Work	-1.14 (0.44)	0.32	0.13	0.76
Worry	1.28 (0.32)	3.61	1.94	6.74
Appearance	0.93 (0.30)	2.54	1.40	4.58
Changes in urination	-1.29 (0.59)	0.27	0.08	0.88
Constipation	0.73 (0.37)	2.07	0.99	4.33
Eating	-1.24 (0.36)	0.28	0.14	0.58
Feeling swollen	0.91 (0.35)	2.48	1.25	4.94
Nausea	0.90 (0.35)	2.48	1.24	4.93
Pain	-0.73 (0.31)	0.48	0.25	0.92
Skin dry/itch	0.79 (0.32)	2.20	1.18	4.12
End				
Work	-0.98 (0.47)	0.37	0.15	0.93
Depression	1.12 (0.42)	3.08	1.33	7.09
Fears	1.31 (0.41)	3.72	1.67	8.29
Appearance	0.67 (0.30)	1.96	1.08	3.55
Constipation	0.97 (0.43)	2.63	1.12	6.14
Eating	-0.96 (0.36)	0.38	0.19	0.77

Still addressing differences in gender roles, it is worth noting that female patients reported more concern for their spouses and children than do male patients. They also reported more emotions and spiritual concerns, as did participants of previous studies (Costa-Júnior & Maia, 2009; McCaughan et al., 2012; Mast et al., 2010).

In regard to physical symptoms, the items not related to chemotherapy's side effects draw attention. 'Sleep disturbance' (e.g. insomnia) reported by the male group in the

three evaluations suggest a coping strategy characterized by introspection and an attempt to mobilize internal resources to solve problems on their own. This response happens especially at the beginning of the treatment when the patient's body is not yet worn out by the chemotherapy's side effects, responding only to the physical symptoms of the disease and to the emotional impact of the diagnosis (Kiss & Meryn, 2001; Krouse et al., 2009; LeMasters, Madhavan, Sambamoorthi, & Kurian, 2013; Nicholas, 2000; Salander & Hamberg, 2005).

The emphasis in the female group on 'appearance' confirms various studies addressing bodily changes caused by therapeutic interventions in oncology and also is in agreement with studies addressing gender roles (Boquiren et al., 2013; Fobair et al., 2006; Kiss & Meryn, 2001; LeMasters et al., 2013). In regard to 'memory/concentration' problems, it is important to note that such problems may be related to stress and to treatment side effects or to menopause (which may be a consequence of chemotherapy or hormone therapy or may not be), since the literature reports this symptom among women in the age group presented by the sample (Fan et al., 2005).

The item 'work' had predictive value for the male gender, which shows the concerns triggered by interruption of occupation some times during the treatment and also reinforce the stereotype of the male gender, in which instrumentality predominate (López-Sáez et al., 2008; Poeschl et al., 2003).

Table 4  
*Mean and Standard Deviation of Distress in Male and Female Patients Participating in the Three Stages of Treatment (N = 261)*

Distress	Gender	
	Male	Female
<b>Beginning</b>		
Mean	3.91	4.67
Standard Deviation	2.51	2.47
<b>Middle</b>		
Mean	2.4	2.89
Standard Deviation	1.48	1.8
<b>End</b>		
Mean	2.07	2.27
Standard Deviation	1.27	1.49

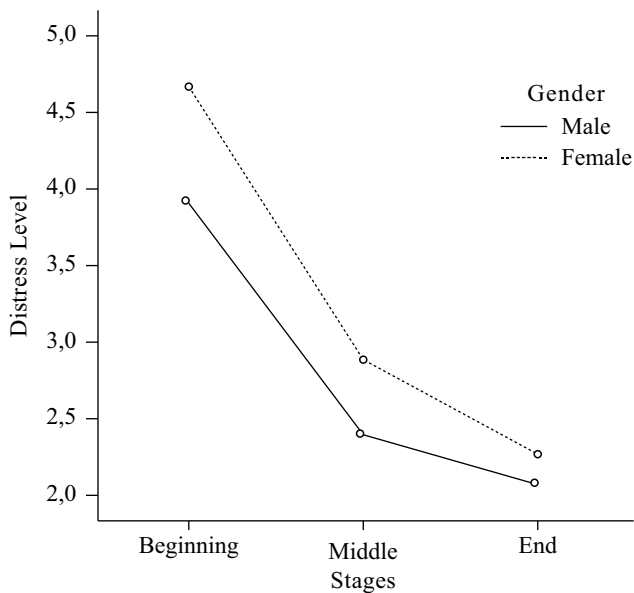


Figure 1. Mean of distress as a function of the gender of the patients participating in the beginning, middle and end of the chemotherapy ( $N = 261$ ).

An increase in the number of physical problems was observed in the second assessment, which may reflect the side effects of the chemotherapy. At the last assessment, however, when the worn-out body still faces the adversities arising from treatment, fewer complaints were reported. This result may be associated with clinical management provided in the facility's routine and reinforces what has been shown in the literature; that is, without appropriate intervention, distress tends to remain high for at least six months after diagnosis (Akechi et al., 2006; Carlson, Waller, Groff, & Bultz, 2013).

Concerning the sample's characterization, there was no predictive role between the studied categories (demographic data and characteristics of the disease) in the variable gender. This result, however, indicates that the differences found in terms of distress, the type and frequency of problems reported, are more related to gender than to the remaining socio-demographic characteristics (age, marital status, education) and to clinical aspects (type of cancer and staging).

In general, there was a significant effect for the variable 'gender' in the three stages of assessment, with a significant decrease over time. We suppose that such evidence indicates a gradual adaptation of patients to the cancer experience. As the quality of care provided in the studied facility may be a key factor for such developments, further studies with similar samples in different health services are needed for the purpose of comparison.

### Conclusion

This study shows the relationship between gender and distress among patients with cancer over the course of chemotherapy. The importance of assessing distress in clinical monitoring is reaffirmed, providing support for the development of care routines that include goals of integral and humanized care.

We recommend further studies to differentiate distress among socio-economic and cultural segments in association with the variable 'gender'. The influence of the type of cancer also needs to be verified, since the sample was not representative in terms of other types of cancer, such as head and neck, genitourinary, melanoma, lungs and sarcoma. We also suggest that future studies address the influences of diverse chemotherapy protocols. Investigations with qualitative methodologies deserve attention because they will add to existing knowledge. All these efforts can contribute to satisfying the specific needs of men and women using Oncology services.

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