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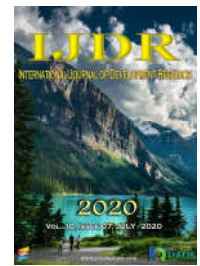
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CHARACTERIZATION OF FATIGUE IN WOMEN WITH BREAST NEOPLASIA SUBMITTED TO CHEMOTHERAPY UNDER THE BEHAVIORAL DIMENSION OF THE PIPER SCALE-REVISED

¹Cristina Albuquerque Douberin, ^{*2}Liniker Scolfild Rodrigues da Silva, ³Talita Munique de Melo Rodrigues, ⁴Edivaldo Bezerra Mendes Filho, ⁵Adriana Maria dos Santos, ⁶Thayná da Silva Constantino, ⁷Yanna Georgia Crispiniano Ferreira da Silva, ⁸Adriane Farias Patriota, ⁹Luiz Neves Silveira Filho, ¹⁰Luciana Maria da Silva, ¹¹Rosimery Rodrigues de Almeida Mendes, ¹²Lívia Maria Almeida de Oliveira

¹Nurse, Master in Nursing from the University of Pernambuco/Paraíba State University (UPE/UEPB), Recife, Pernambuco (PE)/Campina Grande, Paraíba (PB), Brazil; ²Specialist in Obstetric Nursing in the Residency modality from the Nursing School Nossa Senhora das Graças/University of Pernambuco (FENSG/UPE). Public Health Officer, Specialist in Collective Health in the Residency modality from the Medical Sciences College (FCM)/UPE. Recife, Pernambuco (PE), Brazil; ³Nursing, Resident in the Program of Residence in Children Healthcare from the Institute of Integral Medicine Professor Fernando Figueiras (IMIP). Recife, Pernambuco (PE), Brazil; ⁴Doctor, Medical Sciences College (FCM)/University of Pernambuco (UPE). Recife (PE), Brazil; ⁵Nurse, Foundation of Higher Education of Olinda (FUNESO). Recife, Pernambuco (PE), Brazil. ⁶Nurse, Master in Physiology and Biochemistry from the Federal University of Pernambuco (UFPE). Recife; ⁷Nurse, Foundation of Higher Education of Olinda (FUNESO). Recife, Pernambuco (PE), Brazil; ⁸Nurse, Master in Intensive Care in Woman Health from the Institute of Integral Medicine Professor Fernando Figueiras (IMIP). Recife, Pernambuco (PE), Brazil; ⁹Nurse, Master in Nursing Care from the University of Pernambuco/Paraíba State University (UPE/UEPB), Recife, Pernambuco (PE)/Campina Grande, Paraíba (PB), Brazil; ¹⁰Nurse, Specialist in Intensive Care Unit (ICU) Adult Emergency from the Nursing School Nossa Senhora das Graças/University of Pernambuco (FENSG/UPE). Recife, Pernambuco (PE), Brazil; ¹¹Grater in Pharmacy from the Estácio de Sá College. Recife, Pernambuco (PE), Brazil; ¹²Grater in Nursing from the Brazilian University Center (UNIBRA). Recife, Pernambuco (PE), Brazil.

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*Corresponding author:

Liniker Scolfild Rodrigues da Silva

ABSTRACT

Objective: The aim of the present study was to characterize fatigue in women with breast cancer who underwent chemotherapy treatment under the behavioral dimension of the Revised Piper Scale. **Materials and Methods:** This is a descriptive, cross-sectional study with a quantitative approach, conducted at the Outpatient Clinic of a Breast Pathology Clinic of the Pernambuco Cancer Hospital (PCH). The data collection procedure was performed through the Free and Informed Consent Term (FICT) for each of the 317 women and subsequently responded to the collection instrument for the Piper Revised Fatigue Scale. **Results:** Results show that fatigue interferes with the ability to complete work or school activities significantly in women. Regarding the intensity of stress caused by fatigue, it was found that 117 women (36.9%) answered values equal to or lower than the cutoff point, while 200 women (63.1%) scored values in the range of five to ten. **Conclusion:** The importance of further studies that address the impact of side effects of chemotherapy treatments on women's lives is highlighted, as it directly and indirectly reflects on the emotional state, favoring increased stress and, consequently, increasing the prevalence of fatigue.

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INTRODUÇÃO

Considered as one of the chronic non-communicable diseases (NCDs) that has been affecting people of the world population most recently, cancer is characterized by being stigmatized by fear and the potential risk of life (Cardozo, 2011). Regarding the types of cancers, it is

worth mentioning that they are numerous and as varied as possible, depending on their location and extent. Among these forms is breast cancer, which can be considered as the second most common cancer in the world and the most common among women (Inumaru et al., 2011). The worldwide incidence of breast cancer varies widely, occurring in more than half of cases in industrialized countries

(Lisboa, 2009). North America, some countries in Europe (Western and Northern) and Australia have the highest incidence of breast cancer. The countries of Eastern Europe, South America, South Africa and East Asia express intermediate incidence, while African and Asian populations have the lowest rates (Parkin *et al.*, 2006). Regarding the specific case of the Brazilian reality, the high incidence rates for breast cancer have been following the worldwide trend (Brasil, 2008). Estimates from the National Cancer Institute (INCA) for the incidence of this female cancer in 2014 were 57,120 cases (INCA, 2013). In the case of the Northeast, in 2010, INCA estimated the occurrence of 8,270 new cases of breast cancer. More specifically, there are data referring to the state of Pernambuco, having been in him and also in the city of Recife, in 2003, the most incident tumor (Gurgel, 2011). The gross incidence rate went from 34.69 per 100,000 women in 2003 to 46.35 per 100,000 women in 2010. In Recife, the rate went from 79.35 per 100,000 women in 2003 to 84.25 per 100,000 women in 2010, which represented the second position in the list of cancers (PERNAMBUCO, 2010). It is also noteworthy that breast cancer is responsible for 14% of the total deaths associated with cancer among women worldwide (Inumaru *et al.*, 2011). One of the most commonly used treatments to combat breast cancer is chemotherapy (CT), which triggers a diverse symptomatology between nausea and prolonged and constant states of fatigue. In fact, fatigue is often reported by subjective sensations originating from tiredness, physical and mental exhaustion, weakness, lack of energy and exhaustion to perform various activities of daily living (Brazilian Fatigue Consensus, 2010). It should be noted that this side effect is almost universally present in the life of patients with some type of cancer undergoing chemotherapy treatment, which can be expressed by a prevalence of 25 to 99% of cases (Scholberg *et al.*, 2014).

In the specific case of breast cancer, it can be said that fatigue has been recognized as one of the most common and problematic symptoms (Huang *et al.* 2014), reaching 30% of patients at the time of diagnosis, as well as revealing an increasing prevalence of 60 to 96% during the treatment phase (Noal *et al.*, 2011), still reaching about 25 to 33% of survivors after the chemotherapy period (Orre *et al.*, 2011). Interpreting fatigue from the normal physiological point of view, which for healthy individuals translates as a protective response to situations of physical and/or psychological stress, being ended with a rest, for cancer patients, including breast cancer, this symptom is considered painful, exhausting, unpleasant, and heart breaking, and cannot be relieved with rest (Lamino; Mota; Pimenta, 2011). The etiology of fatigue is still obscure, but as a symptom it can be said that its origin is multifactorial, since psychological, physical and social factors are capable of triggering it (Menezes; Camargo, 2006). Therefore, according to Menezes and Camargo (2006), it is noticeable that one is ahead of a symptom with a panorama whose elaboration of goals to achieve its prevention or even resolution is made difficult. There is a need to reduce the impact that fatigue has on the lives of these patients, and it is important to manage it as a symptom, increasing their knowledge and management, so that the assistance provided to these women during chemotherapy is improved (Silva, 2013).

Thus, it can be seen that fatigue induced by chemotherapy therapy reveals a condition of immense difficulty to maintain the lifestyle of patients with breast cancer, this allows their insertion at the top of the list of symptoms most easily found among them and, therefore, deserves special attention from health professionals regarding their detection and evaluation. Thus, some common problems are highlighted: breast cancer (more prevalent and feared by women) and the symptom of fatigue often caused by antineoplastic chemotherapy (usually experienced by patients with breast cancer). In order to identify the presence of fatigue as a chemotherapeutic side effect in women with breast cancer, expanding its disclosure in the literature, a guiding question based the interest on the study: What is the intensity of fatigue under the behavioral dimension of the Revised Piper Scale - in women with breast cancer undergoing chemotherapy? And your answer was the objective of the study.

MATERIALS AND METHODS

This was a descriptive, cross-sectional study with a quantitative approach, which was conducted at the Ambulatory Unit of a specialized clinic for breast pathology at the Pernambuco Cancer Hospital (PCH), from September to November 2015. The PCH is characterized by being an institution that began its activities in a philanthropic manner on November 9, 1945. From its inception to the present day, it has become a reference in its field of activity in the North and Northeast of Brazil and, throughout its trajectory, plays the role of assisting cancer patients, as well as informing the population about the importance of prevention of this problem. From April 10, 2007, it was controlled by the state of Pernambuco, treating more than half of cancer patients in that state. The sample calculation was based on the proportion estimate, since it was intended to identify it for the amount of women with breast cancer undergoing chemotherapy who feel fatigue. Considering that the monthly average of patients with breast cancer undergoing chemotherapy in the PCH was 1800 (N) and some constant statistical values, such as 95% confidence level ($z = 1.96$) and error (e) or (d) of 5%, a sample (n) of 317 patients was obtained, based on a finite population. In this case, the sample proportion (p) and its complement (q) were taken with the same value of 0.5, which provides the largest possible sample for the population considered for the sample calculation, from the formula below:

$$n = \frac{Z^2 \cdot p \cdot q \cdot N}{d^2 (N - 1) + Z^2 \cdot p \cdot q}$$

Inclusion criteria were female breast cancer patients undergoing outpatient chemotherapy treatment at the PCH, aged 18 years and over and with communication skills for reading and writing comprehension. As exclusion criteria, there were female patients in divergent treatment modality of chemotherapy. Regarding the variables, it can be said that fatigue corresponds to the qualitative and dependent variable of the study, which was evaluated through the following instrument: Piper Fatigue Scale - Revised (PIPER). This is a multidimensional self-report instrument for fatigue assessment, which was developed by Piper *et al.* In 1998, using the Piper Fatigue Scale (PFS) proposed by Piper *et al.* in 1989, and which had recent validation for the Portuguese language in 2009 (Mota; Pimenta; Piper, 2009). The original version of Piper is made up of 27 items, but the Brazilian (which will be discussed here) is made up of 22, among which are three main dimensions: behavioral dimension (items 2 to 7), affective dimension (items 8 to 12) and sensory / psychological dimension (items 13 to 23). Among these, the behavioral dimension will be analyzed here. Regarding its gradation, it can be said that for each dimension evaluated, it has scores from 0 to 10, and the cut-off point is set to score 4. For fatigue to be clinically significant, therefore, the score must be greater than 4. The average of all items corresponds to the total score and each dimension has its scores calculated by the average of the items contained therein. The collected data was first entered into spreadsheets using Microsoft Excel software and later transferred and analyzed using a descriptive quantitative approach using the Statistical Package for Social Science (SPSS) version 21.0 software. To characterize fatigue, the symptom was analyzed from the perspective of its absolute frequencies and percentages, taking into account the cutoff point identifying its presence as being recommended by score 4 (if the score is equal to or less than 4, will mean no fatigue, but if greater than 4, fatigue will be present) (NCCN 2010; Mansano-Schlosser; Ceolim, 2014). The description and analysis of the behavioral dimension (items 2 to 7) of the Piper Fatigue Scale - Revised were performed, taking into account the mean scores for items inherent to it. The data collection procedure was performed as follows: the Free and Informed Consent Term (FICT) was delivered, read and explained to each of the 317 women at the time they were undergoing chemotherapy at the PCH outpatient clinic. When they accepted to participate in the research, they signed it, showing agreement, and soon after they responded to the Piper Fatigue Scale - Revised collection instrument. This study corresponds to a clipping of a Master's dissertation submitted to and approved by the Research Ethics Committee (REC) of the Pernambuco Cancer

Society under CAAE No. 45583415.0.3001.5205; and defended by the author by the Associate Postgraduate Program in Nursing of the University of Pernambuco / Paraíba State University (UPE / UEPB), in May 2016.

RESULTS

The behavioral dimension covers the items of the scale from 2 to 7. The topics that obtained the highest average were the third and the sixth, each with a 6.03 average, which allows us to infer a higher prevalence regarding the composition of fatigue indicated by the patients. On the other hand, the fifth topic is considerably highlighted because it revealed an average of only 3.47, that is, the smallest within the dimension and outside the range considered in the literature as fatigue, since chemotherapy fatigue was not responsible for the changes in the sex life of these women, but other reasons. Such results can be seen in table 1. Regarding the intensity of stress caused by fatigue, it was found that 117 women (36.9%) answered values equal to or lower than the cutoff point, while 200 women (63.1%) scored values in the range of five to ten. In item number three, which proposed to know how much fatigue interferes with the ability to complete work or school activities, it was found that only 94 women (29.7%) mentioned values in the range of zero to four; but 223 (70.3%) answered values from five to ten. Noteworthy is the scale's ten value, as it obtained 70 answers (22.1%), expressing a significant percentage of women who find it very difficult to complete their work or school activities. Scale topic number four addressed the amount of interference of fatigue on the ability to visit or be with friends. It was found that 122 women (38.5%) reported values within the range of zero to four on the scale and 195 of them (61.5%) scored values from five to ten. There are also a significant percentage of respondents (21.5%) who indicated the maximum value on the scale, which refers to the difficulty in visiting or being with their friends due to the fatigue caused by chemotherapy.

Table 1. Mean and standard deviation of Piper Fatigue Scale Behavioral Dimension Items - Revised. Recife, Pernambuco (PE), Brazil, 2015.

Revised Piper's Fatigue Scale ITEMS Behavioral dimension	Average	Standard deviation
2. How much stress does the fatigue you feel now cause? (No stress / Too much stress)	5.32	3.34
3. How much does fatigue interfere with your ability to complete your work or school activities? (Not at all / A lot)	6.03	3.34
4. How much does fatigue interfere with your ability to visit or be with your friends? (Not at all / A lot)	5.49	3.65
5. How much does fatigue interfere with your ability to have sexual activity? (Not at all / A lot)	3.47	3.97
6. Overall, how much fatigue interferes with your ability to perform any type of activity you enjoy? (Not at all / A lot)	6.03	3.52
7. How would you describe the intensity or magnitude of fatigue you are experiencing right now? (Light/Intense)	5.03	3.60
Behavioural dimension	5.23	2.51

Source: Own elaboration.

Regarding item number five of the scale, which sought to investigate the amount of interference of fatigue on sexual performance ability, it was observed that a considerable portion of the interviewees, 191 women (60.3%), answered values within the range of zero to four on the scale; however, 126 clients (39.7%) answered values within the range of five to ten. It is worth emphasizing that almost half of the clientele, ie 157 patients (49.5%), scored the lowest end (zero) on the scale as a response, demonstrating that fatigue did not interfere with their sexual activity. Question six on the scale, which measured the interference of fatigue on the ability to perform any type of activity that is generally liked, revealed that 102 women (32.2%) chose to score from zero to four on the scale and 215 of them (67.8%), five to

ten. For topic seven of the scale, which aimed to identify the description of the intensity or magnitude of fatigue felt at the time, the results revealed were 137 women (43.2%) who chose values from zero to four, as well as 180 of them (56 , 8%) that marked values ranging from five to ten. It is worth emphasizing that 18.9% of women scored the low end of the scale as a response, demonstrating that they considered the magnitude of mild fatigue, but a similar percentage (18.3%) of them marked the high end, ie considering the magnitude of fatigue they felt intensely.

DISCUSSION

Regarding the analysis of the identification of the presence of fatigue in the items of the Piper Scale inserted in the behavioral dimension, it was found that it significantly influenced the patients' lifestyle, causing them to modify it in some aspect in five out of six topics of that dimension. Item two of the aforementioned dimension revealed that most patients felt stressed by the fatigue felt at the time of the interview. Thus, there is a considerable correlation between stress and fatigue. Similar results were found in the study by Ishikawa, Derchain and Thuler (2005), who stated that there is a direct association between stress level and fatigue. Lôbo et al. (2014), when studying quality of life of women with breast cancer chemotherapy, found that their patients were not very stressed, but for those who were, had their source in fatigue, one of the physical effects from chemotherapy. From item three, it was found that most of the patients were fatigued to such an extent that fatigue began to interfere with their ability to complete work or school activities. Ishikawa, Derchain and Thuler (2005) also reported that fatigue interfered with the patients' work activities. Santos *et al.*, (2013), identified similar results, revealing that fatigue caused losses in the performance of work activities. These findings suggest that fatigue is a disabling body symptom that implies the installation of extreme tiredness in the muscles of these patients, thus negatively affecting the performance of such tasks (Schmidt *et al.*, 2012; Reindustatter *et al.*, 2011). The absence of work recorded in most women is related to the treatment recommended by the disease, as well as the fact that fatigue is an effect of it, also support and justify such finding. Findings in item four indicated that 61.5% of women felt fatigued enough to be deprived of visiting or being with their friends. Ishikawa, Derchain and Thuler (2005) achieved similar results when they mentioned that fatigue interfered with the way patients relate to each other. Schmidt *et al.*, (2012), and Reindunsdatter *et al.*, (2011), also saw that socialization is negatively influenced by fatigue. On the other hand, Lôbo et al., (2014), found that physical condition was not able to interfere with family life and social activities. The corroborative results are more relevant, as patients claimed to feel unwilling to visit, preferring to be isolated and lying in bed doing absolutely nothing.

In this study, it was not possible to ascertain whether fatigue impaired sexual activity. This is because many of them confessed that they no longer had a partner (widows) or were abandoned by them after the diagnosis of the disease with the consequent submission to mastectomy, not having an active sex life, so long ago. This information serves as a foundation to justify why almost half of the sample (49.5%) marked the minimum extreme value (zero) on the scale. Considerable number of findings in the literature contradict the result of this study, because although mastectomy causes a worsening of sexual life, fatigue was considered as justification for the decrease of sexual desire and frequency of sexual intercourse in the studies by Talhaferro, Lemos and Oliveira (2007), Ming (2002), Cesnik and Santos (2012) and Verenhitch *et al.*, (2014). Thus, it is noted that sexual functioning problems are common in women with breast cancer undergoing chemotherapy treatment, because fatigue is a direct symptom of this therapy, which was not found in preponderance in this study. With regard to the interference of fatigue on the ability to perform any type of activity that one likes, in general, item six detected that most women outlined fatigue as a hindrance in this performance. Similar results were identified by Tralongo, Respini and Ferrau (2003), Schmidt *et al.* (2012), Reindunsdatter *et al.* (2011), and by Lôbo *et al.*, (2014). It is concluded, therefore, that fatigue

arising from chemotherapy treatment in breast cancer is an important compromising interest in performing pleasure or leisure activities. Finally, item seven measured that most women described their fatigue for the moment as being of intense magnitude. This finding corroborates that found by Lamino *et al.* (2011), when they state that 33.3% of their patients quantified their fatigue as moderate or severe. This fact increasingly contributes to the consolidation of the idea that fatigue is a devastating symptom of chemotherapy.

CONCLUSION

Through the revised Piper scale to detect the interference level of fatigue in women with breast cancer undergoing chemotherapy treatment, the results of the present study revealed that most women report fatigue at high levels, interfering with work, school activities, social interaction with friends, also including enjoyable activities. Among the activities addressed in the scale, the interference of fatigue on sexual performance was shown to have little relationship, however, when questioned, the women said they had no partner or because they were abandoned by them after the diagnosis of the disease, justifying the reason why most responses assured that fatigue did not interfere with sexual activity. Given this, it is extremely important strategies to reduce the interference of fatigue in the lives of these women. It is known that despite being a side effect of chemotherapy treatment, there are studies that address therapies that seek to improve the quality of life, both physically and emotionally. It is noteworthy that it was found in the interviewees' speech a considerable correlation between stress and fatigue, which reinforces the need for interventions especially at the emotional level. Finally, we emphasize the importance of further studies that address the impact of side effects of chemotherapy treatments on women's lives, including especially when they undergo the mastectomy procedure, significantly interfering with self-image, directly and indirectly reflecting on their emotional state, favoring increased stress and consequently increasing the prevalence of fatigue.

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