

Accuracy of the defining characteristics of the nursing diagnosis for fatigue in women under radiotherapy

Acurácia das características definidoras do diagnóstico de enfermagem fadiga em mulheres durante radioterapia
Precisión de las características definidoras del diagnóstico de enfermería fatiga en las mujeres durante radioterapia

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How to cite this article:

Rocha SR, Santos MCL, Lopes MVO, Rodrigues AB, Sousa VEC, Aquino CBQ, et al. Accuracy of the defining characteristics of the nursing diagnosis for fatigue in women under radiotherapy. Rev Bras Enferm [Internet]. 2018;71(Suppl 3):1445-52. [Thematic Issue: Health of woman and child] DOI: <http://dx.doi.org/10.1590/0034-7167-2017-0549>

Submission: 08-01-2017

Approval: 12-13-2017

ABSTRACT

Objective: To evaluate the accuracy of the defining characteristics of the nursing diagnosis for “fatigue in women with breast cancer under radiotherapy”. **Method:** Study of diagnostic accuracy, with cross-sectional design, performed in 130 women with breast cancer under radiation treatment. A data collection instrument was used to evaluate clinical socio-demographics and to investigate the presence or absence of defining characteristics for fatigue. The latent class analysis model was applied to assess accuracy measurements of the characteristics identified. **Results:** Fatigue diagnosis was present in 21.9% of the women. The characteristic which showed the highest sensitivity was “Impaired capacity in maintaining the usual level of physical activity”, while “Impaired capacity in maintaining usual routines” and “Lack of interest about the surrounding environment” presented greater specificity. **Conclusion:** Accurate diagnostics allow devising an action plan directed to the patients’ real needs. **Descriptors:** Nursing Diagnosis; Fatigue; Breast Neoplasms; Radiation Therapy; Clinical Decision-Making.

RESUMO

Objetivo: Avaliar a acurácia das características definidoras do diagnóstico de enfermagem “fadiga em mulheres com câncer de mama em radioterapia”. **Método:** Estudo de acurácia diagnóstica com delineamento transversal realizado em 130 mulheres com câncer de mama em tratamento radioterápico. Utilizou-se um instrumento de coleta de dados para avaliação sociodemográfica clínica e para investigação da presença ou ausência das características definidoras da fadiga. Aplicou-se o modelo de análise de classe latente para avaliação das medidas de acurácia das características identificadas. **Resultados:** O diagnóstico de fadiga esteve presente em 21,9% das mulheres. A característica que apresentou maior sensibilidade foi “capacidade prejudicada para manter o nível habitual de atividade física”, enquanto “capacidade prejudicada para manter as rotinas habituais” e “desinteresse quanto ao ambiente que o cerca” apresentaram maior especificidade. **Conclusão:** Diagnósticos acurados permitem a construção de um plano de ações direcionado para as reais necessidades dos pacientes. **Descritores:** Diagnóstico de Enfermagem; Fadiga; Neoplasias da Mama; Radioterapia; Tomada de Decisão Clínica.

RESUMEN

Objetivo: Evaluar la precisión de las características definidoras del diagnóstico de enfermería “fatiga en mujeres con cáncer de mama en radioterapia”. **Método:** Estudio de precisión diagnóstica con delineamiento transversal realizado en 130 mujeres con cáncer de mama en tratamiento radioterápico. Se ha utilizado un instrumento de recogida de datos para la evaluación sociodemográfica clínica y para la investigación de la presencia o de la ausencia de las características definidoras de la fatiga. Se ha aplicado el modelo de análisis de clase latente para la evaluación de las medidas de precisión de las características identificadas. **Resultados:** El diagnóstico de fatiga ha estado presente en el 21,9% de las mujeres. La característica que ha presentado la mayor sensibilidad ha sido “la capacidad perjudicada para mantener el nivel habitual de actividad física”, mientras “la capacidad perjudicada para

mantener las rutinas habituales" y "el desinterés cuanto al ambiente que lo rodea" presentaron especificidad más grande. **Conclusión:** Diagnósticos precisos permiten la construcción de un plan de acciones direccionado para las reales necesidades de los pacientes. **Descriptores:** Diagnóstico de Enfermería; Fatiga; Neoplasias de la Mama; Radioterapia; Toma de Decisión Clínica.

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INTRODUCTION

Breast cancer is the second most common cancer in the world and the most usual among women⁽¹⁻²⁾. Among the most frequent symptoms manifested during the disease, we highlight the fatigue, which can be defined as a

persistent symptom, a subjective feeling of physical, emotional, and cognitive tiredness or exhaustion related to the cancer or its treatment and that is not proportional to the activity recently performed, which could interfere with the usual functional capacity of the patient⁽³⁾.

This symptom has a negative impact on work, social relationships, mood, and daily activities, and causes significant impairment in the overall quality of life during and after treatment, being considered a predictor of lower survival rates⁽⁴⁾.

Several factors are related to the development of fatigue in cancer patients; among them, are emphasized: hypermetabolic state associated with tumor growth and products of this metabolism, inflammatory mediators, tumor necrosis factors, neurotoxins, high energy expenditure resulting from the competition for nutrients between body and tumor, cytotoxic effects of chemotherapy drugs and tissue necrosis from radiation therapy, inadequate nutritional intake associated with nausea and vomiting from antineoplastic therapy, anemia, sleep disorders, immobility or lack of exercise, chronic pain, action of drugs such as opioids, and psychological factors such as uncertainty about the future, fear of death and mutilations, and loss of family maintenance roles^(3,5-6).

Radiation therapy (RT) has been linked to the induction of early fatigue in about 77% of the patients⁽⁷⁾. This symptom gradually increases throughout the treatment, with a peak around the third and fourth weeks, and may persist or reduce after its ending⁽⁸⁻⁹⁾. It is well known that the ionization from radiotherapy causes damage to cells' DNA, limiting their ability to divide and reproduce, which raises the levels of systemic inflammatory markers and pro-inflammatory cytokines⁽¹⁰⁻¹¹⁾. Also, it is worth mentioning that radiation causes damages both in cancer and normal cells, whose regeneration capacity relates to the dosage and rest times between doses⁽¹⁰⁾.

Fatigue has been included as a variable in several studies due to its high prevalence and impact on patients' quality of life. Its complexity is contemplated in the classification of nursing diagnoses (ND) of Nanda International (NANDA-I), which describes many defining characteristics (DC) that must be present for the diagnosis to be established⁽¹²⁾. The ND Fatigue features sixteen DCs, most of them comprising symptom subjectivity, a factor that can hinder its identification⁽¹³⁾. We emphasize that the proper identification of a ND is of paramount importance to guide medical interventions⁽¹²⁾.

Clinical validation of NDs is performed through accuracy measurements of their defining characteristics. From such measurements, the characteristics that predict with greater accuracy the occurrence of the diagnosis investigated are identified, thus establishing greater trustworthiness in the diagnostic choice⁽¹⁴⁾.

In cancer patients' care, the establishment of accurate NDs can contribute to an improvement in their quality of life since nursing actions based on precise NDs are directed to real problems experience by this population⁽¹³⁾. Therefore, the nurse should, as a priority, select the DC that are sensitive and specific enough for the diagnostic conclusion⁽¹²⁾.

OBJECTIVE

To analyze the accuracy of the defining features of ND for fatigue in patients with breast cancer under radiation therapy treatment.

METHOD

Ethical aspects

The study was approved by the Research Ethics Committee of the Federal University of Ceará and by the Ethics Committee of one of the co-participating institutions, due to an internal requirement. All participants signed the Informed Consent Form (ICF). Ethical principles for research with human being were followed, based on Resolution No. 510/16 of the National Health Council⁽¹⁵⁾.

Study design, location, and period

This is a cross-sectional study of accuracy about the clinical indicators of the ND fatigue, developed in the radiotherapy sector of two reference institutions on cancer treatment in the State of Ceará, from May to September 2016.

Sample, inclusion and exclusion criteria

The study sample consisted of 130 women diagnosed with breast cancer and who had started the radiation treatment in the health services this research was developed. Were considered inclusion criteria: women diagnosed with breast cancer for the first time, in the beginning of the non-palliative radiotherapy, who were having radiation in the data collection period established and had more than eighteen years of age. In addition, the data collection instrument was only applied to women in the fourth or fifth week of treatment, which corresponds to the peak of fatigue reported in the literature⁽¹⁶⁻¹⁸⁾.

As for exclusion criteria, they were established as follows: unstable hemodynamic status and presence of comorbidities that could influence the diagnosis under scrutiny, such as cardiovascular changes, concomitant chemotherapy and radiotherapy, or other conditions that could hinder the collection of

information required as, for example, intense pain or radiation therapy to treat oncological emergencies like superior vena cava syndrome or spinal cord compression syndrome.

Data collection procedure

Data were collected from the application of an instrument based in operational definitions of the sixteen DCs of the ND fatigue of NANDA-I, to which were added to clinical indicators (weakness/asthenia and reduction of social roles) characteristic of the cancer-related fatigue of the patient under radiation therapy, which were identified from a review of the literature on the subject; totaling nineteen clinical indicators. The instrument also comprised socioeconomic, clinical, and laboratory data.

It should be noted that the data were collected by the main author and a nursing academic. To reduce to possibility of bias, a training was conducted with the academic before the data collection to standardize the procedure, clearing doubts about the instrument and providing a standard operational procedure and a table with the operational definitions of the DCs for this diagnosis, revised and adapted by Silva and Gorini⁽¹³⁾.

Analysis of results and statistics

The data were compiled into worksheets of the software Microsoft Excel 2010[®] and analyzed using the statistical package R version 2.12.1. For descriptive analysis, absolute and relative frequency were used for categorized variables, and central tendency (mean and median) and dispersion measurements (standard deviation and interquartile range) for quantitative variables. To verify the association between defining characteristics and sociodemographic and clinical variables, the Pearson's Chi-Square and Fischer's Tests were used. Latent class analysis with random effects was used to measure the sensitivity and specificity of DCs, with their respective 95% confidence intervals.

RESULTS

130 women with breast cancer under radiation treatment have been evaluated, most of which were of mixed race (56.9%), Catholics (70.8%), married or in a stable relationship (53.1), a mean of 2.66 children (SD = 2.52), from the countryside of the State (60.5%), unemployed up to the date of interview (38%), and with household income between one and two minimum wages (67.7%). The mean age of the samples was 53 years (SD = 12.07), with an average schooling of 10.21 years of study (SD = 5.32).

Regarding clinical aspects, most women presented staging T2 (45.4%), N0 (42.3%), and M0 (96.9%), with an average time of diagnosis of 11.86 months (SD = 4.33). As primary treatment, 97.7% of the women have undergone surgery, of which 73.6% performed axillary lymphadenectomy, and 86.2% had previous chemotherapy. Until the date of collection, the average number of radiotherapy (RT) sessions of the interviewees was 22.38 sessions (SD = 3.54), corresponding to the fourth week of treatment since sessions are held five times a week.

As for the laboratory tests considered for the study of ND fatigue, the mean of neutrophils, leukocytes, and hemoglobin identified was, respectively, 4,154.85 (DP = 2,413.65), 6,558.03 (DP = 2,713.68) e 11.59 (DP = 1.28).

In Table 1 are presented the distribution of the DCs of ND for fatigue in patients with breast cancer under radiation therapy treatment. The most prevalent DCs were *non-restorative sleep pattern* (n = 83; 63.8%), *increased need for rest* (n = 78; 60%), *increase of the physical symptoms* (n = 78; 60%); *ineffective performance* (n = 78; 60%); *tiredness* (n = 66; 50.8%), *insufficient energy* (n = 62; 47.7%); and *impaired capacity in maintaining the usual level of physical activity* (n = 56; 41.3%).

Statistically significant correlations were identified when the DCs were associated with the variables, with emphasis on income, origin, and staging. Women with less than one minimum wage of income presented a higher proportion of *non-restorative sleeping patterns* (30.6%; p = 0.008), *ineffective performance* (24.4%; p = 0.036), and *reduction of social roles* (32.3%; p = 0.014) Similarly, unemployed women had a higher proportion of the DC *Feelings of guilt due to the difficulty in complying with responsibilities* (55.3%; p = 0.024). Regarding origin, it was observed that women who live in the capital had higher proportions of *impaired capacity in maintaining the usual level of physical activity* (73%; p = 0.004), *drowsiness* (69.2%; p = 0.021), *lethargy* (62.5%; p = 0.011), and *lack of interest about the surrounding environment* (63.0%; p = 0.005).

Women with staging for primary T2 tumor showed higher proportion of *changes in libido* (55.4%; p = 0.035). The DC *Increase in physical symptoms* was present in higher proportions in women with staging N3 for lymph nodes (12.8% vs. 0.0%; p = 0.006) and in those with staging M1 (92.3%; p = 0.025). Furthermore, the presence of *increased need for rest* was related to lower hemoglobin values (average posts: 14.68 vs. 24.91; p = 0.010), and a higher number of radiotherapy sessions was observed in women with *lack of interest about the surrounding environment* (average posts: 79.96 vs. 61.53; p = 0.021).

The prevalence of the ND for fatigue in women with breast cancer under radiation treatment was estimated in 21.9% by the latent class model. Table 2 presents the measurements of specificity, sensitivity, and the prevalence of the diagnosis under scrutiny.

The DC *Impaired capacity in maintaining the usual level of physical activity* obtained the greatest sensitivity value (100%), which means that these indicators is the best accuracy measure to infer early stages of the nursing diagnosis studied. The characteristics *Impaired capacity in maintaining usual routines* and *Lack of interest about the surrounding environment* had the greatest specificity values (100% each), which suggest these are proper indicators to confirm the presence of the diagnosis. It should be noted that the indicators *changes in concentration*, *Impaired capacity in maintaining usual routines*, *Lack of interest about the surrounding environment*, *lethargy*, *drowsiness*, and *weakness/asthenia* showed statistical significance for specificity.

Table 1 – Distribution of the defining characteristics of nursing diagnosis for Fatigue in women with breast cancer under radiation therapy treatment, Fortaleza, Ceará, Brazil, 2017

Defining characteristics	n	%	CI95%	
1. Non-restorative sleep pattern	83	63.8	54.9	71.9
2. Increased need for rest	78	60.0	51.0	68.4
3. Increase in physical symptoms	78	60.0	51.0	68.4
4. Ineffective performance	78	60.0	51.0	68.4
5. Tiredness	66	50.8	41.9	59.6
6. Insufficient energy	62	47.7	38.9	56.6
7. Impaired capacity in maintaining the usual level of physical activity	56	43.1	34.5	52.0
8. Changes in libido*	29	39.2	28.2	51.2
9. Drowsiness	41	31.5	23.8	40.3
10. Apathy	39	30.0	22.4	38.8
11. Weakness/asthenia	38	29.2	21.7	38.0
12. Changes in concentration	36	27.7	20.4	36.3
13. Lethargy	31	23.8	17.0	32.3
14. Reduction of social roles	28	21.5	15.0	30.0
15. Introspection	24	18.5	12.4	26.4
16. Impaired capacity in maintaining usual routines	16	12.3	7.4	19.5
17. Feelings of guilt due to the difficulty in complying with responsibilities	14	10.8	6.2	17.7
18. Lack of interest about the surrounding environment	4	3.1	1.0	8.2

Note: * N = 74 women who had an active sex life.

Table 2 – Measures of diagnostic accuracy of defining characteristics of the model which presented good adjustment based on latent class analysis with random effects, Fortaleza, Ceará, Brazil, 2017

Defining characteristics	Se	CI95%	Sp	CI95%
1. Changes in concentration	41.77	16.82 – 68.22	76.41	66.00 – 84.17
2. Impaired capacity in maintaining usual routines	55.83	00.00 – 99.73	100.00	99.96 – 100.00
3. Impaired capacity in maintaining the usual level of physical activity	100.00	99.89 – 100.00	73.07	6.40 – 98.51
4. Lack of interest about the surrounding environment	14.83	0.67 – 84.84	100.00	99.91 – 100.00
5. Lethargy	23.62	1.09 – 92.41	76.09	66.07 – 83.77
6. Drowsiness	36.68	2.20 – 95.11	69.97	58.96 – 78.26
7. Weakness/asthenia	46.04	5.32 – 89.92	75.68	64.27 – 83.86
Prevalence: 21.9%				
$G^2 = 117.72 - GL = 113 - p = 0.362$				

Note: Se: Sensitivity; Sp: Specificity

Table 3 – Subsequent likelihood of presence/absence of the nursing diagnoses for fatigue according to the presence (1) / absence (0) in sets of defining characteristics of the final latent class model, Fortaleza, Ceará, Brazil, 2017

Sets	Defining characteristics							n	Fatigue	
	DC1	DC2	DC3	DC4	DC5	DC6	DC7		Absent	Present
1	0	0	0	0	0	0	0	41	1.00	0.00
2	0	0	0	0	0	0	1	6	1.00	0.00
3	0	0	0	0	0	1	0	6	1.00	0.00
4	0	0	0	0	0	1	1	1	1.00	0.00
5	0	0	0	0	1	0	0	3	1.00	0.00
6	0	0	0	0	1	1	0	4	1.00	0.00
7	0	0	0	0	1	1	1	1	1.00	0.00
8	0	0	1	0	0	0	0	9	0.52	0.48
9	0	0	1	0	0	0	1	3	0.54	0.46
10	0	0	1	0	0	1	0	2	0.75	0.25

To be continued

Table 3 (concluded)

Sets	Defining characteristics							n	Fatigue	
	DC1	DC2	DC3	DC4	DC5	DC6	DC7		Absent	Present
11	0	0	1	0	0	1	1	2	0.75	0.25
12	0	0	1	0	1	0	0	4	0.82	0.18
13	0	0	1	0	1	1	0	3	0.92	0.08
14	0	0	1	1	1	0	0	1	0.00	1.00
15	0	1	1	0	0	0	0	1	0.00	1.00
16	0	1	1	0	0	0	1	2	0.00	1.00
17	0	1	1	0	0	1	0	3	0.00	1.00
18	0	1	1	0	1	0	0	1	0.00	1.00
19	0	1	1	0	1	0	1	1	0.00	1.00
20	1	0	0	0	0	0	0	3	1.00	0.00
21	1	0	0	0	0	0	1	1	1.00	0.00
22	1	0	0	0	0	1	0	1	1.00	0.00
23	1	0	0	0	0	1	1	2	1.00	0.00
24	1	0	0	0	1	0	0	1	1.00	0.00
25	1	0	0	0	1	0	1	1	1.00	0.00
26	1	0	0	0	1	1	0	2	1.00	0.00
27	1	0	0	0	1	1	1	1	1.00	0.00
28	1	0	1	0	0	0	0	3	0.59	0.41
29	1	0	1	0	0	0	1	3	0.60	0.40
30	1	0	1	0	0	1	0	1	0.79	0.21
31	1	0	1	0	0	1	1	3	0.79	0.21
32	1	0	1	0	1	0	0	1	0.85	0.15
33	1	0	1	0	1	0	1	1	0.85	0.15
34	1	0	1	0	1	1	1	4	0.94	0.06
35	1	1	1	0	0	0	1	1	0.00	1.00
36	1	1	1	0	0	1	1	2	0.00	1.00
37	1	1	1	0	1	1	1	2	0.00	1.00
38	1	1	1	1	0	0	0	2	0.00	1.00
39	1	1	1	1	0	1	1	1	0.00	1.00

Note: DC1: Changes in concentration; DC2: Impaired capacity in maintaining usual routines; DC3: Impaired capacity in maintaining the usual level of physical activity; DC4: Lack of interest about the surrounding environment; DC5: Lethargy; DC6: Drowsiness; DC7: Weakness/asthenia.

Table 3 presents the likelihood of identifying or not the ND studied from the presence or absence of the seven defining characteristics which composed the adjusted latent class model.

Only 11 of the 39 sets with different combinations of clinical indicators showed the likelihood of manifesting the ND for fatigue. We emphasize that the DC *impaired capacity in maintaining the usual level of physical activity* was part of all combinations in which the diagnosis was present, while the indicator *impaired capacity in maintaining usual routines* was present in ten of the eleven sets.

DISCUSSION

Regarding the association between the identified DCs and variables, the correlation of low income with a higher proportion of some DCs of the ND studied and the issue of unemployment should be considered, as they can compromise the patient monitoring and cares the disease requires. In addition, low family income associated with low educational level is considered to be a risk factor for many health-disease processes, including neoplasms⁽¹⁹⁾, since better economic conditions

are directly related to overall survival and inversely related to late diagnosis and mortality rate for breast cancer⁽²⁰⁾.

Concerning origin, some studies found in the literature correlate the distance from the place of treatment with the fatigue symptoms, that is, women who reside in cities outside the capital, where the treatment occurs, would present more fatigue, associated to the physical and psychological weariness resulting from the displacement to the service to performed treatment^(18,21). Thus, whereas most women investigated, who were from the countryside, resided in cancer patients' support houses near or within the institution, it is suggested that the weariness from displacement is more evident in the residents of the own capital, considering the type of transport and the time used to arrive at the health service.

As for the staging, which classifies the tumor regarding growth and extension, women with more advanced cancers presented higher prevalence of *changes in libido* (55.4%) and *increase in physical symptoms* (12.8%). For cancer patients, sexuality may be affected by the own treatment or by mutilations resulting from it, which implies in body image changes^(13,22). In the most advanced stage of disease, the fatigue occurs in more than 90%

of the cases⁽²³⁾, which also increases the physical complaints, especially leg pain, cold-like sensations such as muscle weakness, discomfort, fatigue, exhaustion, weakness, reduced speed and manual grasping^(17,24-26). In addition, physical symptoms directly reflect in the decreased sexual desire⁽²⁷⁾.

Several studies^(23-26,28) refer to clinical indicators associated with fatigue that confirm the findings above, such as discomfort, weariness/exhaustion, weakness/asthenia, lack of energy, drowsiness/sleep disorders, need for rest, impairment in the performance of work activities, loss of ability to perform daily living activities, and reduction in social roles.

Symptoms of lack of energy, weariness, and impaired capacity for physical activities can be reflexes of the own RT, of psychological factors, the need for sleeping/resting during the day or, even, can be potentialized by the negative repercussions of RT in the respiratory function, since there are potential risks of damage to the lung parenchyma, type II pneumocytes loss, surfactant loss, and edema in the basal membrane⁽²⁶⁾.

Non-restorative sleep patterns and the consequent *increased need for rest* may be associated with a reduced energy, which is a characteristic of the patient with fatigue, consisting of sleep disorders, weariness, sleepiness, difficulty to sleep, and need for rest, as showed in several studies on fatigue in the cancer patient under radiotherapy^(9,23,28-29).

Consequently, the patients showed difficulty in performing work activities and even daily living activities, which are already expected by the own extension of the disease and the treatment⁽¹⁶⁾ and are related to the DCs *ineffective performance* and *impaired capacity in maintaining the usual level of physical activity*. The latter obtained the highest sensitivity value (100%) in the adjusted model of this study, which means presenting the best measure of accuracy to infer the initial stages of the ND studied. In the study, 58% of the patients in radiation treatment reduced their activities during radiotherapy, and 82% of them resumed such activities about a month after the end of treatment⁽³⁰⁾.

Thus, daily physical activities such as walking, exercising, cleaning the house, cooking, and even eating can become major challenges for patients with fatigue. Limitations from cancer and its treatment are also associated with a progressive loss of muscle mass, which decreases muscle strength and reduces the ability of patients to perform simple tasks of daily routine, intensifying the symptoms and leading to inability⁽³¹⁾.

Ineffective performance, as well as the *reduction of social roles* – another important finding –, appear mainly in cases where the person affected by cancer loses the central role of the family, whether financially and/or affectively, due to the limitations imposed by fatigue, such as difficulty to work, stop working early or even retiring before time, as well as inability to perform domestic activities⁽¹³⁾.

The DC *Lack of interest about the surrounding environment* was more prevalent in women with the highest number of radiotherapy sessions. This reduction of interest or motivation was present in 62% of a sample with 301 patients who reported fatigue⁽³²⁾. Along with the DC *impaired capacity in maintaining usual routines*, both characteristics were presented as good indicators to confirm the presence of fatigue in

patients with breast cancer under radiotherapy, as they present 100% specificity value.

Difficulty to perform working, domestic, or daily living activities, and the reduced social participation were identified in other patients, being associated with fatigue and with the increased severity of other secondary treatment-related effects, as the presence of concomitant medical conditions, the fact of living alone, and receiving radiation therapy in chest, head, and neck regions^(16,30).

Finally, the prevalence of the ND fatigue in the population of women with breast cancer under radiation therapy was estimated in 21.9%; in children with cancer, this prevalence was higher, being present in 59.5% of the population studied⁽³³⁾. In other study, the ND for fatigue was present in 0.9% of a sample with 109 patients with cancer⁽¹⁷⁾, fact that was associated with the symptom subjectivity and absence of detailed report of clinical manifestations of patients in daily developments of nurses.

Study limitations

As a limitation for the development of this study, we point the fact it was conducted with a specific population – women with breast cancer under radiation treatment –, limiting the results found only to similar populations. Thus, diagnostic accuracy studies should be encouraged for other populations, to increase the scientific value of nursing diagnosis and assist the clinical practice.

Contributions to the fields of nursing, health, or public policy

Given the importance of this diagnosis for cancer patients, it is believed that knowledge about the indicators that are more frequent and with greater power of prediction for the presence of this diagnosis, as well as their associations with clinical and sociodemographic variables, can help the nurse to infer more accurately the ND for fatigue, thus facilitating the design of a proper action plan. However, it is important to stress that peculiarities of the population, as well as the professionals' knowledge and judgment when assessing the presence of the clinical indicator, might influence in the correct diagnostic inference and, consequently, in the construction of an affective care plan.

CONCLUSION

Through latent class analysis, we verified that 21.9% of the women with breast cancer under radiotherapy presented the diagnosis studied. Furthermore, the DC that showed the highest sensitivity was *impaired capacity in maintaining the usual level of physical activity*, while *impaired capacity in maintaining usual routines* and *lack of interest about the surrounding environment* presented greater specificity, all of them with 100% in the adjusted model.

This study allowed the evaluation of the CDs accuracy of the ND for fatigue in women with breast cancer under radiotherapy treatment, based on the frequency and degree of impairment of this symptom. It is expected that the results acquired can contribute to a better understanding of this diagnosis' manifestation in this population, as well as clinical indicators that best predict the presence of the diagnosis, considering the main sociodemographic and clinical aspects involved.

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