

Fatigue in adults accompanying patients in outpatient treatment*

Fadiga em adultos acompanhantes de pacientes em tratamento ambulatorial

Fatiga en adultos acompañantes de pacientes en tratamiento en ambulatorios

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ABSTRACT

Objectives: To describe fatigue and fatigue by efforts in people without chronic diseases and to verify the association between fatigue or fatigue by efforts with gender, age, education, marital cohabitation, depression, physical activity, smoking, body mass index (BMI), dyspnea and depression. **Methods:** It is a descriptive study comprising 93 patients from outpatient attendance who reported about smoking, fatigue, fatigue by efforts, depression, and physical activity. **Results:** Of the 93 volunteers (65.6% female - average age 33.4 ± 10.1 years), 52.7% had fatigue and 34.4% had fatigue by efforts. The average score of fatigue was 16.3 ± 6.6 (scale from 8 to 40) and fatigue by efforts 12.6 ± 4.4 (scale from 9 to 45). The fatigue was more intense ($p = 0.005$) and more frequent ($p = 0.001$) in women and was positively correlated with depression ($r_s=0,47; p=0,000$). The fatigue by efforts was positively correlated with depression ($r_s=0,39; p=0,000$) and was more frequent among women ($p = 0.001$). **Conclusion:** The characteristics of fatigue in a sample of patient companions are similar to those of patients with chronic diseases. The interpretation of data on fatigue, in patients with chronic diseases, should consider the fatigue data, in the general population.

Keywords: Fatigue; Nursing Diagnoses; Adult health

RESUMO

Objetivos: Descrever a fadiga e fadiga ao esforço em pessoas sem doenças crônicas e verificar associação entre fadiga ou fadiga ao esforço e sexo, idade, escolaridade, convivência marital, depressão, atividade física, tabagismo, Índice de Massa Corporal (IMC), dispnéia e depressão. **Métodos:** Estudo descritivo abrangendo 93 acompanhantes de pacientes ambulatoriais que informaram sobre tabagismo, fadiga, fadiga ao esforço, depressão, e atividade física. **Resultados:** Dos 93 voluntários (65,6% mulheres, média de idade $33,4 \pm 10,1$ anos), 52,7% tinham fadiga e 34,4% fadiga ao esforço. O escore médio de fadiga foi $16,3 \pm 6,6$ (escala de 8 a 40) e de fadiga ao esforço $12,6 \pm 4,4$ (escala de 9 a 45). A fadiga foi mais intensa ($p=0,005$) e mais freqüente ($p=0,001$) nas mulheres e correlacionou-se positivamente com depressão ($r_s=0,47; p=0,000$). A fadiga ao esforço correlacionou-se positivamente com depressão ($r_s=0,39; p=0,000$) e foi mais freqüente entre as mulheres ($p=0,001$). **Conclusão:** As características da fadiga em amostra de acompanhantes de pacientes são semelhantes às de pacientes com doenças crônicas. A interpretação de dados sobre fadiga em doenças crônicas precisaria considerar dados de fadiga na população geral.

Descritores: Fadiga; Diagnóstico de enfermagem; Saúde do adulto

RESUMEN

Objetivos: Describir la fatiga y la fatiga por esfuerzo en personas sin enfermedades crónicas y, verificar la asociación entre fatiga o fatiga por esfuerzo con sexo, edad, escolaridad, convivencia marital, depresión, actividad física, tabaquismo, Índice de Masa Corporal (IMC), disnea y depresión. **Métodos:** Es un estudio descriptivo abarcando 93 acompañantes de pacientes de ambulatorios que informaron sobre tabaquismo, fatiga, fatiga por esfuerzo, depresión y, actividad física. **Resultados:** De los 93 voluntarios (65,6% mujeres, promedio de edad $33,4 \pm 10,1$ años), 52,7% tenían fatiga y 34,4% fatiga por esfuerzo. El puntaje promedio de fatiga fue $16,3 \pm 6,6$ (escala de 8 a 40) y de fatiga por esfuerzo $12,6 \pm 4,4$ (escala de 9 a 45). La fatiga fue más intensa ($p=0,005$) y más frecuente ($p=0,001$) en las mujeres y se correlacionó positivamente con depresión ($r_s=0,47; p=0,000$). La fatiga por esfuerzo se correlacionó positivamente con depresión ($r_s=0,39; p=0,000$) y fue más frecuente entre las mujeres ($p=0,001$). **Conclusión:** Las características de la fatiga en una muestra de acompañantes de pacientes son semejantes a las de pacientes con enfermedades crónicas. La interpretación de los datos sobre fatiga en enfermedades crónicas precisaría considerar los datos de fatiga en la población general.

Descriptorios: Fatiga; Diagnóstico de enfermería; Salud del adulto

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INTRODUCTION

Fatigue is described as an oppressive feeling, exhaustion, and decreased capacity to perform the regular physical and mental work⁽¹⁾. As verified⁽²⁻³⁾, fatigue occurs in the general population, even in young individuals without diseases. Therefore, to interpret the relevance of fatigue in individuals with some kind of chronic disease, we must know its characteristics in healthy individuals.

In a study carried out in 1996, in Norway⁽²⁾, 3,500 individuals with ages ranging from 19-80 years answered the Fatigue Questionnaire – FQ to assess physical (7 items) and mental (5 items) fatigue. Results showed that 22% reported substantial fatigue and 11% presented fatigue for six months or over and that women presented more severe fatigue than men. As for age, those over 60 reported more fatigue than any other age group. In most cases, the lower the schooling, the greater the level of fatigue. Divorced men presented higher scores of fatigue, just like widows. In the majority of cases, single people (both men and women) had lower fatigue scores. Disabled retirees had higher fatigue scores, whereas students/individuals in the army had lower fatigue scores. Those that reported being sick or with a health problem presented the highest level of fatigue, whereas individuals who did not report any disease or current health problem presented lower fatigue scores.

In Denmark⁽³⁾, in 1997, 1,608 individuals with ages ranging from 20 to 79 years have been studied by means of the Multidimensional Fatigue Inventory MFI – 20. It is composed by 20 items, subdivided into the following categories: General Fatigue, Physical Fatigue, Mental Fatigue, Reduced Activity and Reduced Motivation. Differences in fatigue regarding gender were small; however, as the variability in women was greater, this group presented higher fatigue scores. The group with ages ranging from 60 to 69 years old had higher mean of fatigue compared to other groups. Married individuals presented lower fatigue scores than those living alone. Individuals in a less favored economic class and those with depression had high fatigue score in all scales, regardless of other factors. People with some kind of chronic disease reported higher fatigue intensity compared to those who did not report any disease. Some of the diseases reported were asthma, bronchitis, cancer, diabetes, hypertension, ischemic heart disease, stroke, and rheumatic diseases. The multivariate analysis showed that physical and mental diseases are essential elements to determine the level of fatigue and the adjustment of the impact of socio-demographic factors in fatigue.

In the two studies, fatigue of the general population was characterized by the fact that greater scores were found in women, in the elderly, in those with chronic diseases, and those living alone.

In a survey with 228 cancer patients and 98 cancer free volunteers, the intensity of fatigue was higher in patients with advanced cancer (78%) when compared to control individuals (6%). Mean age of control individuals was 68 years and they reported other chronic diseases such as arthritis, hypertension and, respiratory diseases⁽⁴⁾.

In a study carried out in Denmark, prolonged fatigue was compared with the burnout syndrome in the economically active population. The comparison tried to establish similarities and differences among them. The burnout syndrome is a condition that is associated both with fatigue and work, consisting originally of emotional exhaustion, depersonalization and reduced personal accomplishment. A total of 12,140 employees took part in the beginning of the study in 1998. Those with chronic diseases (stroke, liver dysfunction, diabetes mellitus, hyperthyroidism and cancer) were excluded and 11,597 participants remained. In this sample, the frequency and some symptoms of burnout and prolonged fatigue were compared. The frequency of prolonged fatigue was approximately 21.5% (n = 2497), whereas of burnout it was approximately 17.5% (n = 2034). This study showed that the frequency of fatigue in the general population is relevant⁽⁵⁾.

In another population study, 399 volunteers, working in different companies answered a questionnaire about working overtime and number of hours of sleep. It was seen that workers who slept less and had worked overtime presented greater intensity of fatigue, and there was an important prevalence of fatigue and depression together⁽⁶⁾.

Fatigue is common in chronic diseases such as Heart Failure (HF), hindering the functional capacity and the performance of daily activities⁽⁷⁾. A study⁽⁷⁾ assessed fatigue in 93 patients with HF. For comparison, authors used values from another study with a healthy population using the same instrument to assess fatigue⁽³⁾. The conclusion was that compared to healthy individuals, patients with HF have significantly higher intensity of fatigue. This study exemplifies the importance of studies on fatigue and other symptoms in healthy population samples to be used as a reference to interpret results of studies with samples of patients with chronic diseases.

Studying fatigue is essential, because it is a high prevalence symptom in the general population and it is one of the main complaints of workers and a central symptom of many diseases, such as cancer, heart failure and depression, it is also an undesirable side effect of treatments. This symptom has a substantial impact on the activities of daily living of people and on their quality of life. One of the important issues on the study of fatigue refers to the interpretation of its magnitude in people with chronic diseases. Because it is a prevalent symptom in the general population, knowing the characteristics of

fatigue in this group will help interpret it on a sample of sick people.

OBJECTIVES

The objectives of the present study were to describe fatigue and exertion fatigue in people without chronic diseases and to assess the association between fatigue/exertion fatigue and gender, age, education, being married, depression, physical activity, smoking, Body Mass Index, dyspnea and depression.

METHODS

Quantitative, descriptive study carried out in a government institution specialized in Cardiology in the city of São Paulo. Ninety-three adults accompanying patients undergoing outpatient treatment and who reported not presenting any kind of disease took part on the study. Inclusion criteria were to be over 18 and to be able to communicate orally, whereas exclusion criteria were to present diagnosed or suspected disease.

Participants were included in the study by convenience. The sample was calculated in 84 individuals based on a study⁽³⁾ where standard deviation for the mean fatigue scores in a sample of 1082 individuals from the general population in the Multidimensional Fatigue Inventory was 28, with an estimate of maximum error equal to 6 and a 5% significance. Nine individuals have been added to the sample due to the possibility of losses with a total sample of 93 individuals.

Fatigue was assessed using the Dutch Fatigue Scale - DUFSS and the Dutch Exertion Fatigue Scale - DEFS, formed, respectively, by 8 items and by 9 items, with Likert-type responses of 5 points (1 to 5). Total scores at DUFSS may range from 8 to 40 points and at DEFS from 9 to 45 points. The higher the scores, the stronger the intensity of fatigue or exertion fatigue. These scales were developed in the Netherlands and published in 1998⁽⁸⁾. DUFSS and DEFS had their internal consistency estimated by several studies where KR-20 indexes for DUFSS ranged from 0.79 to 0.89 and for DEFS from 0.86 to 0.91⁽⁹⁾. Adaptation and validation of DUFSS and DEFS scales for Brazilian samples have been performed in another study with good estimates of validity and reliability⁽¹⁰⁾. In the present study, Cronbach's alpha was equal to 0.81 in the DUFSS and 0.79 in the DEFS, demonstrating an adequate internal consistency of the instruments. The cases (presence or absence of fatigue or exertion fatigue) have been defined according to ROC (Receiver Operator Characteristic Curve), estimated in the study to adapt and validate to Brazil⁽¹⁰⁾. Cut-off points established were DUFSS ≥ 14.5 for fatigue and DEFS ≥ 12.5 for exertion fatigue. Beck Depression

Inventory⁽¹¹⁾ (BDI) was used to assess depression. The Chronbach's alpha of the BDI in the present study was 0.89. Assessment of physical activity was carried out using the IPAQ⁽¹²⁾ (International Physical Activity Questionnaire).

Dyspnea was classified according to the effort required to perform activities of daily living following the classification of Mahler Baseline Dyspnea Index⁽¹³⁾ as dyspnea at low exertion, moderate exertion, high exertion and strenuous exertion. The other variables were acquired by interviewees' report.

Continuous variables were described in means, medians and standard deviation, and categorical variables in absolute and relative frequencies. Associations between fatigue/exertion fatigue and the variables selected (gender, age, education, being married, depression, physical activity, smoking, Body Mass Index - BMI, dyspnea and depression) were assessed using non-parametric tests. P values lower than or equal to 0.05 were accepted as statistically significant for all tests.

Data were collected through an interview, while participants waited for care of the patient.

The research project has been approved by the Commission of Teaching and Research and by the Research Ethics Committee (Protocol # 3512) of the Institution where patients were recruited. All participants gave their written consent.

RESULTS

Table 1 shows a predominance of females, a few people at an older age, with average education, mostly employed and married.

Table 1 – Characteristics of the sample (n=93). São Paulo, 2008

Characteristics	N	%
Gender		
Female	61	65.6
Male	32	34.4
Age		
Range		18-64
Mean (SD)		33.40 (± 10.05)
Median		32.00
Education		
Range		1-20
Mean (SD)		10.08 (± 3.46)
Median		11.00
Married		
Yes	65	69.9
No	28	30.1
Work situation		
Retired	1	1.1
Unemployed, student, housewife	32	34.4
Employed	60	64.5

Table 2 – Descriptive statistics of DUFs (fatigue) scores. n = 93. São Paulo, 2008.

Fatigue (DUFs)	Mean	Median	Standard Deviation	Min	Max
1. Have you had a feeling of overwhelming and prolonged lack of energy recently?	1.94	1.00	1.23	1	5
2. Have you recently noticeably needed more energy in order to fulfil your daily tasks?	2.23	2.00	1.45	1	5
3. Have you felt listless recently?	2.05	1.00	1.34	1	5
4. Have you awoken on occasion recently with a feeling of exhaustion and weariness?	1.91	2.00	1.04	1	5
5. Have you an increasing need for rest recently?	2.45	3.00	1.30	1	5
6. Are you still capable recently of carrying out routine everyday activities?	1.73	1.00	1.15	1	5
7. Is your interest in sex, your desire to make love, diminished recently?	1.88	1.00	1.22	1	5
8. Has it become more difficult to concentrate for long on one thing?	2.13	2.00	1.31	1	5
Total score	16.32	15.00	6.59	8	34

Table 3 – Descriptive statistics of DEFS (exertion fatigue) scores. n = 93. São Paulo, 2008.

Exertion Fatigue (DEFS)	Mean	Median	Standard Deviation	Min	Max
1. Do you find it fatiguing to walk for 10 minutes?	1.40	1.00	0.92	1	5
2. Do you find it fatiguing to walk for half an hour?	1.62	1.00	1.04	1	5
3. Do you find it fatiguing to stand under the shower?	1.08	1.00	0.34	1	3
4. Do you find it fatiguing to walk up and down stairs?	1.96	2.00	1.10	1	5
5. Do you find it fatiguing to go to the shop to buy something?	1.35	1.00	0.76	1	4
6. Do you find it fatiguing to clear up household rubbish?	1.26	1.00	0.74	1	5
7. Do you find vacuum cleaning a fatiguing activity?	1.32	1.00	0.74	1	5
8. Do you find, in general, going to visit other people fatiguing?	1.27	1.00	0.64	1	4
9. Do you find it fatiguing to attend a special social occasion, such as a birthday party?	1.35	1.00	0.73	1	4
Total score	12.61	11.00	4.45	9	33

Table 4 – Main results from association tests* between fatigue and exertion fatigue. São Paulo, 2008

Variables	Fatigue		Exertion Fatigue	
	DUFs Intensity	DUFs ≥14.5 Case	DEFS Intensity	DEFS ≥12.5 Case
Gender	F > M <i>p</i> =0.005	F > M <i>p</i> =0.001	F = M <i>p</i> =0,07	F > M <i>p</i> =0.02
Dyspnea	Yes>No <i>p</i> =0.00	Yes>No <i>p</i> =0.00	Yes>No <i>p</i> =0.00	Yes>No <i>p</i> =0.00
Depression	Positive correlation <i>r</i> =0.47 <i>p</i> =0.00	Dep>Disf>No <i>p</i> =0.04	Positive correlation <i>r</i> =0.40 <i>p</i> =0.00	Non significant <i>P</i> =0.08
Physical activity	Non significant <i>p</i> =0.12	Non significant <i>p</i> =0.35	Non significant <i>p</i> =0.07	Sedentary lifestyle > Active individuals <i>P</i> =0.04
Age	Non significant <i>p</i> =0.21	Non significant <i>p</i> =0.34	Non significant <i>p</i> =0.52	Non significant <i>p</i> =0.62
Education	Non significant <i>p</i> =0.30	Non significant <i>p</i> =0.19	Non significant <i>p</i> =0.10	Non significant <i>p</i> =0.51
Being married	Non significant <i>p</i> =0.69	Non significant <i>p</i> =0.73	Non significant <i>p</i> =0.73	Non significant <i>p</i> =0.86
Smoking	Non significant <i>p</i> =0.96	Non significant <i>p</i> =0.49	Non significant <i>p</i> =0.81	Non significant <i>p</i> =0.46
Body Mass Index	Non significant <i>p</i> =0.14	Non significant <i>p</i> =0.13	Non significant <i>p</i> =0.90	Non significant <i>p</i> =0.85

Fatigue was assessed through DUFs answers and exertion fatigue was assessed through DEFS answers. Total scores at DUFs may range from 8 to 40 and at DEFS from 9 to 45 and the higher the scores, the greater the intensity of fatigue and exertion fatigue. On tables 2 and 3 results are presented as total scores at DUFs and

DEFS (exertion fatigue) and also regarding the presence of “substantial fatigue” and “exertion substantial fatigue” (fatigue frequency).

Of the 93 participants, 49 (52.7%) were categorized as cases of “substantial fatigue” (DUFs ≥14.5) and 32 (34.4%) as cases of “exertion substantial fatigue” (DEFS

≥12.5).

Associations between fatigue or exertion fatigue, and the variables studied are summarized in Table 4. These associations were assessed using non-parametric tests (Mann-Whitney, Kruskal-Wallis, Spearman, Chi-Square and Fisher).

DISCUSSION

Ninety-three patients' companions who reported having no diseases took part in the study. This sample was predominantly female, married, employed young adults, with average education. This profile may be connected with the fact that they were accompanying outpatients. The small number of people at an older age may be due to the criteria to exclude people with chronic diseases, which are more common as people get older.

In the present study, 52.7% of the participants presented fatigue (DUFS ≥14.5) and 34.4% presented exertion fatigue (DEFS ≥12.5). On a study performed in Norway⁽²⁾, prevalence of fatigue was 22% among citizens from 19 to 80 years old answering the Fatigue Questionnaire – FQ. In another study carried out with 12,095 volunteer workers⁽¹⁴⁾, the prevalence of fatigue assessed through the Checklist Individual Strength (CIS) was also 22%. The prevalence of fatigue assessed also through the CIS in a study carried out in Japan⁽⁷⁾ with 399 workers from different companies was 44.9 %.

Fatigue prevalence was higher in the present study than in the other studies mentioned. However, results cannot be compared because the questionnaires are different and there are no studies on the general population using DUFS and DEFS. Another important factor is that the sample of the present study, as it is formed by patients' companions, does not represent the general population. Participants, because they are in an environment for the healthcare of chronic patients and because they are caregivers, may have presented intensity and frequency of fatigue and exertion fatigue higher than samples of the overall population.

As for fatigue in people with chronic diseases, there is a study assessing fatigue in people with cancer⁽⁴⁾, in which the prevalence of fatigue was 48%, lower than that found for the present study (52.7%). The difficulties to make this comparison are the same previously mentioned. However, in a study with 300 patients with HF⁽¹⁰⁾, assessed with the DUFS and the DEFS, the frequency of fatigue was 65.3% and of exertion fatigue it was 70.3%, they were both higher than the sample of the present study. This comparison is in agreement to what is expected, that is, fatigue and exertion fatigue are more frequent among sick people than among the overall population, even though the sample of the present study

does not represent the general population.

The intensity of fatigue in the sample was moderate, and the mean was 16.3 (score scale of 8 to 40) (Table 2). The intensity of exertion fatigue was mild, the mean was 12.6 (score scale of 9 to 45) (Table 3). To compare these results with those from other studies, we have transformed the scale of 8 to 40 to a scale of 0 to 100⁽¹⁰⁾ and, in this case, the average of fatigue scores was 25.9.

In a study carried out in Norway⁽²⁾, the mean total fatigue of the overall population was 12.2 on a scale of 0 to 30. On a scale of 0 to 100, the mean would be 40.6. In another study carried out in Denmark⁽³⁾, the mean fatigue in the population was 35 on a scale of 0 to 100. With the transformation of the scale to 0 to 100, mean fatigue scores in this study (25.9) was lower than those found in the literature – 35.0⁽³⁾ and 40.6⁽²⁾. However, we should be cautious about comparing the studies because different questionnaires can present differences in the concept of fatigue. It may be stated that the mean intensity of fatigue in the overall population ranges from mild to moderate.

In cancer patients⁽⁴⁾, mean intensity was 40, on a scale of 09 to 63 (57.4 on scale of 0 to 100 scale), therefore, it can be considered high and more increased than the mean intensity in samples of the overall population or in a sample of people without chronic diseases.

In a study with patients with heart failure, mean DUFS score was 19.4 (±8.2) and mean DEFS score was 19.3 (±8.9) (10); these values were higher than those from this study sample.

The literature shows that fatigue may be associated with several variables; however the results are controversial in some cases. In the present study, there were associations between fatigue and gender, dyspnea and depression and exertion fatigue and gender, dyspnea, depression and physical activity. The other variables did not present association or statistically significant correlation.

In the present study women presented higher frequency and greater intensity of fatigue than men, however, as for exertion fatigue, there was no difference between genders (Table 4). Studies with the overall population⁽²⁻³⁾ showed that women had more intense fatigue than men.

As for age, these studies⁽²⁻³⁾ demonstrated that the frequency of fatigue is higher in people over 60, which cannot be observed in the sample studied due to the low frequency of people with older age.

The association of fatigue with depression scores is frequently reported⁽²⁻³⁾, and it was also observed in this study sample because there was a positive and moderate correlation between Beck Depression Inventory scores and intensity of fatigue and exertion fatigue (Table 4). There was also greater frequency of fatigue among

people with higher scores in Beck Depression Inventory, but there was no significance in the association with frequency of exertion fatigue.

We could not find other studies on fatigue in the general population that assessed the association between fatigue and the other variables of the present study. As for physical activity, there was greater frequency of exertion fatigue among people with sedentary lifestyle, when compared to those that were active or very active.

Associations in samples of healthy adults or of the general population were a little different from the associations with sample of patients with heart failure⁽¹⁰⁾ or with cancer. Further studies are necessary to compare the two groups (general population and ill people).

The identification of variables associated with fatigue in patients or healthy individuals will enable assumption to be made for other studies and to consider the possibility of non-pharmacological interventions to control or relieve fatigue. As a human response which is considered as a focus in the nursing clinical practice⁽¹⁵⁾, knowing the characteristics of fatigue and its manifestations in several populations adds elements not only for a more accurate

diagnosis but also for the establishment of effective interventions.

CONCLUSION

The intensity of fatigue in sample of people without diseases is characterized as mild or moderate. Both fatigue and exertion fatigue presented significant frequency in healthy individuals.

Results from this study help understand better the behavior of fatigue and exertion fatigue in healthy adults, allowing for a better estimate of the magnitude of fatigue in adults with chronic diseases.

The main limitation of the present study is that the sample does not represent the general population. Further studies on fatigue with samples of the general Brazilian population are necessary to increase the knowledge on fatigue in chronic diseases in our country.

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