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Gender Differences in Fatigue: Biopsychosocial Factors Relating to Fatigue in Men and Women

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ABSTRACT

Background. Fatigue is a common problem, which is found more frequently among women than men. To date, neither the etiology of fatigue nor the factors that explain the gender difference in its incidence are still fully understood.

Methods. In a sample of men ($n = 4,681$) and women ($n = 4,698$) (age range, 15-64 years) in the Dutch National Survey of Morbidity and Interventions in General Practice, the gender differences in the underlying biological, psychological, and social factors of fatigue were analyzed.

Results. Both general and gender-specific factors were recognized. Men and women who experience complaints of fatigue appeared to be younger and more highly educated. They had more acute health complaints and more psychosocial problems and also showed a lower level of perceived health. Among women, only gender-specific biological complaints and psychosocial problems were related to fatigue. In addition, relevant sociodemographic variables included taking care of young children and being employed. Among men, fatigue was particularly related to having handicaps and severe chronic complaints. Taking care of young children did not make a difference in the male sample.

Conclusions. Fatigue can only be adequately understood in a multicausal model with biomedical and psychosocial factors. Complaints of fatigue are too often ignored in general practice. By adopting a patient-centered style of communication, physicians can acquire a more complete picture of the patients' fatigue.

In Western societies fatigue has been found to be a common health problem in the population, as well as in general practice. In a comprehensive review, Lewis et al¹ conclude that depending on definition, exclusion criteria, and measurement instruments, between 7% and 45% of the general population report fatigue. Not all fatigue complaints come to the attention of general practitioners because they are either not reported by the patient or are not

recorded by the general practitioner.² In the Netherlands, 'fatigue' is recorded as the reason for encounter for only 6.3% of the patients in general practice,³ whereas in a population study, 29% of the respondents complained about fatigue during the 14 days before the interview.⁴

Generally, women complain more about fatigue than men,^{3,5} although women are only slightly more likely to present fatigue as a complaint to their physician.⁵ Whereas in most epidemiological studies this persistent gender difference in fatigue is mentioned, few authors comment on possible explanations.

Fatigue is a subjective experience that cannot be measured by objective methods.¹ Although everyone is able to tell whether he or she is experiencing fatigue, it seems to be a diagnostic riddle for patients and doctors. In the literature, many different causes of fatigue are mentioned including: biological, psychological, or social. Still, empirical evidence for the etiology of fatigue is limited. Laboratory tests seldom reveal a biological etiology.⁶⁻¹⁰ There is not much evidence of infection as an origin of chronic fatigue.¹¹ Studies on the influence of age, education, working situation, and life style are scarce and contradictory. The only consistent finding in epidemiological studies is that fatigue often seems to be related to psychopathology (usually anxiety and depression).^{5,9,11,12} However, several authors^{1,9,11-13} point out that these correlational studies do not allow for causal conclusions. Nevertheless, there is a consistent and substantial relationship between fatigue and psychological morbidity.^{1,5,11} Furthermore, women seem to be over-represented in both types of health problems. This raises questions about the gender-specific dynamics of fatigue in relationship to psychological and social factors.

Three different theoretical frameworks seem to be of relevance¹⁴:

1. The *biological* framework refers to the influence of the reproductive function of women on health and the use of health care. The menstrual cycle, pregnancy, childbirth, breast feeding, medicinal birth control, and menopause are responsible for physical disturbances and medical consumption that cannot be found in men.¹⁴

2. The *psychological* framework refers to the hypothesis that women and men differ in the manner in which they deal with physical symptoms, emotions, and stress,^{5,14-16} or perhaps they even have a different personality structure.¹⁷

3. The *social* framework refers to the different social positions of men and women in our society. This framework points to the monotony associated with the role of women as housekeeper^{18,19} and caregiver to their husbands and children^{20,21} as the explanation for the greater prevalence of (mental) health problems in women. The empirical results are still contradictory with regard to the influence of combining employment with the care for young children on health and medical consumption.^{19,22,23}

Neither of these frames of reference is itself sufficient to explain the gender differences in fatigue. Accordingly, a multidimensional study was designed in which biological, psychological, and social factors were analyzed in their inter-relationships with fatigue.

METHODS

Design and Data

Data were used from the Dutch National Survey of Morbidity and Interventions in General Practice, a large nationwide study among a random sample of 161 general practitioners, organized in 101 general practices.^{4,24} In the Dutch health care system, all general practitioners have fixed patient lists. A random sample of 17,344 people from the patient lists of these physicians were asked to participate in an extensive health interview at home. A total of 13,066 people agreed to participate (a response rate of 76%). Because of our interest in working conditions, the analyses for this study were restricted to 9,379 respondents (age range, 15-64 years) (4,681 men and 4,698 women).

Instruments

The respondents were questioned about a broad range of morbidity indicators concerning life situation, physical health, and psychosocial problems (Table 1).⁴ *Fatigue* was measured by asking the respondents whether they had experienced complaints of fatigue in the previous 2 weeks. Relevant *life-situation* factors included: having a partner; living with young children; being employed; and type of employment. *Physical health* focused on subjectively perceived health as well as on acute complaints, chronic diseases, and handicaps. Biological and gender-related complaints concerned menstruation, contraception and pregnancy for women, and prostatic complaints for men.

[TABLE 1]

Psychosocial problems were measured by three questionnaires on psychiatric symptoms (General Health Questionnaire²⁵); psychosocial problems related to 22 life domains such as social relations, work, housing, and so forth (BioPro^{4,26}); and stressful life events.⁴

Analyses

Men and women with and without complaints of fatigue were compared using *t* tests for continuous variables and $[\text{chi}]^2$ tests for categorical or dichotomous variables. To analyze their independent relationship to the occurrence of fatigue, variables that appeared to be significant in the bivariate analyses were entered in a logistic regression analysis model. Analyses were performed separately for men and women.

RESULTS

For each independent variable, crude and adjusted odds based on the regression analyses are displayed in Table 2. In the logistic regression analyses, 81.1% of the men and 74.5% of the women could be classified correctly in the fatigue and nonfatigue groups. Women reported fatigue more often than men: 37.8% versus 24.3%. In both sexes, age and education are significantly related to fatigue; younger and more highly educated people reported fatigue more often. White-collar employment was also significantly related to fatigue in both men and women. Taking care of children under the age of 6 years of age was significant only in women. With regard to the *health variables*, the number of acute complaints, perceived health and biological-gender related complaints were significantly related to fatigue in both sexes. Handicap and severe chronic complaints were significant factors only in men. Different patterns were observed between the sexes with regard to the *mental health indicators*. For men, both the BioPro and life events appeared to be significantly related to fatigue. Among women, only the General Health Questionnaire appeared to be related to fatigue.

[TABLE 2]

DISCUSSION

The results of this study show partly a general and partly a gender-specific picture of fatigue. In the Netherlands, as in several other countries,^{1,5,9} fatigue complaints are reported more often by women than by men and even more frequently by young, well-educated people. Furthermore, fatigue is often related to a lower level of perceived health, more acute health complaints, more psychosocial complaints, and a higher level of consumption of medical resources. However, some clear differences between men and women with fatigue have become visible.

Although this study does not allow for conclusions about whether women interpret fatigue differently from men, the results do point out some gender differences in objective factors that are related to fatigue. For women, the analyses show that fatigue is related to problems

of contraception, menstruation, and pregnancy, all of which do not affect men by definition. However, these gender-specific biological factors do not sufficiently explain the reported sex differences in fatigue. Our study makes it clear that social context and living situation are also relevant factors. Living with children under the age of 6 years is often related to fatigue in the female population, whereas this relationship could not be found among men. Similar results have been found in other studies,^{13,27,28} making it clear that despite a more even distribution of employment between men and women (more women are employed than before), taking care of young children is still more burdensome for women than for men.

Based on the results of this study, one prevailing view must be rejected: the idea that housewives without children or with grown-up children report more common health problems, such as fatigue, than other people.²⁹ This idea is based on Pennebaker's theory of the competition of cues, which suggests that these women are more perceptive and reactive to internal physical signals and symptoms because of a lack of external stimuli.³⁰ On the contrary, our study showed that unemployed women without children appeared to have the fewest complaints of fatigue (35%). The highest prevalence of fatigue is found among women who have to combine employment with caring for young children (42%). The double burden seems to be a risk factor for fatigue.

Among men, a lower health status is especially related to perceived fatigue. It is well known that fatigue is a side effect of many severe and chronic illnesses, such as cancer,^{31,32} multiple sclerosis,³³ rheumatoid arthritis,³⁴ heart failure,³⁵ and many other chronic diseases.^{36,37} Another interesting result from our study is that fatigue seems to be related more to mental work than to physical labor. Particularly, when employees have many psychosocial problems and psychological distress, fatigue may be considered to be a serious signal of impending burn out.

What consequences do these results have for the general practitioner? Fatigue is a subjective perception of the patient that finds its origin in a process of interpretation and labeling, in which psychological processes, such as perception and self assessment, but also the patient's basic knowledge of diseases, interact in a highly individualized way.³⁸ From our study we can add that age, sex, work, and life situation also play a role in this complicated process. Because fatigue cannot be diagnosed objectively, for instance by means of laboratory tests,^{5,7-9} the only way to understand the patient's fatigue is by listening to the patient and by paying attention. This is not always easy because fatigue is often not presented by the patient as a primary health problem; in fact, it is often not even presented at all.⁵ Nevertheless, among patients, fatigue is considered to be one of the most important symptoms, more important than physicians realize.¹ More adequate, patient-centered communication can stimulate patients to disclose their concerns, which will provide physicians with a more complete picture of patients' complaints.^{39,40}

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TABLES

Fatigue

- 'Have you experienced complaints of fatigue in the previous two weeks' (yes/no)

Life-situation

- Having a partner (yes/no)
- Taking care of children under the age of 6 (yes/no)
- Being employed (yes/no)
- Type of employment (white-collar/blue-collar)

Physical health⁴

- Perceived health (5-point Likert scale, ranging from 'very good' to 'very bad')
- Acute complaints (42 items): number of complaints
- Chronic diseases (30 items): at least one (yes/no)
- Handicaps (14 items): at least two (yes/no)
- Biological-gender related complaints: at least one (yes/no)

Psycho-social problems

- General Health Questionnaire (GHQ, 30 items)²⁵: at least five (yes/no)
- Biographical Problems Inventory (BioPro, 22 items)^{4,26}: number of complaints
- Life Events (33 items)⁴: number of events.

*The instruments can be obtained from the authors upon request.

Table 2. Prediction of Fatigue

Variable	Men			Women		
	Crude Odds	Adj. [§] Odds	(95% CI)	Crude Odds	Adj. [§] Odds	(95% CI)
Age	1.00	0.98 [†]	(0.97–0.99)	0.99	0.99 [†]	(0.98–0.99)
Education	1.09	1.17 [‡]	(1.10–1.25)	1.13	1.16 [‡]	(1.10–1.23)
White-collar employment	1.26	1.62 [†]	(1.18–2.21)	1.28	1.48 [‡]	(1.19–1.83)
Blue-collar employment	0.63	1.09	(0.81–1.47)	0.90	1.17	(0.91–1.51)
Partner	0.70	1.10	(0.82–1.47)	0.77	1.13	(0.90–1.42)
Children < 6	1.10	1.02	(0.81–1.30)	1.27	1.59 [‡]	(1.27–1.98)
Acute complaints	1.44	1.39 [‡]	(1.34–1.44)	1.35	1.34 [‡]	(1.30–1.38)
Severe chronic complaints	2.15	1.29 [*]	(1.00–1.66)	1.66	0.99	(0.77–1.27)
Perceived health	2.05	1.40 [‡]	(1.21–1.62)	2.05	1.35 [‡]	(1.18–1.55)
Handicaps	1.66	1.29 [*]	(1.02–1.63)	1.21	0.97	(0.80–1.19)
Bio-gender specific compl.	1.89	0.47 [*]	(0.22–0.99)	2.35	1.42 [‡]	(1.16–1.74)
GHQ > 4	4.63	1.26	(0.93–1.70)	4.20	1.45 [†]	(1.13–1.85)
BioPro	1.32	1.07 [†]	(1.02–1.13)	1.29	1.04	(0.99–1.08)
Life-events	1.17	1.05 [*]	(1.00–1.10)	1.17	1.04	(0.99–1.09)
Correctly predicted total		81.1%			74.5%	
Non-fatigue correctly predicted		94.6%			87.5%	
Fatigue correctly predicted		38.7%			52.7%	
Fatigue observed		24.3%			37.8%	

*0.05 ≤ P ≤ 0.01.

†0.01 ≤ P ≤ 0.001.

‡P ≤ 0.001.

§Based on multiple logistic regression analysis.