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# The relationship of somatization with fatigue and exhaustion as chief complaints

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## RESEARCH

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## ABSTRACT

**Background**

Text Somatization is the expression of mental distress and psychosocial stress with physical symptoms. Medically Unexplained Symptoms (MUS) are defined as symptoms like fatigue, exhaustion and general body pain that causes patients to apply to a doctor repeatedly, without the presence of an underlying organic disease, and lasts more than three months. Its' frequency in primary care is 20–30 per cent.

**Aims**

The aim of this study is to determine the underlying psychiatric comorbidity in patients that apply to Family Medicine clinic with the mentioned complaints using the PHQ-SADS scale.

**Methods**

From the patients that applied to Marmara University Pendik Research and Teaching Hospital Family Medicine clinic with complaints of fatigue and exhaustion between January 2019 and May 2019, those that were between 18-65 years of age and did not have any diagnosed, chronic psychiatric disease, cancer, uncontrolled diabetes, hypothyroidism, and rheumatological diseases were included in the study. A questionnaire including demographic characteristics and the PHQ-SADS scale was applied to the participants.

**Results**

The number of participants was 65, the mean age was 36±10.5 years, 84.6 per cent were women, and the level of education was mainly high school and higher. The presence of chronic disease increased with age. The most frequent chief complaint was fatigue and the most ordered test was a complete blood count (92.2 per cent). The most common diagnosis was iron and vitamin D deficiency together (n=22).The most frequent score level of the applied PHQ-SADS scale was moderate-severe (66.2 per cent) in the subscale PHQ-15 which screens somatization symptoms. Patients with chronic diseases had higher PHQ-15 and PHQ-9 scores (p=0.025 and p=0.22 respectively).

**Conclusion**

Patients' visiting primary care physicians with recurrent and undifferentiated complaints is a frequently encountered situation. Somatization levels are found to be high in these patients. Physicians recognizing and managing this situation appropriately may help to reduce these multiple doctor visits.

**Key Words**

Somatization, medically unexplained symptoms, PHQ-SADS

## What this study adds:

**1. What is known about this subject?**

Patients' visiting primary care physicians with recurrent and undifferentiated complaints is a frequently encountered situation.

**2. What new information is offered in this study?**

Iron and vitamin D deficiency were the most common diagnosis and somatization scores of the Patient Health Questionnaire (PHQ-SADS) were moderate-severe in the patients who visit Marmara University Family Medicine

outpatient clinics with fatigue and exhaustion and who don't have any known organic disease before.

**3. What are the implications for research, policy, or practice?**

Physicians must recognize the most abused laboratory tests, check the past medical history of the patients in detailed and apply PHQ-SADS to reassure the patients.

## Background

Somatization is the expression of mental distress and psychosocial stress with physical symptoms.[1] In traditional psychoanalysis, somatic symptoms are regarded as defence mechanisms that keep unacceptable impulse and desires from reaching the conscious level.[2] Psychological factors having an effect on physical symptoms is a belief known to be held since the age of Hippocrates. Patients go to doctors multiple times with complaints like fatigue, exhaustion, chronic pain, dyspepsia, and when an underlying pathology can't be found, get diagnosed with diseases like fibromyalgia and irritable bowel syndrome and can be evaluated as somatization disorders.[3] Multiple symptoms in multiple organ systems leading to functional impairment for an extended period of time suggests somatoform disorders.[4] With the DSM IV, the concept of Medically Unexplained Symptoms (MUS) has entered literature under somatoform disorders.[5] Medically unexplained symptoms (MUS), are somatic symptoms that impair functionality, can't be linked to an organic reason, last more than three months, and are strongly linked with psychiatric comorbidities.[6-8]

According to Jackson and Passamonti, one third of all symptoms reported by general practitioners are Medically Unexplained Symptoms.[9] In primary care clinics, although it is common for patients to apply with fatigue, numbness, headache, general body pain, insomnia, burning sensation, distention, the frequency of Medically Unexplained Symptoms are reported as 20–30 per cent.[10,11] In another study, it was reported that 30 per cent of patients with these complaints go to a medical institution and that 90 per cent of those that did preferred their Family Physician.[12] 33–60 per cent of these patients are being referred to a specialist for advanced tests and treatment and the use of resources has been reported to be at least twice in comparison to non-somatised patients.[13-15]

When assessed, it was seen that patients with Medically Unexplained Symptoms continue to seek medical care due to not being diagnosed or not accepting their diagnosis. Thus somatic diseases continue to be one of the most time and energy consuming diseases for all branches of specialties, and a cause of economic loss due to the over use of medical resources with a serious social toll.[16-18]

In our study, we aim to put forth the frequency of somatization in patients that come to our Family Medicine clinic with the complaint of fatigue and how physicians manage this complaint.

## Method

Our study is designed to be descriptive. The study universe is patients between 18 and 65 years old that came to Marmara University Pendik Research and Teaching Hospital Family Medicine outpatient clinic (MUH-FM) between January 2019 and May 2019. Patients with one or more of the following complaints were included: fatigue, exhaustion, weariness, "can't raise hand-arm", "everywhere hurts", not being satisfied with sleep, increased sleepiness. In the Marmara University Hospital adult patients are not able to reach to specialty clinics without the reference of General Internal Medicine or Family Medicine clinics. There is no other general medicine or holistic approach clinic like women's health or public health in the hospital. So Family Medicine outpatient clinic can present comprehensive care to the patients with undifferentiated symptoms. It can be accepted as a gate keeping unit for the rest of the hospital. Patients with any of the following were excluded: any kind of neuro-psychiatric disease, taking psychiatric medication, acute infections, chronic destructive infection, malignancy or rheumatological disease, uncontrolled diabetes and hypothyroidism. The ethics committee approval was obtained from the Marmara University Faculty of Medicine Ethics Committee with the approval number of 09.2018.579. The participants were informed about the study by the researcher both orally and in written form, and written consent forms were obtained from the participants.

After taking the histories and performing physical examinations on the patients included in the study, laboratory tests were ordered and a questionnaire consisting of 13 questions about demographic characteristics and the Turkish version of the PHQ-SADS (Patient Health Questionnaire-Somatic Anxiety and Depressive Symptoms) scale was applied. The PHQ_SADS scale is formed by the 31 questions selected from the 56 questions of PHQ (Patient Health Questionnaire), which is a limited version of the PRIME-MD (Primary Care Evaluation of Mental Disorder) module developed in the 1990s to diagnose mental disorders.[19,20] It is used to measure somatization (PHQ-15), anxiety (GAD-7), and depression (PHQ-9). It consists of 31 questions.[21,22] In these scales, the

answers to the queries are scored between zero (none) and three (a lot or nearly every day). If the total score at the end of the test is between 0–4 it is assessed as minimal, 5–9 as mild, 10–15 as moderate and >15 as severe.[23,24] The study about its Turkish validity was conducted by Güleç YM et al. and was validated.[25] The past medical history and the chronic diseases of patients, their PHQ-SADS scores, results of the laboratory tests that was listed in the study protocol for the included patients who were recruited after they fulfil the inclusion criteria and all other independent variables were analysed statistically. All the open ended answers obtained from the complaint and history sections of the patient records were analysed thematically. The first complaint expressed by the patient was defined as the chief complaint; other complaints were defined as additional complaints. The scores of the PHQ-SADS scale were accepted as dependent variables. The chi square test was used to test the relationship between the categorical variable, the T-test was used to test the relationship between constant variables. Descriptive statistics are shown as frequency, percentage and averages.

## Results

The number of participants was 65. The mean age was 36±10.5 years. 84.6 per cent were women, 33.8 per cent had a university or higher degree, 32.3 per cent had a primary school degree, 21.5 per cent had a high school degree, 9.2 per cent had a secondary school (middle school) degree and 3.1 per cent were illiterate. By occupation, the biggest group was house wives (53.8 per cent), with the second largest group being health professionals (30.8 per cent), most of which were doctors. 26 per cent of participants had a chronic disease, with the most common ones being hypertension and asthma (27.7 per cent). The number of chronic diseases increased with age (40.8 *vs.* 34.2). There is a significant relation between age and chronic disease (p=0.02). 18.5 per cent of participants was taking prescription drugs with up to three drugs per patient.

The other characteristics of the participants are presented in Table 1.

**Table 1: The Characteristics of the Participants**

| | | N | % |
|---|---|---|---|
| Presence of Chronic Disease | Yes | 17 | 26.20 |
| | No | 48 | 73.80 |
| Chronic Medication | Yes | 12 | 18.50 |
| | No | 53 | 81.5 |
| Exercise | Yes | 25 | 38.5 |
| | No | 40 | 61.5 |
| Gender | Woman | 55 | 84.6 |
| | Man | 10 | 15.00 |
| Education | Under 8 years | 29 | 44.6 |
| | Over 8 years | 36 | 55.4 |
| Smoking | Yes | 14 | 21.50 |
| | No | 51 | 78.5 |
| Supporting Relative | Yes | 35 | 54.7 |
| | No | 29 | 45.3 |
| Hobbies | Yes | 45 | 69.30 |
| | No | 20 | 30.70 |
| BMI | Underweight | 2 | 3.00 |
| | Normal | 27 | 42.2 |
| | Overweight | 14 | 21.90 |
| | Obese | 21 | 32.80 |
| Coming for Follow up | Yes | 55 | 84.61 |
| | No | 10 | 15.69 |
| Occupation | Housewife | 35 | 53.8 |
| | Worker | 6 | 9.2 |
| | Health professional | 20 | 30.8 |
| | Manager | 4 | 6.2 |

The most common hobbies among participants that reported having hobbies (n=45, 69.30 per cent) were reading (17 per cent), knitting (9 per cent), spending time with family (6 per cent) and travel (6 per cent). Of the patients that came back for follow up (n=55), 9 came multiple times. 18 per cent of the 54 patients that reported having a supporting relative said they received support from the spouse, 17 per cent said they receive support from their parents. Participants had at least 2 (n=55) and at most 5 (n=1) complaints. The first complaint expressed by the patient was defined as the chief complaint, and the most frequent chief complaint was fatigue (Table 2).

**Table 2: Distribution of Complaints**

| Complaints | n | % |
|---|---|---|
| Fatigue | 66 | 48.17 |
| Exhaustion | 35 | 25.54 |
| Sleepiness | 20 | 14.59 |
| Body Pain | 8 | 5.83 |
| Forgetfulness | 5 | 3.64 |
| Hair loss | 2 | 1.45 |
| Inability to focus | 1 | 0.72 |

The most frequently requested laboratory test was a complete blood count (92.2 per cent), and in 76.6 per cent

of them the haemoglobin value was within normal limits. The distribution of tests and rate of normal results is shown in Table 3.

**Table 3: The frequency of ordered tests and rates of normal results**

| Ordered Test | n | Frequency (%) | Normal Result (%) |
|---|---|---|---|
| Haemoglobin | 59 | 92.2 | 76.6 |
| Haematocrit | 59 | 92.2 | 72.3 |
| TSH | 58 | 90.6 | 90.6 |
| Vitamin B12 | 58 | 90.7 | 59.4 |
| Vitamin D | 56 | 87.6 | 4.7 |
| Fasting Blood Glucose | 53 | 82.9 | 76.6 |
| Renal function tests | 52 | 81.3 | 81.3 |
| Liver function tests | 51 | 79.7 | 70.3 |
| Fe | 47 | 73.4 | 42.2 |
| Ferritin | 45 | 70.3 | 45.3 |
| Ft4 | 44 | 68.8 | 68.8 |
| Lipid profile | 40 | 61.5 | 45.3 |
| Na | 19 | 29.7 | 29.7 |
| K | 19 | 29.7 | 29.7 |
| Iron binding capacity | 21 | 32.8 | 21.9 |
| Total Iron binding capacity | 17 | 26.9 | 20.3 |
| Insulin | 13 | 20.4 | 18.8 |
| Ca | 9 | 14.1 | 14.1 |
| Mg | 8 | 12.5 | 10.9 |
| Uric acid | 7 | 11 | 9.4 |
| Cl | 7 | 10.9 | 7.8 |
| P | 7 | 10.9 | 7.8 |
| Total Protein | 6 | 9.4 | 9.4 |
| HbA1c | 5 | 7.8 | 7.8 |
| CK | 2 | 3.1 | 3.1 |
| Sedimentation | 1 | 1.6 | 1.6 |
| CRP | 1 | 1.6 | 1.6 |
| Total Bilirubin | 1 | 1.6 | 1.6 |
| Direct Bilirubin | 1 | 1.6 | 1.6 |

The most common diagnosis was iron deficiency and vitamin D deficiency together (n=22). The maximum number of diagnoses in one patient was 4 (n=1). Myalgia was not the sole diagnosis in any of the patients (Table 4).

**Table 4: The distribution of diagnoses**

| Name of diagnosis | N | % |
|---|---|---|
| Iron and vitamin D deficiency | 22 | 34.4 |
| Vitamin D and B12 deficiency | 15 | 23.4 |
| Vitamin D deficiency | 13 | 20.3 |
| Iron deficiency | 5 | 7.8 |
| Iron, vitamin D and B12 deficiency | 5 | 7.8 |
| Vitamin D deficiency and myalgia | 4 | 6.2 |
| *Total* | 64 | 100 |

The most frequent complaints of the 65 participants were fatigue, exhaustion and body pain, and for 62 participants the first complaint to be expressed was fatigue. In these participants PHQ-SADS score averages for PHQ-15, PHQ-9, GAD-7 were 2.95±0.99, 2.53±1.09, 2.02±1.05 points, respectively. The total PHQ-SADS score was in the minimal (0-4) range.

When the subscales of the PHQ-SADS scale applied to the participants were assessed individually, it was seen that 66.2 per cent of the PHQ-15 test scores, which screens for symptoms regarding somatization, was in the moderate-severe range. The results of all the subscales can be seen in Table 5.

**Table 5: PHQ-SADS scores**

| | PHQ -15 (n=65) | | PHQ- 9 (n=65) | | GAD- 7 (n=65) | |
|---|---|---|---|---|---|---|
| Scale Score | n | % | n | % | n | % |
| Mild | 22 | 33.8 | 35 | 53.8 | 26 | 40.0 |
| Moderate-Severe | 43 | **66.2** | 30 | 46.2 | 39 | 60.0 |

Participants without someone at home to support them with their health problem had a higher PHQ-15 score (p=0.08).

Participants with chronic diseases had higher PHQ-15 and PHQ-9 scores (p=0.025 and p=0.22 respectively). PHQ-9 score increased with BMI (p=0.04). Even though there wasn't a statistically significant relationship between scale scores and systolic-diastolic blood pressure and pulse, when compared it was seen that although there was no significant difference between the mean age between the two groups

who has "mild" or "moderate to severe" PHQ-15 and PHQ-9 scores the participants' diastolic blood pressure and pulse rate were higher in the "moderate to severe" scores group (82.3mm/Hg *vs.* 78.8mm/Hg and 87/min *vs.* 78/min). Participants that did not exercise had significantly higher PHQ-9 and GAD-7 scores (Table 6).

**Table 6: The relation between exercise and PHQ-9, GAD-7 scores**

| | | **Exercise (n=65)** | | |
|---|---|---|---|---|
| | | Yes | No | p |
| PHQ-9 score | Mild | 19 | 16 | 0.05 |
| | Moderate-Severe | 6 | 24 | |
| GAD-7 score | Mild | 14 | 11 | 0.03 |
| | Moderate-Severe | 12 | 28 | |

## Discussion

Patients going to primary care institutions repeatedly with multiple complaints with the absence of a conventional pathology is a common situation and a significant portion of studies on this subject have shown evidence of psychological factors.[26] This can be interpreted in two ways: the manifestation of psychological disease with physical symptoms or the repeated effort for help for recurring multiple medical symptoms without organic reasons. The symptoms accepted as medically unexplained are physical symptoms that impair the functionality of patients which can't be explained with organic reasons by the physicians and last more than three months and associated with psychological comorbidities. Ergo most researchers use the term MUS for these patients that "seek medical help repeatedly for multiple symptoms with the absence of conventional pathology".

In our study the mean age of the participants was 36±10.5. In the study with 308 participants by Steinbrecher et al. which aimed to show MUS prevalence in primary care, the mean age was 47.2 (range:18-87), in the study by Morriss et al. with a similar goal conducted by scanning electronic records the mean age was 52.4, and in the study by Aamland et al. with 526 participants about the demographic characteristics and rate of consultation of patients with MUS by primary care physicians in Norway, the mean age was 46.11.27,28,29 In these studies, patients over 65 years old were included. In our study, the maximum age for inclusion was 65. This might explain the lower mean age in our study. 84.4 per cent of our participants were women, and this is similar to the study of Verhaak et al. which aimed to determine the characteristic features of patients coming to primary care with MUS, and the study of Koch. which researched the demographic characteristics and quality of life in patients that came to primary care with unexplained symptoms.[30,31] In the review of Isaac et al. about MUS diagnosis and management, and the before mentioned study of Verhaak, MUS has been linked to low education status.[32] In our study middle and higher education status was more prominent and this was similar to the study of Dirkzwager et al. which studied the characteristic features and quality of life in patients that came to primary care with MUS.[33] The fact that the family medicine clinic we conducted our research in is in a tertiary care center may have affected the high education status.

The ones with a chronic disease was 26 per cent of our participants. In a cross sectional, descriptive study aiming to determine the characteristic features of patients with MUS conducted in Colombia, 38 per cent of participants had chronic diseases, much higher than ours.[34] That study was multi-centred, but ours is single centre leading to a more selective patient population, which might have affected the number of participants with chronic disease.

In our study the most frequent symptoms were fatigue and exhaustion. Similar results were found in Koch study.[35] In the study of Klaus K pain was the most frequent symptom.[36] In our study participants lived with at least two people. In the study by Mc Gorm et al., patients with MUS referred to specialists from primary care were often people who lived alone.[37] The reason for there being no participants living alone in our study might be because the nuclear family is still a strong concept in our country, or because family members frequently accompany patients when going to a doctor. In the study of Dirkzwager et al., low social support was found to be correlated with persistent MUS.[34] Similarly, low social support was found to be related with somatization in our study (p=0.08). In the same study, no relation was found between low physical activity, BMI and MUS, whereas in our results there was a significant relation between BMI and PHQ-9 score (p=0.04).

In our study, physicians ordered complete blood count, TSH level and Vitamin B12 level tests in more than 90 per cent of patients although the suggested laboratory tests for the patients who meet the inclusion criteria were listed in the study protocol. This may give us an idea about the professionally synthesized differential diagnosis list of the family physicians. In the review of Richardson RD, it was reported that the main goal of laboratory tests are to gain

knowledge about the physiological status of the patient, and that physicians ordered these tests to minimize the risk of missing diagnoses, but also that the risk of false positives increased with number of tests ordered.[38] On the other hand, in the electronic system used in the clinic, tests can't be ordered without entering a diagnosis, so physicians may have entered ICD-10 codes according to the tests they were thinking of ordering. In short, diagnoses are entered into the system before seeing the test results, while the physician is ordering them.

The PHQ-SADS scale we used is validated for detecting depression, anxiety and somatization.[23] In our study, the highest average score among the subscales was in the somatization scale. 66 per cent of participants scored moderate-severe in PHQ-15, which screens for somatization. Similarly, the total PHQ-15 score was found to be moderate-severe in the studies of Kocalevent and Hanel which researched somatization, anxiety, frequency of depression and demographic characteristics in primary care.[39,40]

This study is a cross sectional study so has a limitation of excluding the etiological factors in the differentiation of fatigue only by a very structured history taking, comparing the past medical history of the patients, general physical examination and ordering the standard laboratory tests listed in the protocol of the study. But it is clear that excluding some of the diseases which may present with fatigue may need following the patient in a more prospective manner.

## Conclusion

Patients going to primary care physicians with recurrent and non-diagnosed complaints are frequently encountered situation. When approaching the patient, the physician tends to order tests to avoid missing a diagnosis, and can overlook the psychological status (or comorbidities) of the patient. There are studies that show that patients with these types of complaints can be managed appropriately with a sound theoretical and practical education. Therefore it would be suitable to include medically unexplained Symptoms (MUS) adequately in medical education.

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## PEER REVIEW

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## CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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## ETHICS COMMITTEE APPROVAL

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