

## Research Article

# Association between General Health, Fatigue and Social Support among Health Professionals: A Cross - Sectional Study in Greece

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The present study was carried out to describe the levels of general health among health professionals and their perceived level so fatigue and social support. Additionally, the purpose of this study was to examine the association between the above variables. The research was conducted in 165 health professionals working in hospitals in the region of Eastern Macedonia-Thrace and in the urban centers of Athens and Thessaloniki. The General Health Questionnaire (GHQ-28), the Fatigue Assessment Scale (FAS) as well as the Multidimensional Scale of Perceived Social Support (MSPSS) were used to measure the research variables. There was a high positive correlation coefficient between the GHQ-28 score and fatigue and statistically significant at the 0.01 level of significance. Negative correlation tool place between mental fatigue and social support with statistical significance. Measures are needed to increase the number of health professionals and organizational and structural measures to improve their working conditions and strengthen their social work.

**Keywords:** General health; Fatigue; Social support; Health professionals**Introduction**

Fatigue in healthcare professionals has many negative aspects that affect their work performance. Performance for example of nurses suffering from acute or chronic fatigue is lower and they themselves present themselves as less able to provide patient care [11]. Health professionals may also experience compassion fatigue, which occurs when a person is unable to participate in caring relationships and services due to exhaustion [8]. Fatigue can have many adverse effects in the workplace, including: 1. Increased risk of labor errors (e.g. wrong diagnosis, wrong drug administration, wrong treatment dosage, etc.). 2. Increased risk of accidents and injuries. 3. Reduced reaction and decision times. 4. Reduced motivation. 5. Reduced patient empathy. 6. Poor cooperation with colleagues. 7. Decreased control of emotions.

Social support from health professionals or from friends and colleagues contributes to the prevention and management of burnout. The employee should seek support and help from friends, relatives and health professionals because this will work therapeutically for him. Encouragement and encouragement are important elements in dealing with and preventing burnout [9]. Expressing their feelings and concerns and sharing them with other people is one of the most important ways of managing the stressful conditions they experience. Researches emphasize that the support a person receives from his environment reduces both the stress he experiences [12] and the chances of getting sick [5].

Combined results of several studies, which study the relationship of good mental health with the existence of social support, demonstrate as a whole the negative correlation between psychological distress and social support [10,13]. Most research usually refers to

health professionals who work in patient care every day in nursing institutions. In nursing institutions, tension and pain and the threat of the end of life are experienced daily. The interaction of emotions between patient and healthcare professional is inevitable. Many times, this interaction in the health workplace has an impact on the daily life of the employee to an extent that is not noticed by him or to the point that he does not know how to manage the specific situation. In this phase, social support from the work or family environment is crucial to avoid more difficult situations. When there is no social support from the community, family, friends or colleagues, or if there is not enough, then the health worker may seek the help of a medical professional, therapist, etc. [1].

The purpose of this research is to capture the quality of life and fatigue levels of health professionals and the social support they receive as a resource to cope with their daily lives. The research aims at the following: 1. to measure the level of quality of life of health professionals. 2. In capturing the fatigue experienced by health professionals. 3. In the evaluation of the social support they receive. 4. In the correlation or not of the quality of life with fatigue and the received social support.

**Method**

The sample is simple and random and consists of 165 health professionals of which 144 are women and 21 are men. The sample size exceeds the minimum number of 30 individuals required for quantitative research. Health professionals work in public or private nursing institutions in the wider area of the Region of An. Macedonia and Thrace, while there is also a small percentage of nursing institutions in the urban centers of Thessaloniki and Athens. The entry criteria for the selection of participants in the research

sample were as follows: 1. Health professionals over the age of 18. 2. Health professionals with more than one year of experience. 3. Health professionals who speak the Greek language. 4. Health professionals working in public or private nursing institutions. The main exclusion criteria were the existence of disability, chronic disease and psychiatric disorder. The above exclusions were made because the quality of life, fatigue and social support variables of this research are directly affected by these diseases. The research health professionals are doctors, microbiologists, psychologists, nurses, midwives, paramedics. No statistics were kept on the type of health professionals nor on their city of work. The above selection was made for the random and easy coverage of the sample from various types of health professionals and from different regions, with the aim of the general validity of the results [3].

The distribution of the questionnaires and the conduct of the survey took place in the period January-April 2021. The subjects participated in the survey with their consent and their anonymity and the confidentiality of their answers were ensured. Completion of the questionnaires required approximately 10 minutes and no comments or markings were reported on the questions.

Appropriate questionnaires related to the subject of the research were used to collect the research data and capture the personal perceptions, opinions and experiences of the respondents on the questions. The questionnaires are four in number and were given to the participants as a single research instrument divided into four sections. Each section represents a questionnaire. The above selection was made for the convenience of the participants and the comprehensive collection of information. The following questionnaires were used: 1. Questionnaire with demographic data of the respondents. 2. The General Health Questionnaire-GHQ-28 (General Health Questionnaire-GHQ-28), in its Greek version. 3. The fatigue assessment questionnaire (Fatigue Assessment Scale-FAS), in its Greek version. 4. The questionnaire of received social support (Multidimensional Scale of Perceived Social Support-MSPSS), in its Greek version.

The General Health Questionnaire (GHQ-28) has been evaluated for translational accuracy and validity [4]. The FAS and MSPSS questionnaires have undergone translation and cultural adaptation [12].

## Results

One hundred sixty-five people participated in the research, of which 21 are men and 144 are women. The majority of participants belong to the age group of 31-40 (36%), followed by the age groups of 41-50 (33%), 20-30 (19%) and 51-60 (12%). The average age is 40.18 years. 65% are married and 28% are single, while there is also 11% who are divorced. The percentage of those who have children is 67%. It is typical that of the 108 married health professionals, 105 have children. The majority of health professionals in the survey have a technological education (57%), followed by university graduates with 27% and DEs (16%). In the total sample of 165 people, 14 people declare with a postgraduate degree or Master (8.5%). In detail, the basic elements of the participating health professionals are presented in (Table 1).

The majority of health professionals in the research (30%) have

**Table 1:** Basic demographic characteristics of participants.

	N	%
<b>GENDER</b>		
Male	21	12,7
Female	144	87,3
<b>AGE</b>		
		M.40,18
20-30	32	19
31-40	59	36
41-50	54	33
51-60	20	12
<b>MARITAL STATUS</b>		
Married	108	65
Single	46	28
Divorced	11	7
Widowed	0	0
<b>CHILDREN</b>		
Yes	111	67
No	54	33
<b>EDUCATION</b>		
Secondary	26	16
Technological	94	57
University	45	27
Other	14 Master	8,5 of the aggregate sample

**Table 2:** Work characteristics of participants.

		N	%
<b>YEARS OF WORK</b>	1-5	40	24
	6-10	16	10
	11-15	50	30
	16-20	23	14
	20-25	19	12
	25-30	9	5
<b>DEPARTMENTAL GRAVITY</b>	>30	8	5
	Heavy	102	62
	Moderate	57	35
	Light	6	3
<b>CIRCULAR HOURS</b>	Yes	129	78
	No	25	15
	Occasionally	11	7

**Table 3:** General Health Categories.

	M	SD
Physical symptoms	2,60	2,30
Anxiety - insomnia	2,96	2,32
Social dysfunction	2,12	2,02
Severe depression	0,91	1,46
Total score	8,59	6,57

been working for 11-15 years. The next largest percentage (24%) is young people in the health sector, who have been working in nursing institutions for the last 5 years. Health professionals with 16-20 years of service (14%), 20-25 years (12%) and 6-10 years (10%) follow with similar percentages. Finally, there are also a number of old and of experienced health professionals with 25-30 years of service (5%) and 30 or more (5%). 35% have stated that they work in a moderate department and 62% in a heavy department. Just 6 people (1%) have stated that they work in a light department. The overwhelming percentage of 78% has declared that they permanently follow circular hours, while 15% do not. Finally, there is also a percentage of 3% who follow the circular schedule occasionally. The work characteristics of the participating health professionals are analyzed in detail in (Table 2).

From the analysis of the responses of the 165 participants, the following data emerged, which are presented in detail in (Table 3). In the category of physical symptoms, we have an average value of 2.60. In the anxiety and insomnia category the average value is 2.96, while in social dysfunction we have the value 2.12. Finally, in the category of severe depression, the average value is much lower than the other categories, with a value of 0.91. The total mean value for all the categories of the EGY-28 is 8.59 with a standard deviation of  $\pm 6.57$ , a value that is above the limit of 5 that determines the existence of a mental problem.

Additionally, 109 people (66%) have a score  $\geq 5$ , which based on the EGY-28 indicates some form of mental disorder. The remaining subjects (34%) have a score of  $\leq 4$ , which indicates the absence of psychological problems. Detailed numerical data are presented in (Table 4).

High levels of fatigue were found in most of the sample of 165 health professionals. In particular, the overwhelming percentage of 85% (141 people) shows fatigue, while a percentage of the order of 8% (13 people) shows excessive fatigue. People who, based on the FAS score, do not show fatigue represent only 7% (11 people). In detail, the measurement of perceived fatigue and the ranking of the participants are presented in (Table 5). Regarding the descriptive characteristics of fatigue, the mean value of the overall perceived fatigue is 27.52 with a standard deviation of 5.

We observe that the mean value moves to the levels of the existence of fatigue in each case. Characteristically, the maximum rating of the average value of perceived fatigue reaches the number 42, well above the threshold of excessive fatigue ( $\geq 35$ ). Accordingly, the minimum rating of the average value of perceived fatigue reaches the number 19, very close to the limit of no fatigue ( $< 22$ ). Regarding the individual categories of fatigue, physical fatigue has an average

**Table 4:** Assessment of a psychological problem of participants.

	N	%
Absence of a psychological problem $\leq 4$	56	34
Presence of a psychological problem $\geq 5$	109	66

**Table 5:** Classification of participants according to fatigue levels.

PERCEIVED FATIGUE MEASUREMENT	N	%
Non-fatigue ( $< 22$ )	11	7
Fatigue ( $\geq 22$ )	139	84
Excessive fatigue ( $\geq 35$ )	15	9

**Table 6:** Descriptive features of fatigue.

TYPES OF FATIGUE	MAX	MIN	M	SD
Physical fatigue	21	9	14,42	2,68
Mental fatigue	22	8	13,10	2,96
Overall fatigue	42	19	27,52	5,00

**Table 7:** Social support figures.

MEASURE OF SOCIAL SUPPORT	MAX	MIN	M	SD
Friends	7	1,75	5,24	1,15
Family	7	1	5,74	1,21
Important others	7	2,25	5,74	1,09
Overall social support	7	2,92	5,57	0,97

value of 14.42 (SD 2.68) with a maximum value of 21 and a minimum of 9. Similarly, mental fatigue presents an average value of 13.10 (SD 2.96) with a maximum value of 22 and a minimum of 8. Detailed fatigue descriptive characteristics are presented in (Table 6).

The mean value of the received social support of the 165 health professionals who participated in the research is 5.57 with a standard deviation of 0.97. This value reflects the existence of appreciable social support for health professionals. The maximum value of total social support captured is the absolute one present in the questionnaire, i.e. 7. The minimum displayed is the value of 2.92. In the individual sources of social support, it seems that significant others play a very important role. The average value of the support of health professionals from them is 5.74 with a standard deviation of 1.09. The maximum value is an absolute 7 while the minimum is 2.25. Similarly, friends provide support with an average value of 5.24 with a standard deviation of 1.15. The maximum value for this source of support is 7 and the minimum is 1.75. Finally, support from the family is also at high levels with an average value of 5.74 and a standard deviation of 1.21. The maximum value is also in this case 7, but the minimum reaches the absolute 1. Detailed numerical data of social support are presented in (Table 7).

**Correlation between General Health and Perceived Fatigue**

Using Pearson’s correlation coefficient, in the SPSS environment and based on the responses of the 165 participants to the GHQ-28 and FAS questionnaires, (Table 8) is obtained.

**Table 8:** Correlation between general health and fatigue.

Correlations			
		GENERAL HEALTH	FATIGUE
GENERAL HEALTH	Pearson Correlation	1	,611**
	Sig.(2-tailed)		,000
	N	165	165
FATIGUE	Pearson Correlation	,611**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*Correlation is significant at the 0.01 level (2-tailed).

**Table 9:** Correlation between physical symptoms and perceived fatigue.

Correlations			
		physical symptoms	fatigue
physical symptoms	Pearson Correlation	1	,478**
	Sig.(2-tailed)		,000
	N	165	165
fatigue	Pearson Correlation	,478**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*Correlation is significant at the 0.01 level (2-tailed).

**Table 10:** Correlation between anxiety-insomnia and perceived fatigue.

Correlations			
		anxiety-insomnia	fatigue
anxiety-insomnia	Pearson Correlation	1	,537**
	Sig.(2-tailed)		,000
	N	165	165
fatigue	Pearson Correlation	,537**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*Correlation is significant at the 0.01 level (2-tailed).

A high positive correlation coefficient is observed between the general health score and fatigue and statistically significant at the 0.01 level of significance. This translates into that as general health deteriorates (high score on GHQ-28) and by extension quality of life, fatigue levels increase (high score on FAS) and vice versa. In the examination of correlations between the individual categories of the GHQ-28 with fatigue, the following results are observed.

#### Correlation between Physical Symptoms and Perceived Fatigue

A low positive correlation coefficient between physical symptoms and perceived fatigue is observed and statistically significant at the 0.01 level of significance. The detailed results are shown in (Table 9).

#### Correlation between Anxiety-Insomnia and Perceived Fatigue

A high positive correlation coefficient is observed between the anxiety-insomnia category of the GHQ-28 and fatigue and statistically significant at the 0.01 significance level. The correlation confirms the

**Table 11:** Correlation between depression and perceived fatigue.

Correlations			
		depression	fatigue
depression	Pearson Correlation	1	,346**
	Sig.(2-tailed)		,000
	N	165	165
fatigue	Pearson Correlation	,346**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*Correlation is significant at the 0.01 level (2-tailed).

**Table 12:** Correlation of social dysfunction and perceived fatigue.

Correlations			
		social dysfunction	fatigue
social dysfunction	Pearson Correlation	1	-,574**
	Sig.(2-tailed)		,000
	N	165	165
fatigue	Pearson Correlation	-,574**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*Correlation is significant at the 0.01 level (2-tailed).

**Table 13:** Correlation between general health and social support.

Correlations			
		general health	social support
general health	Pearson Correlation	1	-,309**
	Sig.(2-tailed)		,000
	N	165	165
social support	Pearson Correlation	-,309**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*Correlation is significant at the 0.01 level (2-tailed).

connection of stress and insomnia of healthcare professionals with their fatigue levels and vice versa. The detailed results are listed in (Table 10).

#### Correlation between Depression and Perceived Fatigue

Depression and fatigue are related to the lowest positive correlation coefficient compared to the other subcategories of the GHQ-28. However, the correlation remains, with a significance level of 0.01. Detailed results are shown in (Table 11).

#### Correlation of Social Dysfunction and Perceived Fatigue

A high positive correlation coefficient is observed between EGY-28 social dysfunction and fatigue and statistically significant at the 0.01 significance level. Detailed numerical data in (Table 12).

#### Correlation between General Health and Social Support

A low negative correlation coefficient is observed between the scores of the 165 health professionals on the GHQ-28 and MSPSS questionnaires. It is statistically significant at the 0.01 significance

**Table 14:** Correlation between family support and general health.

Correlations			
		general health	family support
general health	Pearson Correlation	1	-,280**
	Sig.(2-tailed)		,000
	N	165	165
family support	Pearson Correlation	-,280**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*..Correlation is significant at the 0.01 level (2-tailed).

**Table 15:** Association between support from friends and general health.

Correlations			
		general health	support from friends
general health	Pearson Correlation	1	-,159*
	Sig.(2-tailed)		,042
	N	165	165
support from friends	Pearson Correlation	-,159*	1
	Sig.(2-tailed)	,042	
	N	165	165

\*.Correlation is significant at the 0.05 level (2-tailed).

level. This result demonstrates that as the levels of social support increase (high score in the MSPSS), general health also increases - but with a smaller tendency - (low score in the GHQ-28). Detailed numerical data in (Table 13).

Below we examine the association of individual sources of social support (family, friends, significant others) with the general health levels of the 165 health professionals who participated in the survey.

**Correlation between Family Support and General Health**

A low negative correlation coefficient is observed and statistically significant at a significance level of 0.01. General health increases (low GHQ-28 score) when family support also increases (high MSPSS score), but not in the same proportion. Detailed figures in (Table 14).

**Association between Support from Friends and General Health**

Based on the results of the GHQ-28 and MSPSS questionnaires, the correlation coefficient between support from friends and general health is zero and statistically significant at the 0.05 level. It does not appear in the research sample that support from friends plays a significant role in relation to the general health levels of the participants. Detailed numerical data in (Table 15).

**Association between Support from Significant Others and General Health**

Significant others are associated with a low negative correlation coefficient with the general health of the research participants. It is statistically significant at the 0.01 level. Nevertheless, significant others have better levels of correlation with levels of general health than the other sources of social support. Detailed data are presented in (Table 16).

**Table 16:** Association between support from significant others and general health.

Correlations			
		general health	support from significant others
general health	Pearson Correlation	1	-,347**
	Sig.(2-tailed)		,000
	N	165	165
support from significant others	Pearson Correlation	-,347**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*..Correlation is significant at the 0.01 level (2-tailed).

**Table 17:** Correlation between fatigue and social support.

Correlations			
		fatigue	social support
fatigue	Pearson Correlation	1	-,295**
	Sig.(2-tailed)		,000
	N	165	165
social support	Pearson Correlation	-,295**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*..Correlation is significant at the 0.01 level (2-tailed).

**Table 18:** Correlation between perceived physical fatigue and social support.

Correlations			
		physical fatigue	social support
physical fatigue	Pearson Correlation	1	-,161*
	Sig.(2-tailed)		,039
	N	165	165
social support	Pearson Correlation	-,161*	1
	Sig.(2-tailed)	,039	
	N	165	165

\*.Correlation is significant at the 0.05 level (2-tailed).

**Correlation between Fatigue and Social Support**

A low negative correlation coefficient between perceived fatigue and social support is observed and statistically significant at the 0.01 level of significance. This translates into fatigue levels decreasing (low score on the FAS) when social support increases (high score on the MSPSS). The value of Pearson’s correlation coefficient (-0.347) demonstrates that this correlation is not proportional to the magnitude of the change. The details are listed in (Table 17).

It was chosen to study the correlation of the individual categories of fatigue (physical-mental) with overall social support. The results are listed below.

**Correlation between Perceived Physical Fatigue and Social Support**

The correlation coefficient between perceived physical fatigue and social support is zero and statistically significant at the 0.05 level. Social support does not seem to play a significant role in levels of

**Table 19:** Correlation between perceived mental fatigue and social support.

Correlations			
		mental fatigue	social support
mental fatigue	Pearson Correlation	1	-,354**
	Sig.(2-tailed)		,000
	N	165	165
social support	Pearson Correlation	-,354**	1
	Sig.(2-tailed)	,000	
	N	165	165

\*\*..Correlation is significant at the 0.01 level (2-tailed).

physical fatigue. The results are analyzed in (Table 18).

### Correlation between Perceived Mental Fatigue and Social Support

Perceived mental fatigue is associated with a low negative correlation coefficient with social support. It is statistically significant at the 0.01 level. Social support appears to be somewhat related to mental fatigue as opposed to physical fatigue. The measurements are presented in detail in (Table 19).

## Discussion

The results showed significant correlations between general health parameters, perceived fatigue and received social support. Quality of life-General health. It was found that the general health and by extension the quality of life of the research health professionals is degraded. The mean value of GHQ-28 is at levels above the threshold value that indicates the presence of a psychological problem. The majority of people in the survey have low levels of general health and quality of life. A high correlation is also observed between the general health of health professionals and fatigue. This demonstrates the great dependence of the quality of life on the levels of fatigue in health professionals.

In the category of anxiety-insomnia the average value is the highest of the remaining individual categories of general health (physical symptoms, social dysfunction, depression). The correlation of anxiety-insomnia with perceived fatigue is high, confirming the results of researches that demonstrate that the quality of sleep often determines the quality of life of the person having an impact on his health and is a determining factor of the performance of the person during the day. Also, according to another study, the excessive workload of health workers creates work stress and affects their mental and physical health [6]. The above result has its interpretation in the fact that the majority of the sample of health professionals of the research follows a cyclical schedule and works in a heavy section burdening their sleep cycle and their stress levels. In similar studies, it has been found that working with rotating hours and night shifts is associated with sleep disturbances, functional difficulties and increased accidents [2].

The health professionals of the research appear generally and in the majority of them tired, physically and mentally. The above finding also agrees with the conclusions of similar researches [7]. The mean value of total perceived fatigue is at levels above the threshold of 22 points indicating fatigue on the FAS questionnaire. 139 out of 165 healthcare professionals experience fatigue and 15

out of 165 experience extreme fatigue. The overall fatigue regarding the work section (heavy-moderate-light) shows a statistically significant correlation. Health professionals who staff moderate or heavy departments experience fatigue or excessive fatigue. This also demonstrates the inequalities between health professionals as the extra fatigue of workers in nursing institutions is not rewarded over time in the Greek health system.

The social support received by research health professionals is at high levels. The levels in the individual categories of support from family and significant others are high. Social support is associated with general health and quality of life. When social support increases, general health improves. General health has the same high correlation with individual support from significant others. Perceived social support is also negatively correlated with overall perceived fatigue. Fatigue levels decrease when social support increases. This trend agrees with the findings of other studies which demonstrate that increasing social support in nurses reduces the levels of physical and mental fatigue [12]. Similar results are presented in studies examining the association of mental health with emotional exhaustion. In them there is a negative correlation of mental distress with the received social support [10,13]. Newer studies also demonstrate the effect of social support on the mental health and mental fatigue levels of health workers [5].

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