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Association between Insomnia, Demographic Characteristics and Self - Esteem in Nursing Personnel in Primary Care and in Emergency - Intensive Care Units on the Island of Crete

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Abstract

Background: There is evidence that self – esteem is important for health. Especially, self – esteem is associated with better health in those with chronic conditions or disability.

Purpose: The objective of this study was to examine, in a comprehensive way: (a) the association between insomnia and self-esteem, (b) the association between insomnia and marital status in nursing personnel in the island of Crete, Greece.

Method: An investigation was carried out in the area of Crete between August 2017 and January 2018 in fourteen Health Centers, two Primary National Health Networks, four Emergency Department, eleven Intensive Care Units. The study involved 213 nurses. The Hamilton Anxiety Scale (HAM-A) and the Culture-free Self-esteem Inventories had been used.

Results: Prevalence of insomnia was 49.3% (from mild to very severe symptoms). Multivariate analyses showed that self-esteem was significantly associated with insomnia symptoms ($p < 0{,}002$). Multivariate models also showed that insomnia-type symptoms were associated with marital status ($p < 0{,}026$).

Conclusions: In a large population of nursing personnel insomnia symptoms are prevalent and associated with self-esteem and marital status. Future studies should assess whether the strengthening of self- esteem improves the sleep problems in nursing personnel.

Keywords: Insomnia symptoms, Self-esteem, Marital status, Nursing Personnel

Introduction

Studies reports that the rate of insomnia in the united states, valued at 10% to 40%, and continue to raise these percentages, researchers try to understand and treat sleep disorders.1,2

Chronic insomnia is associated with psychiatric and physical conditions. Although it is a symptom of depression, insomnia is also a forerunner of depression and is associated with a substantial increase in the relative risk of major depression. Chronic insomnia is associated with deteriorated mood, subjective functioning, quality of

life and increased daytime sleepiness. Chronic insomnia is a common problem, often associated with negative waking mood or function [3]. Anxiety disorders and comorbid mood are associated with high rates of severe insomnia, which were independently associated with functional impairment [4]. Insomnia is associated with anxiety and disorders mood, and longitudinal evidence shows that insomnia predates the onset of mental illness [5].

Further, in a study, Lemola et al.[6] demonstrated that short sleep (sleeping less than 6 hours) was negatively related to self – esteem. Also, the same study showed that long sleep (sleeping more than 9 hours) was negatively related to self-esteem. Moreover, the relation of long sleep with lower self-esteem was statistically significant when adjusting insomnia symptoms.

According Gregory et al., family influences may be important in the association between insomnia [7]. Marital status is considered to be of importance among the sociodemographic determinants of insomnia. Furthermore, although in univariate analysis the odds for insomnia was lower for single persons but higher for divorced or widowed persons compared to married subjects. This association was not statically significant in multivariate analysis. Therefore, marital status did not subscribe to the occurrence of insomnia contrary to what is generally reported in the literature [8,9]. In another study, it was not found significant association between marital status and insomnia in males. However, divorced/widowed females were more conquerable to insomnia (age-adjusted OR 1.78; 95% CI 1.20–2.63) [10].

The gender differences marriages have been suggested as disadvantageous to females because of gender-specific demand and burden as well as restricted roles available to females in the marriage [11,12]. Also, being a housewife or being widowed and divorced were most strickened [13].

In our study, the first approximation comprises the investigation the association between insomnia and self-esteem and the second approximation the association between insomnia and marital status in nursing staff in Primary Health Care, in Emergency Departments (ED) and in Intensive Care Units (ICU) of five major hospitals and 11 Health Centers in the island of Crete, Greece. In addition, no study has examined the role of insomnia symptoms compared with self – esteem and marital status in nursing personnel worldwide.

General Objective

The general objective of the study was to investigate the insomnia in nursing staff in Primary Health Care, in Emergency Departments (ED) and in Intensive Care Units (ICU) of five major hospitals and 11 Health Centers in the prefecture of Crete.

Specific Objectives

- To study the association between insomnia and self-esteem in nursing staff.
- To study the association between insomnia and family status in nursing staff.

Significance of the Study

The present study is expected to be used by Human Resource Management of the Hospitals and Health Care Centers to design appropriate policies that can curb insomnia in nursing staff.

Methodology

The survey involved 213 nurses from five (5) hospitals and eleven (11) Health Centers in the island Crete. Of these, 24.9% were working at the Emergency Departments, while the other 45.5% were working in Intensive Care Units and 29.6% in Primary Health Care. The present study was carried out from August 2017 to January 2018 and included the voluntary and anonymous participation of nursing staff. The psychometric tools included in the study are presented below:

Instruments

For the purpose of the present research, the Hamilton Anxiety Scale (HAM-A) and the Culture-free Self-esteem Inventories were applied.

The **Hamilton Anxiety Scale (HAM-A)** was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used in both research and clinical settings. The scale consists of 14 statements, each defined by a series of symptoms, and measures psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Scoring: Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe [14].

The **Culture-free Self-esteem Inventories** is a self-referencing questionnaire, which includes (without the lie scale) 32 items. These statements seek to measure the general, personal and social perception of themselves (self-perception) and are divided into two groups: those that are high and those showing low self-esteem. Each question answers either with "yes' or with "no". Three self-assessment sub-scales are included: general (16 statements), social (8 statements) and personal (8 statements). There is also a lie scale o (8 statements) [15].

Permissions were obtained from the developers of the Hamilton Anxiety Scale (HAM-A) and Culture-free Self-esteem Inventories. The time needed to fill out the questionnaire was 8–10 minutes.

Study Population

The present research conducted among nurses working in primary health-care setting with the participation of 14 Health-care Centers and 5 Hospitals in the island of Crete. Our sample consisted of 213 nurses take part in the study. The study was performed in the following departments: 14 Health-care Centers, 4 Emergency Departments (ED) and 11 Intensive Care Units (ICU). The study was performed during August 2017 to January 2018.

Inclusion Criteria

- Selected participants had to work to Hospitals and Health Centers that had been included in the National Health System and had the same system of shift to ensure the homogeneity of the sample.
- Selected participants have to be nursing personnel with any educational level with each working relationship

Exclusion criteria

- Participants had not to be nursing student

Statistical Analysis

With respect to the statistical analysis, the quantitative variables are reported based on the mean ± standard deviation (mean ± sd) as well as the median and the interquartile range (IQR), while for the qualitative variables we have the corresponding frequencies and percentages. Depending on the appropriate statistical and / or graphic controls, it is recommended that median and the interquartile range (median, IQR) are used as representative descriptive measures.

The appropriate parametric and non-parametric statistical checks were also performed to investigate any differences between the three structures (ICU, Primary Health Care and ED) and the scales under study, defining the materiality level at 0.05. Where necessary, exact tests and / or Monte Carlo simulation (10000 samples) were used.

Finally, reliability and internal consistency was assessed by internal consistency using Cronbach 's alpha test. The statistical analysis was performed using statistical software IBM SPSS statistics (version 21.0). A p value <0.05 was considered statistically significant.

Ethics Approval

The necessary written permissions were issued from the Research and Ethics Committees of the 7th Health District of Crete, the University General Hospital of Heraklion, General Hospital of Heraklion "Venizelio Pananio", General Hospital of Chania, General Hospital of Rethymno and General Hospital of Agios Nikolaos. The results of the current study were announced in the Administration of the 7th Health District of Crete. Written consent was given by all participants to take part in the study.

Results

Characteristics of the Study Sample

In the present study, the participants were nursing personnel (n=213) and the majority of them 89.2% of the total sample were women and Intensive Care Units (ICU) nurses represented 45.5% of the study population. The mean age for the nursing staff of the total sample was 41.73 years. The 75.1% (n=160) of the sample were married. The majority of the total sample of the study 64.8% (n=138) was graduates of Technological Educational Institute and the 8.9% (n=18) had a master's degree. Demographic characteristics of the study population are shown in **Table 1.** The mean length of employment was 15.78 (SD = 8.49 years). In regard of the average of work in the current department was 8.00 years (SD = 10.50 years) **Table 2**.

Table1. *Characteristics of the study population (N = 213).*

Characteristics		n (%)
Departments		
	Intensive Care Unit	97 (45.5)
	Primary Care	63 (29.6)
	Emergency Department	53 (24.9)
Gender		
	Man	23 (10.8)
	Women	190 (89.2)
Marital Status		
	Married	160 (75.1)
	Unmarried	49 (23.0)
	Widowed/ Divorced	4 (1.9)
Educational Level		
	Secondary School	43 (20.2)
	Technological Educational Institute	138 (64.8)
	University	13 (6.1)
	Master degree	18 (8.4)
	PhD	1 (0.5)

Table2. *Descriptive characteristics among the study population (N = 213).*

Characteristics	
Age (years)	41.73±7.33*
Years of work	15.78±8.49*
Years of work in the current work position	8.00 (10.50)**

* mean ± sd

**median (IQR)

Reliability of Culture-Free Self-Esteem Inventories (James Battle)

Cronbach's α coefficient was 0.763 suggesting high internal consistency (General self-esteem: alpha = 0.737, Social self-esteem: alpha = 0.442, Personal self-esteem: alpha = 0.724, General self-esteem: alpha = 0.763).

Valuation of Self-Esteem

From the results of the Culture-free Self-esteem Inventories, it was found that 51.6% of the total sample who participated in the research had a middle self-esteem, while the lowest percentage 8.0% had very high self-esteem and the 8.0% had very low self-esteem. Also, it was found that 17.4% had low self-esteem and 15% had high self-esteem. Also, the results showed that the mean General self-esteem was 12.27, the mean Social self-esteem 6.35, the mean Personal self-esteem was 3.86 and the scale of lie was 4.77 as shown in **Table 3**. There are no statistically significant differences between the three departments Intensive Care Unit (ICU), Emergency Departments (ED) and Primary Care. Below are analyzed the level of self-esteem for the three departments (ICU, ED, Primary Care): ICU: very low self-esteem 8.2%, low self-esteem 17.5%, middle self-esteem 50.5%, high self-esteem 13.4%, very high self-esteem 10.3%, ED: very low self-esteem 11.3%, low self-esteem 26.4%, middle self-esteem 37.7%, high self-esteem 20.8%, very high self-esteem 3.8%, Primary Care: very low self-esteem: 4.8%, low self-esteem 9.5%, middle self-esteem 65.1%, high self-esteem 12.7%, very high self-esteem 7.9% as shown in **Table 4**.

Table3. *Descriptive characteristics of the scales among the study population (N = 213).*

Scales	**n (%)**	**Mean**	**SD**	**Median**	**IQR**	**Range**
Culture-free Self-esteem Inventories (James Battle),						
General self-esteem *		12.27	2.89	13.00	3.50	2-16
Social self-esteem *		6.35	1.38	7.00	1.00	1-8
Personal self-esteem *		3.86	2.16	4.00	3.50	0-8
Scale of lie		4.77	1.56	5.00	2.00	0-8
Total self-esteem		22.47	5.28	23.00	7.00	4-32
Too low	17 (8.0)					
Low	37 (17.4)					
Middle	110 (51.6)					
Hugh	32 (15.0)					
Very Hugh	17 (8.0)					

*(IQRs) as representative descriptive measures for these scales

Table4. *Level of self-esteem among the study population (N = 213).*

			Level of self-esteem					Total
			Very Low	Low	Middle	High	Very high	
Department	ICU	N	8	17	49	13	10	97
		%	8.2%	17.5%	50.5%	13.4%	10.3%	100.0%
	Primary Care	N	3	6	41	8	5	63
		%	4.8%	9.5%	65.1%	12.7%	7.9%	100.0%
	ED	N	6	14	20	11	2	53
		%	11.3%	26.4%	37.7%	20.8%	3.8%	100.0%
Total		N	17	37	110	32	17	213
		%	8.0%	17.4%	51.6%	15.0%	8.0%	100.0%

$\chi^2(8)=13.898$, p=0.080

Reliability of Hamilton Anxiety Scale (HAM-A)

The reliability Of Hamilton Anxiety Scale (HAM-A) expressed by Cronbach α was 0.905.

Valuation of Intensity of the Symptoms Anxiety and Insomnia

The intensity of the symptoms of anxiety had an average 11.41 based on their Hamilton Anxiety Estimation Scale. The most common **mild intensity symptoms** according Hamilton Anxiety Scale were, " anxious mood " (33.8%), "tension" (32.4%), "intellectual" (26.8%), " somatic (muscular system)" (26.3%), "insomnia" (23.9%), "somatic (physical symptoms)" (23.5%), "cardiovascular symptoms" (23.0%), "depressed mood" (21.6%), "gastrointestinal symptoms" 22.5 %, "fears" 20.7%, "automatic symptoms" 20.2 %, "genitourinary symptoms " 17.8% and "respiratory symptoms" 16.9 %) as shown in **Table 5.**

The most common **moderate intensity symptoms** according Hamilton Anxiety Scale were, "anxious mood " (27.7%), "tension" (17.8%), "intellectual" (19.2.8%), "somatic (muscular system)" (26.3%), "insomnia" (23.9%), "somatic (physical symptoms)" (23.5%)," cardiovascular symptoms" (23.0%), "depressed mood" (11.7%), "gastrointestinal symptoms" 14.1 %, "fears" (7.5 %), "automatic symptoms" (8.9 %), "genitourinary symptoms " (6.1%) and "respiratory symptoms" (7.5%) as shown in **Table 5.**

The most common **severe intensity symptoms** according Hamilton Anxiety Scale were, " anxious mood " (11.3%), "tension" (12.2%), "intellectual" (5.6%), " somatic (muscular system)" (26.3%), "insomnia" (23.9%), "somatic (physical symptoms)" (9.9%), "cardiovascular symptoms" (3.8%), "depressed mood" (7.0%), "gastrointestinal symptoms" (4.2 %), "fears" (4.2 %), "automatic symptoms" (4.2 %), "genitourinary symptoms " (3.8%) and "respiratory symptoms" (4.2%) as shown in **Table 5.**

The most common **very severe intensity symptoms** according Hamilton Anxiety Scale were, "anxious mood " (3.3%), "tension" (3.3%), "intellectual" (3.3%), " somatic (muscular system)" (6.1%), "insomnia" (23.9%), "somatic (physical symptoms)" (23.5%), " cardiovascular symptoms " (2.3%), "depressed mood" (7.0%), "gastrointestinal symptoms" 3.3 %, "fears" (1.4 %), "automatic symptoms" (1.9 %), "genitourinary symptoms" (1.4%) and "respiratory symptoms" (1.9%) as shown in **Table 5.**

In our sample, 49.7% of the nursing personnel had possible insomnia based on their Hamilton Anxiety Estimation Scale of the overall study sample. The 23.9% of the total sample had mild insomnia, the 15.5% had moderate insomnia, the 6.6% had severe insomnia and the 3.3 % had very severe insomnia as shown in **Table 5.**

Table5. *Hamilton Anxiety Estimation Scale of the overall study sample (N = 213).*

		None	Mild	Moderate	Severe	Very severe
		%				
1.	**Anxious mood**	23.9	33.8	27.7	11.3	3.3
2.	**Tension**	34.7	32.4	17.8	12.2	2.8
3.	**Fears**	66.2	20.7	7.5	4.2	1.4
4	**Insomnia**	**50.7**	**23.9**	**15.5**	**6.6**	**3.3**
5.	**Intellectual**	45.1	26.8	19.2	5.6	3.3
6.	**Depressed mood**	55.9	21.6	11.7	7.0	3.8
7.	**Somatic (muscular)**	41.3	26.3	16.4	9.9	6.1
8.	**Somatic (sensory)**	59.2	23.5	9.9	4.7	2.8
9.	**Cardiovascular symptoms**	60.6	23.0	10.3	3.8	2.3
10.	**Respiratory symptoms**	69.5	16.9	7.5	4.2	1.9
11.	**Gastrointestinal symptoms**	54.5	22.5	14.1	5.6	3.3
12.	**Genitourinary symptoms**	70.9	17.8	6.1	3.8	1.4
13.	**Autonomic symptoms**	64.8	20.2	8.9	4.2	1.9

Association of Insomnia with Self-Esteem and Demographic Characteristics

We calculate the observed p-value with the Monte Carlo (2-sided) simulation method. Multiple regression analyses were performed to examine association between insomnia and marital status Table 6. Moreover, analyses were performed to examine association between insomnia and self-esteem as shown in Table 7**.** As shown in Table 6**,** Table 7 marital status and self-esteem were significant predictors of insomnia. Results verified the significant positive association between insomnia and self – esteem. Also, results verified the significant positive association between insomnia and marital status.

Results verified the significant negative association between insomnia and education level (p=0.973), age (p=0.751), gender (p=0.162), work experience (p=0.460) and work experience years in the current department/ workplace (p=0.834).

Table6. *Association between insomnia and family status in the nursing staff of the overall study sample (N = 213).*

Crosstab						
			Family status			Total
			Married	Unmarried	Widowed/Divorced	
Insomnia	None	Count	87	18	3	108
		% within insomnia	80.6%	16.7%	2.8%	100.0%
		% within Family status	54.4%	36.7%	75.0%	50.7%
	Mild	Count	42	8	1	51
		% within insomnia	82.4%	15.7%	2.0%	100.0%
		% within Family status	26.3%	16.3%	25.0%	23.9%
	Moderate	Count	17	16	0	33
		% within insomnia	51.5%	48.5%	0.0%	100.0%
		% within Family status	10.6%	32.7%	0.0%	15.5%
	Severe	Count	9	5	0	14
		% within insomnia	64.3%	35.7%	0.0%	100.0%
		% within Family status	5.6%	10.2%	0.0%	6.6%
	Very Severe	Count	5	2	0	7
		% within insomnia	71.4%	28.6%	0.0%	100.0%
		% within Family status	3.1%	4.1%	0.0%	3.3%

Total	Count	160	49	4	213
	% within insomnia	75.1%	23.0%	1.9%	100.0%
	% within Family status	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests									
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	18.405[a]	8	.018	.026[b]	.022	.030			
Likelihood Ratio	17.586	8	.025	.020[b]	.016	.024			
Fisher's Exact Test	16.976			.014[b]	.011	.017			
Linear-by-Linear Association	3.712[c]	1	.054	.058[b]	.052	.064	.033[b]	.028	.038
N of Valid Cases	213								

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .13.

b. Based on 10000 sampled tables with starting seed 423042446.

c. The standardized statistic is 1.927.

Table7. *Association between insomnia and total self-esteem in the nursing staff of the overall study sample (N = 213).*

Crosstab								
			Self - esteem					Total
			Very Low	Low	Middle	High	Very high	
Insomnia	None	Count	3	13	58	20	14	108
		% within insomnia	2.8%	12.0%	53.7%	18.5%	13.0%	100.0%
		% within Self-esteem	17.6%	35.1%	52.7%	62.5%	82.4%	50.7%
	Mild	Count	3	11	26	9	2	51
		% within insomnia	5.9%	21.6%	51.0%	17.6%	3.9%	100.0%
		% within Self-esteem	17.6%	29.7%	23.6%	28.1%	11.8%	23.9%
	Moderate	Count	6	6	18	2	1	33
		% within insomnia	18.2%	18.2%	54.5%	6.1%	3.0%	100.0%
		% within Self-esteem	35.3%	16.2%	16.4%	6.3%	5.9%	15.5%
	Severe	Count	2	5	6	1	0	14
		% within insomnia	14.3%	35.7%	42.9%	7.1%	0.0%	100.0%
		% within Self-esteem	11.8%	13.5%	5.5%	3.1%	0.0%	6.6%
	Very Severe	Count	3	2	2	0	0	7
		% within insomnia	42.9%	28.6%	28.6%	0.0%	0.0%	100.0%
		% within Self-esteem	17.6%	5.4%	1.8%	0.0%	0.0%	3.3%
Total		Count	17	37	110	32	17	213
		% within insomnia	8.0%	17.4%	51.6%	15.0%	8.0%	100.0%
		% within Self-esteem	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests									
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	37.814[a]	16	.002	.002[b]	.001	.004			
Likelihood Ratio	35.276	16	.004	.006[b]	.004	.008			
Fisher's Exact Test	30.879			.004[b]	.002	.006			
Linear-by-Linear Association	28.165[c]	1	.000	.000[b]	.000	.000	.000[b]	.000	.000
N of Valid Cases	213								

Table8. *Association between insomnia and education level in the nursing staff of the overall study sample (N=213)*

Crosstab							
			Educational level				Total
			Secondary School	Higher technological education	University	Master degree & PhD	
Insomnia	None	Count	22	70	5	11	108
		% within insomnia	20.4%	64.8%	4.6%	10.2%	100.0%
		% within educational level	51.2%	50.7%	38.5%	57.9%	50.7%
	Mild	Count	11	31	4	5	51
		% within insomnia	21.6%	60.8%	7.8%	9.8%	100.0%
		% within education level	25.6%	22.5%	30.8%	26.3%	23.9%
	Moderate	Count	6	22	3	2	33
		% within insomnia	18.2%	66.7%	9.1%	6.1%	100.0%
		% within education level	14.0%	15.9%	23.1%	10.5%	15.5%
	Severe	Count	2	11	1	0	14
		% within insomnia	14.3%	78.6%	7.1%	0.0%	100.0%
		% within educational level	4.7%	8.0%	7.7%	0.0%	6.6%
	Very severe	Count	2	4	0	1	7
		% within insomnia	28.6%	57.1%	0.0%	14.3%	100.0%
		% within education level	4.7%	2.9%	0.0%	5.3%	3.3%
Total		Count	43	138	13	19	213
		% within insomnia	20.2%	64.8%	6.1%	8.9%	100.0%
		% within educational level	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests									
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	4.806[a]	12	.964	.973[b]	.969	.978			
Likelihood Ratio	6.405	12	.894	.949[b]	.943	.955			
Fisher's Exact Test	5.006			.960[b]	.955	.965			
Linear-by-Linear Association	.158[c]	1	.691	.692[b]	.681	.704	.380[b]	.367	.392
N of Valid Cases	213								

a. 11 cells (55.0%) have expected count less than 5. The minimum expected count is .43.

b. Based on 10000 sampled tables with starting seed 423042446.

c. The standardized statistic is -.398.

Table9. *Association between insomnia and age in the nursing staff of the overall study sample (N = 213).*

Crosstab						
			age			Total
			<=30	31-45	46+	
Insomnia	None	Count	6	60	42	108
		% within insomnia	5.6%	55.6%	38.9%	100.0%
		% within age	50.0%	47.2%	56.8%	50.7%
	Mild	Count	3	33	15	51
		% within insomnia	5.9%	64.7%	29.4%	100.0%
		% within age	25.0%	26.0%	20.3%	23.9%
	Moderate	Count	3	19	11	33
		% within insomnia	9.1%	57.6%	33.3%	100.0%
		% within age	25.0%	15.0%	14.9%	15.5%
	Severe	Count	0	11	3	14
		% within insomnia	0.0%	78.6%	21.4%	100.0%
		% within age	0.0%	8.7%	4.1%	6.6%
	Very severe	Count	0	4	3	7
		% within insomnia	0.0%	57.1%	42.9%	100.0%
		% within age	0.0%	3.1%	4.1%	3.3%
Total		Count	12	127	74	213
		% within insomnia	5.6%	59.6%	34.7%	100.0%
		% within age	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests									
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	5.102[a]	8	.747	.751[b]	.740	.762			
Likelihood Ratio	6.206	8	.624	.696[b]	.684	.708			
Fisher's Exact Test	4.337			.809[b]	.798	.819			
Linear-by-Linear Association	.358[c]	1	.549	.583[b]	.570	.596	.294[b]	.282	.306
N of Valid Cases	213								

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .39.

b. Based on 10000 sampled tables with starting seed 423042446.

c. The standardized statistic is -.599.

Table10. *Association between insomnia and gender in the nursing staff of the overall study sample (N = 213)*

Crosstab					
			Gender		Total
			Male	Female	
Insomnia	None	Count	14	94	108
		% within insomnia	13.0%	87.0%	100.0%
		% within gender	60.9%	49.5%	50.7%
	Mild	Count	8	43	51
		% within insomnia	15.7%	84.3%	100.0%
		% within gender	34.8%	22.6%	23.9%
	Moderate	Count	1	32	33
		% within insomnia	3.0%	97.0%	100.0%
		% within gender	4.3%	16.8%	15.5%
	Severe	Count	0	14	14
		% within insomnia	0.0%	100.0%	100.0%
		% within gender	0.0%	7.4%	6.6%
	Very severe	Count	0	7	7
		% within insomnia	0.0%	100.0%	100.0%
		% within gender	0.0%	3.7%	3.3%
Total		Count	23	190	213
		% within insomnia	10.8%	89.2%	100.0%
		% within gender	100.0%	100.0%	100.0%

Chi-Square Tests									
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	6.400[a]	4	.171	.162[b]	.153	.171			
Likelihood Ratio	9.227	4	.056	.064[b]	.058	.070			
Fisher's Exact Test	5.123			.227[b]	.216	.238			
Linear-by-Linear Association	4.180[c]	1	.041	.044[b]	.039	.049	.021[b]	.017	.025
N of Valid Cases	213								

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .76.

b. Based on 10000 sampled tables with starting seed 423042446.

c. The standardized statistic is 2.044.

Table11. *Association between insomnia and years of work experience in the nursing staff of the overall study sample (N = 213).*

Crosstab						
			Years of work experience			Total
			<=5	6-10	11+	
Insomnia	None	Count	8	25	75	108
		% within insomnia	7.4%	23.1%	69.4%	100.0%
		% within years of work experience	42.1%	47.2%	53.2%	50.7%
	Mild	Count	4	13	34	51
		% within insomnia	7.8%	25.5%	66.7%	100.0%
		% years of work experience	21.1%	24.5%	24.1%	23.9%
	Moderate	Count	5	6	22	33
		% within insomnia	15.2%	18.2%	66.7%	100.0%
		% years of work experience	26.3%	11.3%	15.6%	15.5%
	Severe	Count	2	6	6	14
		% within insomnia	14.3%	42.9%	42.9%	100.0%
		% years of work experience	10.5%	11.3%	4.3%	6.6%
	Very Severe	Count	0	3	4	7
		% within insomnia	0.0%	42.9%	57.1%	100.0%
		% years of work experience	0.0%	5.7%	2.8%	3.3%
Total		Count	19	53	141	213
		% within insomnia	8.9%	24.9%	66.2%	100.0%
		% within years of work experience	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests									
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	7.730[a]	8	.460	.460[b]	.447	.473			
Likelihood Ratio	7.796	8	.454	.535[b]	.522	.548			
Fisher's Exact Test	7.656			.427[b]	.414	.439			
Linear-by-Linear Association	2.091[c]	1	.148	.157[b]	.147	.166	.090[b]	.083	.097
N of Valid Cases	213								

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .62.

b. Based on 10000 sampled tables with starting seed 423042446.

c. The standardized statistic is -.437.

Table12. *Association between insomnia and years of work experience in the current work position in the nursing staff of the overall study sample (N = 213).*

Crosstab						
			Years of work experience in the current work position			Total
			<=5	6-10	11+	
Insomnia	None	Count	36	37	35	108
		% within insomnia	33.3%	34.3%	32.4%	100.0%
		% within years of work experience in the current work position	48.6%	52.1%	51.5%	50.7%
	Mild	Count	17	20	14	51
		% within insomnia	33.3%	39.2%	27.5%	100.0%
		% within years of work experience in the current work position	23.0%	28.2%	20.6%	23.9%
	Moderate	Count	13	7	13	33
		% within insomnia	39.4%	21.2%	39.4%	100.0%
		% within years of work experience in the current work position	17.6%	9.9%	19.1%	15.5%
	Severe	Count	5	4	5	14
		% within insomnia	35.7%	28.6%	35.7%	100.0%
		% within years of work experience in the current work position	6.8%	5.6%	7.4%	6.6%
	Very severe	Count	3	3	1	7
		% within insomnia	42.9%	42.9%	14.3%	100.0%
		% within years of work experience in the current work position	4.1%	4.2%	1.5%	3.3%

Total	Count	74	71	68	213
	% within insomnia	34.7%	33.3%	31.9%	100.0%
	% within years of work experience in the current work position	100.0%	100.0%	100.0%	100.0%

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	4.380[a]	8	.821	.834[b]	.825	.844			
Likelihood Ratio	4.693	8	.790	.812[b]	.801	.822			
Fisher's Exact Test	4.614			.814[b]	.804	.824			
Linear-by-Linear Association	.191[c]	1	.662	.681[b]	.669	.693	.349[b]	.336	.361
N of Valid Cases	213								

a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is 2.23.

b. Based on 10000 sampled tables with starting seed 423042446.

c. The standardized statistic is -.437.

Discussion

The present research investigated the intensity symptoms of anxiety and self-esteem in a sample of 213 nursing personnel in five major hospitals and eleven Health Centers in the prefecture of Crete.

As far as the working characteristics of individuals are concerned, it was found that most nurses worked in the Intensive Care Unit (ICU) and the fewer in the Emergency Department (ED). The average length of work experience of the sample was 15.78 years and the work experience in the part that worked during the survey was 8 years. In this sample, the majority of the total sample was married 75.1% and the unmarried was 23.2%. The mean age for the total sample was 41.73 years.

In the present research, the results of the Battle Questionnaire for Self-Esteem showed that 51.6% of the nursing personnel that took part in the study had a middle self-esteem, while the lowest percentage of the total sample (8.0%) had a very high self-esteem. A study conducted in Wales, on mental health community nurses was found that most nurses had middle self-esteem [16]. Another relevant study revealed that 60.1% of nurses had an average self-esteem. The correlation of the analysis also revealed a linear negative relationship between self-esteem and emotional exhaustion. An important linear relationship was found between self-esteem and lack of personal integration [17].

The most common symptoms according Hamilton Anxiety Scale were, "stress" (33.8%), "tension" (32.4%), "cognitive symptoms "(26.8%), "symptoms of muscular system"(26.3%), "insomnia"(23.9%), "general physical symptoms (23.5%)," cardiorespiratory symptoms "(23.0%)," depressed mood" (21.6%) and" gastrointestinal symptoms" %).

A survey conducted in 2014 showed that nursing suffered from mild intensity of anxiety symptoms, with 19.9% of nursing staff experiencing moderate intensity of anxiety symptoms and 3.9% having a severe intensity of anxiety symptoms. Symptoms with the most frequent recordings were sleep disorders, anxiety disorder,

cognitive impairment, and hypertension [18]. An another survey conducted in Greece in 213 nurses who worked in the Emergency Department (GLP) of eight General Hospitals showed that the level of anxiety symptoms was moderate and the most common symptoms was sleep disorders, anxiety and depressed mood [19].

The total sample of our study experiences mild tension insomnia symptoms associated with self-esteem ($p < 0.002$). In a study, conducted in 1,805 adults aged between 30 and 84 years in the United States and explored the relationship between sleep and self-esteem, the results showed that people with symptoms of insomnia are graded to a large extent with lower self- independent [20].

The nursing staff of the overall sample of our study shows mild insomnia symptoms associated with marital status ($p < 0.026$). The present study showed that married women show mild to severe insomnia symptoms. Research has not been conducted to investigate the relationship between insomnia and marital status in nursing personnel. Another study in general population supported that the importance of social support has been indirectly reflected, by the higher risks of insomnia in divorced/widowed females and retired males. However, owing to the lack of detailed measurement of the social support system, further study on the relationship between insomnia and social support is indicated. In addition, different gender-specific stress-coping strategies have been suggested to explain the increased vulnerabilities in depression and insomnia in females [21].

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