

Health related behaviors and health level of nurses in Primary Health Care

Irini Katechaki and Georgios Matalliotakis*

*(EAP, Greece, matalliotakis.georgios@ac.eap.gr, matalliotakis@hotmail.com)

Abstract

Introduction: Health behaviors are those activities that either increase the risk of developing a disease (smoking, alcohol consumption, etc.), or promote good health preservation (healthy diet, physical activity, etc.). These behaviors are responsible for the impact and the prevalence of many non-communicable diseases and can be modified by appropriate public health policies. The role of nursing staff in educating people adopting a healthy lifestyle and avoiding exposure to various risk factors is very important.

Aim: The purpose of this study is to record and evaluate the health behaviors and the health level of nursing staff in Primary Health Care.

Methodology: A cross-sectional survey was conducted on a sample of 132 nurses working in Primary Health Care of the 7th Regional Health Authority of Crete. The IBM SPSS Statistics 24.0 statistical program was used for statistical analysis.

Results: The research showed that a significant number of nurses working in Primary Health care of the 7th Regional Health Authority of Crete are smokers. One out of three, (31,8%) of the sample, stated that they are smokers, while 45,5% of the sample stated that they occasionally consume alcohol. In terms of physical activity, 60,6% of the sample stated that they exercise, while the main physical activity was walking (67,4%), while running (13,6%) and dancing (12,7%) follow with much lower percentages. However, the frequency of physical activity is low and the median

did not exceed 3 days a week for any type of physical activity mentioned above. Regarding the somatometric characteristics of the sample, there is a high rate of over weighted and obsessed nurses (52, 3%). Finally, 69,2% of the sample reported excellent / very good self-rated health.

Conclusions: The prevalence of over weighted and obsessed nursing staff as well as those who smoke is quite high. This, is not only harmful for their health, but also hinders the effectiveness of their role in promoting public health. This fact indicates the need for a counseling approach in order for the nursing staff stop smoking and treat obesity.

Finally, nursing staff does not take into account the health behaviors when they self-rate their health. This may have a negative impact, regarding their counseling role to the community, on disease prevention and health promotion.

Keywords

Health related behaviors, self-rated health, smoking, Body Mass Index, alcohol consumption.

Background

Health behaviors are those activities that either increase the risk of developing a disease or promote good health. There are two main categories of behaviors, behaviors/ activities that are performed with such frequency or intensity that increase the risk of disease e.g. smoking, alcohol consumption etc. and positive health behaviors that have the potential to help prevent various diseases and enhance health, e.g. regular physical activity, avoidance of fats in the diet, etc. (Steptoe & Wardle, 1996).

Health behaviors affect to the incidence and prevalence of several Non-Communicable Diseases (NCDs) (Murray & Lopez, 1996). According to the OECD, around 550,000 people die prematurely in the EU each year due to various negative health behaviors. NCDs are a major cause of death. At the same time, negative health behaviors reduce life expectancy, degrade quality of life and prosperity, and involve significant social and economic costs. In the

EU, NCDs absorb most of the cost of healthcare. In particular, they cost the EU economies 115 billion euros or 0,8% of GDP per year (WHO, 2019). Also, according to estimates, 42% of all deaths in Greece in 2017 are mainly due to behavioral risk factors compared to 39% in the EU. Of the total deaths, 20% are due to smoking (active and passive), while poor diet and reduced physical activity account for about 21% of deaths and alcohol consumption for about 4% (OECD / European observatory on health system and policies, 2019).

It is worth noting that although morbidity and mortality from Non-Communicable Diseases occur mainly in adulthood, the exposure to risk factors and the adoption of negative or positive health behaviors begins in the early stages of life and develops throughout of life. (WHO, 2013).

Now days, special value is given not only to the clinical data but also to the data that arise from the self-rated health. Self-rated health includes both the individual's personal experience of health (subjective dimension) and the assessment of external factors that affect it (Fayers & Machin, 2007; Yfantopoulos & Sarris, 2001). It is formed mainly by the state of health, functionality, knowledge about the disease, health behaviors, the possibility of using health services, social support, the adaptability, the financial situation, the psychological state as well as the educational level. In particular, for the general population it is based on the individual's own assessment of his state of health by taking on physical, social and emotional dimensions (Argentou, 2009). Self-rated health has become one of the most common health indicators in Public Health research and a significant predictor of health care utilization (Pappa, 2005).

2. Method

2.1 Sample

A cross-sectional study was conducted on a sample of 132 nurses working in Primary Health Care (18 Health Centers and 12 Local Health Units) of the 7th Regional Health Authority of Crete. A total of 140 nurses were included in the sample (nurses on long-term sick leave or maternity leave were excluded from the study). A total of 132 responded of the questionnaire (response rate 94,28%).

2.2 Research ethics

For the approach of the sample, a permit for distribution of the questionnaire was requested from the Administration of the 7th Regional Health Authority. The nursing staff was informed through the first page of the questionnaire about the purposes of the research and the need for its participation in order to carry it out. It was also informed that the questionnaire is anonymous and that according to the code of ethics it will be used exclusively for the purposes of this study. They were also informed that the participation in the study is voluntary and that the completion of the questionnaire indicates the consent for their participation.

2.3 Questionnaire

A specially formulated anonymous questionnaire was used for data collection. The questionnaire was completed exclusively by the nursing staff of 18 Health Centers and 12 Local Health Units of the 7th Regional Health Authority of Crete.

The questionnaire included questions about socio demographic factors, health related behaviors and self-rated health.

The first part of the questionnaire included questions about the sociodemographic factors such as gender, age, weight in kilograms, height in centimeters, marital status, number of children and educational level.

Body mass Index (BMI) was estimated on self reported weight and height. Health related behaviors included questions about smoking, alcohol consumption, physical activity, dietary habits and average sleep duration.

Self-rated health was assessed through the question: “How would you say your health is?” and the five-level scale (excellent, very good, good, poor and very bad).

3 Results

3.1 Statistical Analysis

The research variables are divided into qualitative (nominal, ordered) and quantitative (discrete, continuous). The continuous variables were mainly expressed in the form of mean value and standard deviation, while the rest were qualitative and discrete quantitative as frequency and percentage (%).

Differences in mean values between two independent groups were found by independent samples t-test. The variables were correlated with Pearson's χ^2 test since both variables were distinct.

The analysis was done with the statistical program IBM SPSS Statistics 24.0, while the acceptance limit of the hypotheses was set at $\alpha = 0,05$

3.2 Demographic and somatometric characteristics of the sample

The demographic characteristics of the nursing staff who participated in the survey are presented in Table 1. Women made up the largest part of the sample ($n = 117$, 88,6%) compared to men ($n = 15$, 11,4 %). Most of the participants are married, at a rate of 72,0% ($n = 95$), while the unmarried follow at a rate of 21,2% ($n = 28$). The majority of respondents have children ($n = 95$, 72,0%) and most of them have 2 children ($n = 47$, 48,0%).

		n	%
Gender	Male	15	11,4%
	Female	117	88,6%
Age group	<30	16	12,1%
	30-39	38	28,8%
	40-49	42	31,8%
	50+	36	27,3%
Marital status	Not married	28	21,2%

	Married	95	72,0%
	Divorced	7	5,3%
	Widow/er	2	1,5%
Children	No	37	28,0%
	Yes	95	72,0%
How many children;	0	3	3,1%
	1	25	25,5%
	2	47	48,0%
	3	15	15,3%
	4+	8	8,1%

Table 1 Demographic characteristics

The descriptive characteristics of age and somatometric characteristics are presented in Table 2. The mean age is $42,1 \pm 9,4$ years, the median age is 42,0 while the age range ranged from 24-63 years. The average height was $166,0 \pm 7,3$ cm and the average weight $71,5 \pm 14,0$ Kgr. Based on the somatometric characteristics the average BMI was quite high $25,9 \pm 4,5$ Kg/m².

	Standard deviation		Median	Minimum	Maximum
	Average				
Age (years)	42,1	9,4	42,0	24	63
Height (cm)	166,0	7,3	165,0	152	190
Weight (Kg)	71,5	14,0	70,0	45	120
BMI (Kg/m ²)	25,9	4,5	25,1	16,7	41,5

Table 2 Age and somatometric characteristics.

Diagram 1 shows that 62 respondents have a normal BMI ($18-25$ Kg / m²) (47,0%), while a significant percentage of 15,9% (n = 21) are obese (> 30 Kg / m²) and 36,4% (n=48) are overweight.

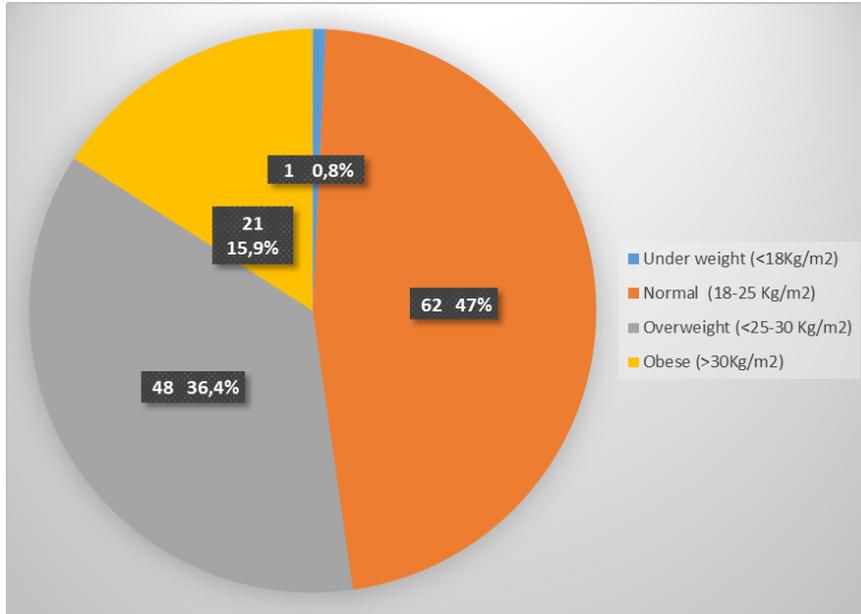


Diagram 1. Categorization of the BMI

3.3 Professional characteristics of the sample

The sample of the nursing staff that participated in the research comes from all the Health Centers and the Local Health Units which are under the responsibility of the 7th Regional Health Authority of Crete. Most of the sample is from the prefecture of Heraklion (n = 70, 53,0%), while from the prefecture of Chania there were 30 nurses, 22,7% of the sample. The participation from the other prefectures was 22 nurses from the prefecture of Rethymno (16,7%) and 10 nurses 7,6% from the prefecture of Lassithi. Table 3 lists the Health Centers and the Local Health Units that participated in the research.

Health Centers			
Chania	Rethymno	Heraklio	Lassithi
Kissamos	Spili	Kastelli	Jermiadon
Bamo	Agia Fotini	Mires	
Kandanos	Perama	Charaka	
Chania	Anogia	Agia Varvara	
2o Chania	Rethymno	Arkaloxori	
		Ano Vianno	
		Heraklio	
Local Health Units			
1η Chania	1η Rethymno	1st Heraklio	Agios Nikolaos
2η Chania		2nd Heraklio	Sitia
		3rd Heraklio	
		4th Heraklio	
		5th Heraklio	
		Maleviziou	
		Hersonissos	

Tables 3 Health Centers and Local Health Units of the 7th Regional Health Authority of Crete

Regarding the level of education of the nurses in the sample (Table 4), it seems that most nurses have three years nursing degree (n = 61, 46,2%), while the percentage of two years nursing degree is also important (n = 57, 43,2%). Regarding the position of responsibility, only 6 nurses (4,5%) reported that they held a position of responsibility.

		n	%
Educational level:	Two years nursing degree	57	43,2
	Three years nursing degree	61	46,2
	Four years nursing degree	14	10,6
Position	Staff nurse	126	95,5
	Head nurse	6	4,5

Table 4 Educational level and position.

3.4 Health Behaviors

3.4.1 Alcohol consumption - Smoking

Most nurses of the sample state that they consume alcohol occasionally, 45,5% (n = 60) of the sample, while 40,9% of the sample (n = 54) state that they do not consume any alcohol. The largest percentage of nurses report non-smokers 51,5% (n = 68). 42 nurses are smokers (31,8%), while also important is the percentage of former-smokers 16,7% (n = 22), (Table 5).

		n	%
Smoking	Current smokers	42	31,8%
	Never smoker	68	51,5%
	Former smoker	22	16,7%
Alcohol consumption	Never drinking	54	40,9%
	Occasional drinking	60	45,5%
	Drinking once a week	15	11,4%
	More than once a week	3	2,3%

Table 5. Alcohol consumption - Smoking.

3.4.2. Physical activity

60,6% (n = 80) of the sample state that they exercise their body. The most common exercise reported by the nurses is walking (n = 89, 67.4%), while running and dancing follow (n = 18, 13.6%) and (n = 17, 12,7) respectively. Aerobic exercise is done by 15 people (11.4%), while all other activities are presented in percentages below 10,0%. Walking shows the highest frequency with 3 days per week (23,6%, n = 21).

3.4.3. Self-rated health

18 (14,4%) nurses of the sample reported having excellent health, 69 (55,2%) very good, 29 (23,2%) good health and 7,2% (n = 9) poor health. No –one reported having very bad health (diagram 2).

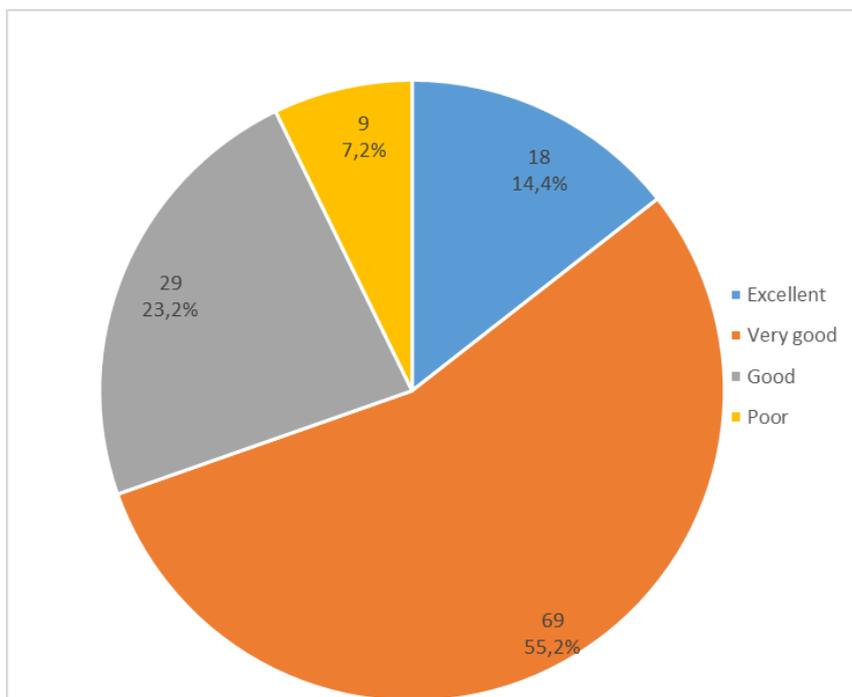


Diagram 2. Self-rated health

Self-rated health was divided into two groups. One group consists of those who declare excellent and very good health and the other group of those who declare good and poor health. There is no statistically significant difference ($p = 0,399$) between the

statements of excellent / very good self-rated health of men (n = 7, 46,7%) and women (n = 68, 58,1%). The age group seems to statistically influence (p = 0,002) the statements of excellent / very good self-rated health with the highest percentages occurring at younger ages (<30 years 75,0%, 30-39 68,4%, 40-49 61,9%, 50+ 30,6%). In addition, obese (n = 10, 47,6%) and overweight (n = 22, 45,8%) reported a statistically lower percentage of excellent / very good self rated health compared to people with normal body weight (n = 43, 68,3%) (p = 0.040). (Table 6)

		Self-rated health				
		Excellent /Very Good		Good/Poor		p
		n	%	n	%	
Gender	Male	7	46,7%	8	53,3%	0,399
	Female	68	58,1%	49	41,9%	
Age group (years)	< 30	12	75,0%	4	25,0%	0,002
	30 – 39	26	68,4%	12	31,6%	
	40 – 49	26	61,9%	16	38,1%	
	50 – 59	11	30,6%	25	69,4%	
BMI (Kg/m ²)	Normal (18-25 Kg/m ²)	43	68,3%	20	31,7%	0,040
	Overweight (25-30 Kg/m ²)	22	45,8%	26	54,2%	
	Obese (>30 Kg/m ²)	10	47,6%	11	52,4%	

Table 6 Impact of demographic characteristics to self-rated health

Regarding health behaviors (smoking, alcohol, diet), they do not seem to be related to self-rated health as there was no statistically significant difference between the percentages of statements of excellent / very good or good/poor health (p> 0,005). Specifically,

the p values were 0,268 for smoking, 0,716 for alcohol, 0,974 for the consumption of fatty foods and 0,182 for the consumption of fiber. (Table 7).

		Self-rated health				p
		Excellent /Very good		Good/Poor		
		N	%	n	%	
Smoking	Current smokers	20	47,6%	22	52,4%	0,268
	Never smoker	43	63,2%	25	36,8%	
	Former smoker	12	54,5%	10	45,5%	
Alcohol consumption	Never drinking	31	57,4%	23	42,6%	0,716
	Occasional drinking	33	55,0%	27	45,0%	
	Drinking once a week	10	66,7%	5	33,3%	
	More than once a week	1	33,3%	2	66,7%	
Effort to avoid Fatty food	No	12	57,1%	9	42,9%	0,974
	Yes	63	56,8%	48	43,2%	
Effort to include fibre in diet	No	9	75,0%	3	25,0%	0,182
	Yes	66	55,0%	54	45,0%	

Table 7 Impact of Health behaviors to self –rated health.

There was no statistically significant difference ($p = 0,578$) between those who state that they exercise ($n = 47, 57,7\%$) and declare excellent/very good health and those who exercise ($n = 33, 41,3\%$) and state good /poor health.

4 Discussion of results - Conclusions

4.1 Discussion

The research recorded and studied various health behaviors as well as the level of health of the nurses working in the Primary Health Care (PHC) units of the 7th Regional Health Authority of Crete. The majority of respondents were women (88,6%). The mean age of the respondents was 42,1 (\pm 9.4) years. Most nurses are married and average children in the family are two. Most nurses have a three years nursing degree, (46,3%), while the percentage of a two years nursing degree is also important (43,2%).

4.2 Smoking

A significant number of nurses, almost 1 out of 3, state that they are smokers. It is observed that the result of the present research is in line with that of the general population since according to the latest sample health survey of ELSTAT the percentage of smokers in the general population is 32,6% (ELSTAT, 2014). Nurses would be expected to exhibit better smoking behavior than the general population as they are a group of professionals who have the knowledge and information about the harmful effects of smoking and therefore should not underestimate the risk and future costs.

The results of the present study are consistent with the results of a survey conducted on nurses working in PHC in mainland and island Greece (Stamatopoulou et al., 2014), where 32% reported as smokers, 54% non-smokers and 14% former smokers. The corresponding findings of our research were 51,5% (non-smokers) and 16,7% (former smokers).

The prevalence of smoking in the sample of our study, however, is significantly lower than that reported in similar surveys conducted in various hospitals in Greece, where the percentage of nurses who report as smokers is close to or more than 50% of the sample (Pappa et al., 2005; Beletsioti Stika & Scriven, 2006; Tselebis et al., 2001; Vagropoulos et al., 2006; Karantzia et al., 2019). This is probably due to the fact that nurses working in hospitals are faced with more workload and more stress. A recent international review of nurses'

smoking and smoking cessation attitudes (2015) found that nurses' smoking rates ranged from 2% in China to 25,8% in Northern Ireland and over 30% in Italy, Serbia and Spain (Chandrakumar & Adams, 2015).

4.3 Alcohol

Regarding alcohol consumption, it was found that the nursing staff who participated in the study make occasional alcohol consumption (not every week) at a rate of 45,5%, while 40,9% stated that they do not consume alcohol at all. Research conducted in hospitals in Greece is in line with the results of the present study since the majority of nursing staff state that they consume alcohol occasionally (Pappa et al., 2005; Karantzia et al., 2019).

According to a recent ELSTAT health survey, the percentage of the general population reporting occasional alcohol consumption is 37,3% (ELSTAT, 2014), a much smaller percentage than in the present study, especially considering that the vast majority of participants of the present study are women. It is known that alcohol consumption is significantly lower in women than in men both in frequency and quantity. The high rate of occasional alcohol consumption among nurses is probably related to the intense work stress and the intense emotions they experience due to the special nature of the nursing profession. This assumption is reinforced by the results of international research which shows that nurses working in surgical departments (Plant et al., 1991) or in units / departments characterized by intense stress (eg ICU) (Sullivan et al., 2017), consume alcoholic beverages to a greater extent than nurses in other departments characterized by less stress.

Alcohol consumption in surveys of nurses and health professionals in other countries shows significantly higher alcohol consumption, both in terms of the percentage of the population consuming alcohol and the quantities consumed. Specifically, a study conducted on PHC nurses in Spain showed that almost 20% of nurses consume alcohol 2-4 times a week (Rodriguez et al., 2019). Also, a survey of nurses in the UK showed that 32% of nurses consumed too much alcohol (Bakhshi et al., 2015), while in Germany 23% of health professionals reported daily consumption of alcohol (Unrath et al., 2012). This fact may be due to the fact that alcohol consumption in

Greece is at very low levels compared to European countries and it is possible that nurses' alcohol consumption reflects the general picture of alcohol consumption in different countries.

4.4 Body Mass Index

Regarding of the somatometric characteristics of the nursing staff and the frequency of overweight and obese nurses, a fairly large percentage of the nurses in the sample are overweight and obese. Also, the percentage of obese and overweight seems to increase as the age of nurses increases. These results are in line with the latest sample health survey of ELSTAT, where 39,2% of citizens are overweight and 17% are obese, while in the ELSTAT survey the percentage of obese and overweight increases as the age of the general population increases. (ELSTAT, 2014).

In a similar research that has been carried out in hospitals of northwestern Greece, the results are not in line with the present research. Both the percentage of overweight (29,6%) and obese (6.9%) nurses is lower. However, the increase in the proportion of overweight and obese with age is confirmed by this study (Pappa et al., 2005;), as well as other research that has been done (Miller et al., 2008). International surveys conducted in other countries, such as England and Scotland, showed significantly higher rates of obese and overweight nurses (Kyle et al., 2015; Kyle et al., 2017), while in the United States, the results range at the same levels as in the present study (Miller et al., 2008). The large percentage of overweight and obese nurses probably reflects the general increase in obesity in Greece, where in recent decades it has increased significantly and this is due to the adoption of a sedentary lifestyle and significant changes in eating habits.

4.5 Physical exercise

The findings regarding the physical activity of the nursing staff showed that 60.6% of the sample is exercising. The main physical activity is walking while running and dancing follow with a much smaller percentage. However, the frequency of exercise is low and the median does not exceed 3 days a week for any of the above types of exercise. These results are in agreement with the findings of

research conducted both in Greek hospitals and with research conducted in the United States, Saudi Arabia and Lebanon (Pappa et al., 2005; Albert et al., 2014; Tannir et al., 2017; Tountas et al., 2007). The percentage of nurses who report exercising is slightly lower than that of the general population which amounts to 68% and according to the European Health Interview Survey 2014, engages in moderate weekly physical activity (> 150 minutes) (OECD, 2019).

Demanding and stressful working conditions along with cyclical working hours are according to various studies the main reasons that nursing staff do not have the time required to exercise regularly (Bahram et al., 2003).

4.6 Self-rated health

Almost 70% of the nurses in the sample stated excellent / very good health, while 30,4% stated good/poor. None of the nurses reported bad health. This finding is in agreement with the data for the general population, where 74% of Greeks state that they have very good / good self-reported health (OECD, 2019), as well as with the research findings made on health professionals working in PHC in the private and public sector in Skopje (Mujchin, 2015).

However, in a survey of nursing staff in hospitals in northwestern Greece, 58% of nursing staff reported poor self-rated health while only 42% reported good self-rated health (Pappa et al., 2005). This large difference in self-rated health may be due to the fact that the stressful and demanding situations that the nursing staff of hospitals face in their daily life in relation to the nursing staff of PHC units, affect the way in which they assess their health.

Also, according to the findings of the present work, health behaviors (smoking, alcohol, physical activity, diet) do not seem to be related to the level of self-rated health. These findings are confirmed by the findings of research conducted in hospitals in northwestern Greece with the exception of diet and exercise that appear to be related to self-rated health (Pappa et al., 2005). This fact shows that the nursing staff does not take into account the various health behaviors when assessing their health. Another possibility is that the small sample size did not allow possible differences to be detected. Also,

self-rated health is subjective as individuals when assessing their health beyond physical health, assess their psychological state, social relationships, personal beliefs, emotional happiness. Thus, self-rated health can not be standardized as each person has a different meaning and is based on the same assessment he makes of his state of health by taking on physical, social and emotional dimensions.

BMI seems to affect the way nursing staff self-rated health as overweight and obese nurses reported a statistically lower percentage of excellent / very good health compared to nurses with weight within normal limits. This finding is in contrast to research conducted in hospitals in northwestern Greece where there was no correlation between BMI and self-rated health. (Pappa et al., 2005).

The gender of the nurses did not appear to affect self-rated health in the present study. This result contradicts the findings of other studies both in Greek hospitals (Toundas et al., 2007; Toundas et al., 2003) and in foreign hospitals (Gijbbers et al., 1991; Power et al., 1996; Guler & Kuzu, 2009), where they show that there are significant differences, as women tend to value their health lower than men. This may be due to the fact that women are more likely to express their negative feelings and symptoms of an illness, but also because they have taken on more social roles and responsibilities than men, and this may affect the way they value their health.

Unfortunately, the existing literature on self-rated health is not rich and the findings are often conflicting. The fact that during the research there is variety in both the questions and the categories of answers used affects the comparability of the results and thus it was not possible to make a direct comparison between the findings of most research and the results of the present study.

4.7 Conclusions

Nursing staff is a group of employees who are particularly interested in their perceptions of health and health behaviors due to their participation in health prevention and promotion programs. The research showed that a significant number of nurses working in PHC

units of the 7th Regional Authority of Crete are smokers, have occasional alcohol consumption, do not exercise regularly, are overweight and self-rated their health as excellent/very good. It seems, therefore, that the health behaviors of nurses largely reflect the health behaviors of the general population of Greece.

The prevalence of smokers in nursing staff, although lower than previous estimates, as it seems to be in line with the global decline in smoking in developed countries, is still quite high. Also, the high prevalence of overweight and obese nurses, is not only harmful for their health, but also hinders the effectiveness of their role in promoting public health. This fact indicates the need for a counseling approach in order for the nursing staff stop smoking and treat obesity. Finally, nursing staff does not take into account the health behaviors when they self-rate their health. This may have a negative impact, regarding their counseling role to the community, on disease prevention and health promotion

According to the latest legislative reform, the integrated services of the PHC include, not only the diagnosis and the treatment but also the promotion of health and the prevention of disease in order to improve the health of the community. The promotion of health at the level of family, work, schools and general in the community is the main purpose of the PHC. Within this new legal framework, the role of the nurse expands beyond the traditional health care provider to that of health promoter. This presupposes the active participation of the nursing staff in integrated health promotion and prevention programs aimed at improving the health and the quality of life. (Law 4486/2017).

4.8 Limitations

In the results of the research it is important to calculate a number of limitations that may have influenced the results of the research. Specifically:

- The height and weight of the nursing staff of the sample was self-reported by the respondents.
- The measurement of alcohol use was not done with liters of alcohol but self-reported consumption, never drinking, occasional drinking, drinking once a week, drinking more than once a week.

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