Awareness of Healthcare Professionals on Climate Change. Knowledge, Attitudes, and Opinions of Nursing Staff in Greece

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ABSTRACT: Climate change and its impacts are becoming even more evident at the environmental, social, health, and economic levels. Attitudes are stable perceptions that guide people's reactions to the various phenomena of their social environment. The main purpose of the study is to record the knowledge, attitudes, and opinions of nurses regarding the changes and effects of climate change and to raise awareness on environmental protection issues. The sample consisted of nursing staff of hospitals in Greece. For the study, a self-completed questionnaire constructed which included 6 thematic sections and a total of 42 questions following the Likert scale. Due to the large number of nursing staff, availability sampling was chosen to explore the knowledge, attitudes, and opinions of the sample. Descriptive statistical analysis was performed to present the sample responses. All questions of the questionnaire presented good reliability according to Cronbach's a analysis (>0.8). Most of the sample was female (68.9%), the mean age was 41.4 ± 7.2 years. The majority (52.8%) were Registered Nurses, the average length of service was 16.1 years, and they worked at 2 psychiatric hospitals in Athens. 71.5% declared climate change as a very important problem and 58.9% consider the contribution of individuals through the reduction of energy consumption in solving environmental problems. In the present study, participants were sufficiently informed regarding environmental issues, and its effects on the physical and mental health. In addition, they seem to be particularly aware of actions on environmental issues and willing to participate in them for further education.

KEY WORDS: Attitudes, climate change, environmental awareness

INTRODUCTION

Climate change and its impact on the economy as a whole and the natural environment are now scientifically unshakable. They threaten all areas of human life and the survival of all living organisms on the planet. In recent years, a significant number of studies have clearly shown that climate change is a serious and urgent issue. [1] Globally, climate and weather patterns are changing rapidly and directly affect not only the environment and its balance but also human health. Humanity experiences a significant annual health burden related to heat and cold and is also associated with exposure to current weather conditions. [2]

The change in climatic conditions causes a series of chain reactions, which disturb the balance of the ecosystem and create multiple needs for humanity to adapt to these new conditions, which obliges societies to joint actions and policies for a proper response.

Human lives in a social environment and is therefore influenced by it and at the same time influences it. The perceptions, values, and behavior of the individual are formed under the various stimuli of the social environment and are influenced by the direct or indirect presence of others. [3]

Attitudes are fixed perceptions of people, of objects, of social phenomena, of abstract concepts, and of natural phenomena. Attitudes play an important role and guide people's reactions to how they react to the behavior of others, what decisions they make, and how they adapt their behavior to the various phenomena of their social environment.

The various expressions and expressions of man's behavior and attitude toward environmental problems are a prerequisite for the valid interpretation of environmental education in the field of environmental education programs. [4]

The success of policy decisions, educational programs, and other efforts that require specific action in the field of environmental issues depends on understanding the relationships between personality traits, attitudes, environmental values, knowledge, and behaviors.

A prerequisite for the environmental manifestation of environmental behavior is knowledge, which, by using appropriate tools, as aids to learning, can "engage individuals in teaching and allow for its easier transfer. But the ultimate goal is not knowledge

but action. Acting early, even when you don't know the whole truth, is more important than owning the whole truth and it's late." [5]

OBJECTIVE

The main purpose of this study was to investigate, record and evaluate the knowledge, attitudes and opinions of hospital nurses in Greece regarding climate change and its impact on human health and the environment. In addition, the main objective was to raise awareness and inform on climate change issues.

METHODS

To conduct the study, a questionnaire was reconstructed based on international literature. [6] The questionnaire was self-completed and accompanied by an information and consent form for the participants. The study was conducted from March to August 2023. The sample of the study consisted of 309 nurses working in hospitals in Greece.

The questionnaire of the survey included 6 thematic sections and consisted of a total of 42 questions that followed the Likert scale. Specifically, the first section concerned the socio-demographic characteristics of the sample, the second section included questions related to the views of nursing staff on the issue of climate change and consisted of 7 questions. The third section included knowledge questions on this topic and consisted of 11 questions. The fourth section included questions related to staff attitudes and consisted of 6 questions. The fifth section concerned the awareness of the sample on climate change and consisted of 7 questions.

RESULTS

Initially, the reliability analysis of the questionnaire is presented, in order to investigate the reliability of the data of the present survey. The questionnaire proved good reliability with a Cronbach = 0.808. All questions in the 'Opinions' section showed good reliability with a lower value of 0.838 and a higher of 0.845. All questions in the 'Knowledge' section showed good reliability with a lower value of 0.835 and a higher of 0.843. All questions in the 'Attitudes' section showed good reliability with lowest value 0.840 and highest 0.857. Finally, the questions of the section Awareness according to the analysis of a Cronbach appeared to have good reliability with a lower value of 0.835 and a higher of 0.846.

Socio-demographic characteristics

The majority of the sample were women (68.9%), the mean age was 41.4 ± 7.2 years. 52.8% of the sample were registered nurses. Also, 75.1% and 94.5% did not hold a master's or doctoral degree respectively. The average value of years of service in the sample was 16.1 years. (Table 1).

Table 1: Socio-demographic Sample Characteristics

		Number	Percentage
Sex	Man	96	31,1
	Wife	213	68,9
Age (mean)	41,4 ±7,2 ετών		
Level of education	IP. Nursing	31	10,0
	TE. Nursing	163	52,8
	Master of Nursing	112	36,2
Master's degree	No	232	75,1
	Yes	70	22,7
PhD	No	292	94,5
	Yes	8	2,6
Years of service (average)	15.1 ± 7.6		

Correlation Analysis of the Questionnaire with: Socio-demographic Characteristics

Gender was positively correlated with several questions in the questionnaire as shown in the table below.

Table 2: Questionnaire Correlation with Gender

		Sex
Water pollution	Pearson Correlation	,167**
	Sig. (2-tailed)	,003
	N	309
Soil contamination	Pearson Correlation	,196**
	Sig. (2-tailed)	,001
	N	308
Air pollution	Pearson Correlation	,167**
	Sig. (2-tailed)	,003
	N	306
Poverty, unfavourable living conditions	Pearson Correlation	,127*
	Sig. (2-tailed)	,026
	N	306
Reduction of biodiversity (extinction of plants, animals, microorganisms)	Pearson Correlation	,158**
	Sig. (2-tailed)	,006
	N	308
Toxic waste (e.g. radioactive)	Pearson Correlation	,191**
	Sig. (2-tailed)	,001
	N	308
To what extent is climate change caused by human activity?	Pearson Correlation	,156**
	Sig. (2-tailed)	,006
	N	307
To what extent is climate change responsible for the increase in allergies?	Pearson Correlation	,204**
	Sig. (2-tailed)	,000
	N	308
Is climate change responsible for the transmission of infectious diseases?	Pearson Correlation	,187**
	Sig. (2-tailed)	,001
	N	308
To what extent does the use of sprays and aerosols affect climate change?	Pearson Correlation	,196**
	Sig. (2-tailed)	,001
	N	305
If I reduced my daily energy consumption, I would help solve some environmental problems in developing countries.	Pearson Correlation	,164**
	Sig. (2-tailed)	,004
	N	307
When I think about the ways in which industries pollute, I get angry and worried.	Pearson Correlation	,133*
	Sig. (2-tailed)	,020
	N	308
It is my personal responsibility to put in a recycling bin discarded garbage, which is not dirty, such as papers, newspapers, etc.	Pearson Correlation	,167**
	Sig. (2-tailed)	,003
	N	308
Studies	Pearson Correlation	,242**
	Sig. (2-tailed)	,000
	N	308
Family and friends	Pearson Correlation	,167**
	Sig. (2-tailed)	,003
	N	308
Local authorities	Pearson Correlation	,234**
	Sig. (2-tailed)	,000
	N	304
Non-governmental organizations	Pearson Correlation	,246**
	Sig. (2-tailed)	,000

	N	307

Age was positively correlated with only two questionnaire questions as shown in the table below.

Table 3: Correlation of Questionnaire with Age

		Age
If I reduced my daily energy consumption, I would help solve some environmental problems in developing countries.	Pearson Correlation	,137*
	Sig. (2-tailed)	,019
	N	297
When I think about the ways in which industries pollute, I get angry and worried.	Pearson Correlation	,206**
	Sig. (2-tailed)	,000
	N	298

Education was negatively correlated with the question whether climate change is related to health and positively with the question climate change is due to human activity, as shown in the table below.

Table 4: Correlation of Questionnaire to Education

		Education
Do you think climate change is related to health?	Pearson Correlation	-,120*
	Sig. (2-tailed)	,037
	N	303
To what extent is climate change caused by human activity?	Pearson Correlation	,136*
	Sig. (2-tailed)	,018
	N	304

The existence of a postgraduate degree by the nursing staff was positively correlated with two questions of the questionnaire and with one question negatively as presented in the table below.

Table 5: Correlation of a questionnaire with a postgraduate degree

		Graduate title
Do you think climate change is related to health?	Pearson Correlation	,144*
	Sig. (2-tailed)	,013
	N	299
If I reduced my daily energy consumption, I would help solve some environmental problems in developing countries.	Pearson Correlation	,117*
	Sig. (2-tailed)	,042
	N	300
One person's right to a clean environment is no more important than another's right to a decent economic life.	Pearson Correlation	-,131*
	Sig. (2-tailed)	,023
	N	301

The correlations with the existence of a PhD by nursing staff and the questions are presented in the table below.

Table 1: Correlation of a Questionnaire with a PhD degree

		PhD
If I reduced my daily energy consumption, I would help solve some environmental problems in developing countries.	Pearson Correlation	,132*
	Sig. (2-tailed)	,023
	N	298
	Pearson Correlation	-,034

| Local authorities | Sig. (2-tailed) | ,559 |
| | N | 295 |

The correlations with the years of experience of the nursing staff and the questions are presented in the table below.

Table 7: Correlation of a questionnaire with a postgraduate degree

		Graduate title
Do you think climate change is related to health?	Pearson Correlation	,144*
	Sig. (2-tailed)	,013
	N	299
If I reduced my daily energy consumption, I would help solve some environmental problems in developing countries.	Pearson Correlation	,117*
	Sig. (2-tailed)	,042
	N	300
One person's right to a clean environment is no more important than another's right to a decent economic life.	Pearson Correlation	-,131*
	Sig. (2-tailed)	,023
	N	301

The correlations with the existence of a PhD by nursing staff and the questions are presented in the table below.

Table 8: Correlation of a Questionnaire with a PhD degree

		PhD
If I reduced my daily energy consumption, I would help solve some environmental problems in developing countries.	Pearson Correlation	,132*
	Sig. (2-tailed)	,023
	N	298
Local authorities	Pearson Correlation	-,034
	Sig. (2-tailed)	,559
	N	295

The correlations with the years of experience of the nursing staff and the questions are presented in the table below.

Table 9: Correlation of the Questionnaire with years of experience

		Years of service
When I think about the ways in which industries pollute, I get angry and worried.	Pearson Correlation	,183**
	Sig. (2-tailed)	,001
	N	305
Family and friends	Pearson Correlation	-,136*
	Sig. (2-tailed)	,017
	N	305

DISCUSSION

It is scientifically established that the global climate is changing, with the main characteristics being the increase in temperature at the earth's surface, the melting of ice, the rise of sea level and generally the increase in climate variability. These changes are expected to have a significant impact on human health. For this reason, there is a need for action by the competent bodies to prevent, manage and improve the health of the population.

The aim of this study was to explore the knowledge, attitude and opinions of nurses on environmental issues, especially on problems related to climate change.

According to the results of the survey, it was observed that the majority of the sample stated that the effects of climate change are a significant problem, since they affect both the human body and the ecosystem. In addition, water, soil and air pollution directly affect the environment and its balance. Corresponding studies of the literature, which study pollution patterns and their correlation with climate change, conclude that the above-mentioned problems may be the most serious threats to the health of the individual. [7]

Also, the sample reported that climate change significantly affects the phenomenon of poverty and causes adverse living conditions for the population. A similar study shows that climate change causes poverty (but to a lesser extent) through population growth and unemployment. [8]

Regarding the knowledge of the sample whether it is informed about environmental issues, high percentages of respondents stated that they are informed "very much" or "enough". In particular, the sample was informed about the fact that climate change is a major environmental problem.

The majority pointed out that climate change is related to warming, with corresponding research indicating that the temperature will increase significantly in the next 100 years. [9] It is important that the participants of this research are very well informed about the fact that climate change affects health and is due to human activities, such as car exhaust, spray and aerosol use, a result that agrees with the research of Bord et al. in 1998, which links aerosols and insecticides to global warming and consequently to climate change. [10]

Also, according to the results of the survey, nursing staff believe overwhelmingly that climate change is responsible for the increase in allergies, the transmission of infectious diseases and the influence on people's mental health, with extreme weather events responsible for post-traumatic stress disorder (PTSD). Similar studies in the international literature have shown that indeed the population is aware and concerned about the health effects of climate change. [11,12,13]

Kabir et al. (2016) research showed that the sample that had knowledge about climate change was informed mainly by the media such as television, radio, newspapers, etc. but also by neighbors. [14]

In addition, the attitude of the sample regarding environmental issues and climate change proved that nursing staff is particularly attentive to these issues. In particular, participants agreed that reducing energy consumption in everyday life would help solve some environmental problems in developing countries. Similar results are obtained from research by Spence et al. (2011), which states that the population has a great willingness to save energy in order to mitigate climate change. [15]

The majority of the sample fully agrees on the concern that industries are polluting and that the food they consume is contaminated with various harmful substances. Furgal & Rochette's (2007) study looked at contaminated food, hunting and fishing in relation to climate change. [16] It is noteworthy that a high percentage of respondents answered positively to the question, regarding the fact that one person's right to a clean environment is not more important than another's right to a decent economic life.

Regarding the action on recycling, the participants fully agree that it is everyone's personal responsibility. Also, a study by Siña et al. (2016) states that the population should be informed about recycling. As regards environmental education, a high percentage of respondents stated that they fully agree with the fact that it can contribute to the development of team spirit and cooperation among citizens. [17]

Regarding the creation of environmental awareness among nurses, it was proven that participants are willing to participate in similar actions. In particular, a sufficiently large percentage of the sample in relation to factors such as studies, family and friends, or bodies such as local authorities, environmental education centres and non-governmental organisations, which could contribute to the creation of environmental awareness. Similar studies report the importance of raising public awareness on these issues and the impacts of climate change. [18,19]

Finally, the sociodemographic characteristics of the nursing staff were statistically correlated with the questions of the questionnaire and specifically with gender, age, education as well as years of experience. A similar correlation was found in research by Kabir et al. (2016), in terms of knowledge and perceptions about climate change. [14]

CONCLUSION

The current study concluded that nursing staff agree that climate change, water, soil and air pollution are major problems. Also, the sample appeared to be quite knowledgeable on these issues. The daily practice in his life regarding climate change shows that he is particularly anxious about the issues of energy, industries, food and more. In addition, participants seem to be particularly sensitive to actions on environmental issues and willing to participate in them for further training.

In recent decades, political leaders have identified as an important issue the negative impact that climate change has on human health and quality of life. Climate change, as a major factor associated with health risks, is a multidimensional phenomenon. The investigation of people's perceptions and attitudes towards these risks, as well as their knowledge about climate change, is closely linked to their behavior and action in order to reduce it. Various studies demonstrate that citizens' views on climate change and its health impacts can raise awareness and ultimately influence policymakers to address it.

LIMITATIONS OF THE STUDY

There are some limitations in this work. Specifically, the sampling of the survey was based on a satisfactory sample, but the results cannot be generalized to all nursing staff in the country. Another limitation is the nature of the questionnaire as it is not

a standardized tool. However, it is particularly important that this paper records the knowledge of nursing staff, who are considered to be the first line of health professionals for the protection of public health.

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