

ORIGINAL PAPER**Health Education Interventions in Secondary Schools in Larissa, Greece**

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**ABSTRACT**

**Introduction:** School plays an important role in solving society's health problems. Teachers are assigned a double role, that of the educator and that of the carrier of health-related behaviours and attitudes.

**Aim:** The present study aims at investigating: a) the type and frequency of health education programs in secondary schools, and b) the teachers' voluntary un-compensated contribution in promoting health-related behaviours by acting as role-models.

**Method:** The data collection period lasted two months in the beginning of the school year 2007-2008. We used a 4-section questionnaire. The initial sample of 287 teachers which was selected by cluster random sampling, were secondary education teachers with permanent positions, working in 4 junior high-schools, 3 general high-schools, and 2 vocational high-schools in Larissa county. The final sample consisted of 216 teachers (response rate 75.3%).

**Results:** 25% of the participants had attended seminars in health education, while 60% had read some handbook on Health Education in the last five years. 96 had participated in an organised health education program, and 70 were in charge of one. In 30% of the programs, the subjects were about mental health and they usually lasted about 6 to 12 months. 83% of the participants stated that they advise students, at least once per semester, on relaxation and satisfaction from life.

**Conclusion:** The teachers' socio-demographic and pedagogic profile, and their previous experience on health issues, may constitute prognostic indicators for their voluntary teaching of health education and, moreover, they are related with a teacher's decision to get involved in health education interventions.

**Key Words:** Health education, secondary schools, Greece

## INTRODUCTION

Developing health education and health promotion programs contributes to the awakening and the reinforcement of a person's ability to assume a responsible attitude towards managing his personal health. Those programs are more effective when they occur in the place where the person lives and works, in order for this place to be a part of his everyday life. Home, school, work-place, or community, are suitable places for implementing and promoting such programs (W.H.O., 1997).

School is considered by health professionals and society as a key to facing society's health problems, both in developed, as well as in developing countries. Two examples of topics which may find -to a certain extend- their solution through education in schools, are the problem of obesity in developed countries and that of public hygiene in developing countries.

Planning and implementing health promotion programs with the appropriate organization, play an important role in the success of health promotion in schools. Equally important is the role of teachers in the implementation process (Birch et al., 2001). Teachers of all educational levels are assigned two roles; apart from the role of teacher, they also play the role of carrier of health-related behaviors and attitudes, either through their own initiative, or by participating in health education programs (Borra et al., 2003).

The literature is increasingly investigating what are the assets that a teacher should possess in order to act as a health promoter of the students' health (American Association for Health Education, 1996). At the same time, there is also emphasis in organizing health education programs and in educating teachers of all education levels, so that they can effectively participate in them.

This study is investigating secondary education teachers' contribution in the volunteer promotion of their students' health-related attitudes according to the World Health Organization's criteria about "the role of school personnel as models in topics related to health" in health promoting schools (WHO, 1993). It aims at finding out if, and to what extend, teachers really act as health promoters, even though they do not receive any compensation or have any obligation; and what is their socio-demographic profile when they do act as health promoters.

The study focused primarily on the type and frequency of health education programs in secondary schools, on the reasons for participating in them, and on the factors that contribute positively or negatively in encouraging teachers to

get involved in the transfer of health-related attitudes to their students. Such factors may be their pedagogic interests (e.g. participating in seminars/conferences), their extra-curricular reading (e.g. reading a magazine or some other book/text), or their previous education and training in health topics (Macri & Mullet, 2003; Anson et al., 1991; Oleckno & Blacconiere, 1991).

## METHODOLOGY

### Data collection

The study population included all permanent secondary education teachers working in Larissa county, Greece. The data collection period lasted 2 months in the beginning of the school year 2007-2008. The sample was selected by cluster random sampling; every secondary school of Larissa county represented one cluster. According to the District Office of Secondary Education, there are 89 secondary schools in Larissa county, and they employ 2190 permanent teachers. Using cluster random sampling we choose 9 schools; 4 junior high-schools, 3 general high-schools, and 2 vocational high-schools.

The total number of the permanent teachers working in these 9 schools was 302 (13.8% of the total number of teachers working in the county). Fifteen teachers were excluded from the sample because they were temporarily transferred to different positions or were on some type of long-term leave (e.g. maternity leave, educational leave). Therefore, we distributed the questionnaire to 287 teachers; 216 completed and returned the questionnaire (75.3% response rate). The reasons for not completing the questionnaire (n=71) are presented in Table 1.

### Instrument

The questionnaire included 4 sections.

The first section elicited information about the teachers' demographic characteristics (gender, age, specialization, post-graduate studies).

The second section included questions about the teachers' pedagogic profile (their extra-curricular activities) during the previous five years. They were asked to report, on a 4-point scale (0= never, 3= four or more times), the frequency of their attendance in seminars, conferences, lectures, or if they had themselves given lectures, etc.

This section also included:

- a. two questions evaluating the teachers' previous training in health topics (attending some seminar or reading some text about health education etc). The answers were dichotomous (0= no, 1= yes).

b. an open-ended question in which they were reporting their preferred extra-curricular reading (e.g. newspaper, magazine, book, etc).

The *third* section dealt with the teachers' participation in organized health education programs, the topics and the duration of those programs, as well as the teachers' reasons for participating in them. In addition, for those teachers who had participated in such programs, there was a 4-point scale (0=not at all, 3=a lot) about the degree of satisfaction of students, colleagues, parents, the school administration, and the material support. Moreover, the participants' intention for future involvement in a program was investigated.

**Table 1. Teachers' reasons for not participating in the study**

Reasons for not completing the questionnaire	N(%)
1. I am very busy	28 (39.4)
2. I do not like completing questionnaires	13 (18.3)
3. I do not believe in the usefulness of such studies	11 (14.5)
4. I do not gain anything by answering	8 (11.3)
5. I do not want to complete the questionnaire	6 (8.4)
6. Other reasons	5 (7.1)
<b>TOTAL</b>	<b>71 (100)</b>

The *fourth* section included five indicators of health behaviors that the teachers might be promoting through their advice/teaching (Kuo, 1989), corresponding to: relaxation, life satisfaction, healthy nutrition, physical activity and personal hygiene. The frequency of advising/teaching those five health behaviours was evaluated on a 5-point scale (0= never, 4= every week). The cumulative performance of the topics included in each indicator comprises the corresponding health behaviour which is transferred by the teacher to the students. High performances (grading) in each scale express high frequency of transferring health behaviors.

#### Data analysis

The chi-square test was used in order to evaluate the relation among the participants' pedagogic profile, their training in health education topics, and their undertaking of organized health education programs.

We compared the variables: gender, age, specialization, type of school, years of work experience, post-graduate studies and training in health topics, with the corresponding percentages of teachers who participated in health education programs and of those who were in charge of such programs.

We also used the chi-square test to examine the correlation of the variables: pedagogic interests, extra-curricular reading, and previous training in health topics, with teaching/advising health attitudes. In this way, we evaluated if the above variables may contribute positively or negatively in encouraging teachers to teach/transfer health behaviors to their students.

## RESULTS

### Teachers' socio-demographic profile

Table 2 presents the frequencies of the sample's socio-demographic characteristics.

**Table 2. Participants' socio-demographic characteristics**

VARIABLES	N	%
<b>Gender</b>		
Men	70	32.4
Women	146	67.6
<b>Specialization</b>		
Philologist or similar	58	26.8
Social scientist	36	16.7
Applied scientist	95	44.0
Health scientist	27	12.5
Post-graduate studies	12	5.6
<b>Type of secondary school</b>		
Junior high-school	84	38.9
General high-school	69	31.9
Vocational high-school	63	29.2

	MEAN
Age	46.4
Years of work experience	17.5

Seventy (32.4%) of the participant teachers were male and 146 (67.6%) female. A higher percentage of women was anticipated due to the fact that the Greek educational system is dominated by women (Stylianidou et al., 2004). The participants' mean age was 46.4 years and they have been teaching in the Greek education system for 17.5 years on average. Seventy percent were philologists or teachers of applied sciences, 16.7% were teachers of social sciences, and 12.5% were health professionals. Only 5.6% stated that they have completed post-graduate studies.

Figure 1 presents the participants' distribution according to type of secondary school.

#### Teachers' pedagogic profile and previous experience in health education

The teachers stated their extra-curricular interests during the five years previous to the data collection. Table 3 presents the distribution according to their extra-curricular interests.

**Table 3. Participants' extra-curricular interests during the last 5 years**

INTERESTS	4 or more times	2-3 times	1 time	Never
	N (%)	N (%)	N (%)	N (%)
Reading scientific studies	33 (15.3)	84 (38.9)	54 (25.0)	45 (20.8)
Attending seminars	43 (19.9)	83 (38.4)	70 (32.4)	20 (9.3)
Attending conferences	9 (4.2)	26 (12.0)	69 (31.9)	112 (51.9)
Presenting a study	4 (1.9)	2 (0.9)	13 (6.0)	197 (91.2)
Presenting a lecture/speech	73 (33.8)	101 (46.7)	33 (15.3)	9 (4.2)

At least once during those five years:

- 80% of the participants noted that they have read some scientific extra-curricular study,

- about 90% had attended some seminar during afternoon/evening hours,
- 50% attended some scientific conference,
- 10% had presented some scientific study in a conference or had given some lecture, and
- 90% had attended some lecture during afternoon/evening hours.

Forty four percent mentioned reading a newspaper or magazine, 67% literature, 18% texts on applied sciences, and 27% history and texts on social sciences in their free time.

In addition, 40% stated that they had attended some health promotion seminar and 60% had read some health promotion book/text.

#### Teachers' participation in an organized health education program

Out of the 216 participant teachers, 96 had participated in a health education program at least once in the past, and 70 had been in charge of a health education program. The total number of teachers who had been involved (either attending or being in charge) in a health education program at least once in the past was 100 (46.3%).

The favorite health education topics were:

- a. personal relations and mental health (30%),
- b. addictive substances (21%),
- c. nutrition and consumer goods (16%), and
- d. volunteerism (15%).

The rest of the topics suggested by the Greek Ministry of Health (sex education, environment and health, traffic/commuter education, physical activity) were the topics in 18% of the health education programs, while the topic "emergency response" was not mentioned by any of the participants.

Figure 2 presents the distribution of the health topics.

Eighty percent of the teachers stated that the duration of the health education program in which they participated or of which they were in charge, was 6 to 12 months. This was expected since the Greek Ministry of Education typically recommends that the duration of a health education program is one school year.

Teachers participate in health education programs primarily for pedagogic reasons (57%), for personal reasons (29%) or for professional reasons (14%).

The participants' degree of satisfaction from their involvement in an organized health education program (Table 4), derives mostly from the

students' interest and participation, from the support offered by the school administration and from the material support, while teachers received less satisfaction from their colleagues and the students' parents.

The majority (68.1%) of the teachers had positive intention for future involvement in health education programs.

#### Socio-pedagogic image of teachers involved in organized health education programs

Table 5 presents the results of the comparison of the percentages of teachers involved in health education programs to the percentages of their socio-demographic profile and of their previous experience in health topics. The results showed that the variables: age, specialization, and previous training in health topics are related to the teachers involvement in organized health education programs.

More specifically:

- Health professionals and social scientists (as shown in Table 6) are associated with the teachers involvement in school activities that promote health.
- Younger teachers participate more in health education programs.

**Table 4. Teachers' satisfaction from their involvement in an organized health education program**

FACTORS	Very much	Mode ra tely	Littl e	Not at all
<b>N=100</b>	N (%)	N (%)	N (%)	N (%)
1. Students' interest	36	54	7	3
2. Students' participation	29	61	9	1
3. Colleagues' interest	4	43	41	12
4. Colleagues' participation	8	32	48	12
5. Parents' participation	3	7	43	47
6. School administration support	44	41	15	0
7. Material support	23	52	21	4

- Attending health education seminars and reading health education books/texts (as shown in Table 7) are positively related to the teachers' decision to participate or to organize a health education program.

The variables: gender, post-graduate education, years of work experience, and type of school, were not found to be significantly related to the participants involvement in organized health education interventions.

Table 6 presents the distribution of teachers' specialization according to their involvement in an organized health education program, while table 7 presents teachers' distribution, with previous training or not, according to their involvement in health education programs.

**Table 5. Correlation among socio-demographic profile and previous experience in health topics of the teachers who were involved in an organized health education program**

VARIABLES	Participation in health education programs	Being in charge of health education programs
VARIABLES	Chi square (p-value)	Chi square (p-value)
Gender	4.30 (0.23)	3.56 (0.46)
Age	126.52 (0.01)	150.92 (0.05)
Specialization	34.82 (0.00)	30.01 (0.00)
Post-graduate education	5.42 (0.14)	1.74 (0.78)
Years of work experience	83.64 (0.75)	94.71 (0.97)
Type of secondary school	11.57 (0.07)	6.57 (0.58)
<b>PREVIOUS TRAINING IN HEALTH TOPICS</b>		
Attending health education seminars	81.03 (0.00)	37.29 (0.00)
Reading health education book/text	54.29 (0.00)	33.89 (0.00)

### Health attitudes transferred to the students by the teachers

The health behavior indicators (relaxation, life satisfaction, healthy nutrition, physical activity and personal hygiene) that are transferred to the students by the teachers are illustrated in Table 8.

Eighty-three point three per cent (83.3%) of the teachers advise the students on relaxation and life satisfaction at least once in a trimester, and 3% never in their academic career. In addition, the teachers were advising the students more than once in a trimester about: smoking (94%), healthy nutrition (90.8%), regular physical activity (83.4%), pollution (78.2%), body weight (71.8%), and personal hygiene (63.8%).

**Table 6. Distribution of teachers' specialization according to their involvement in an organized health education program**

	Participation in a health education program at least once	Organizing a health education program at least once
	N (%)	N (%)
Philologists, theologists	22 (37.9)	18 (31.0)
Social scientists	20 (55.5)	15 (41.6)
Applied scientists	34 (35.7)	20 (21.1)
Health scientists	20 (74.1)	16 (59.3)
<b>TOTAL</b>	<b>96 (44.4)</b>	<b>69 (31.9)</b>

**Table 7. Teachers' distribution, with previous training or not, according to their involvement in health education programs**

		Participation in a health education program at least once	Organizing a health education program at least once
Attending health	YES	77/101 (76.2%)	53/101 (52.5%)

education seminar	NO	19/115 (16.5%)	17/115 (14.8%)
Reading health education book/text	YES	84/130 (64.6%)	61/130 (46.9%)
	NO	12/86 (13.9%)	9/86 (10.50%)

**Table 8. Distributions and means of the answers related to advising on health topics**

HEALTH BEHAVIOUR TOPIC	N	%	Mean*
<b>Personal hygiene</b>			
1) to deal with personal hygiene	138	63.8	2.2
2) to receive the necessary vaccinations	76	35.2	1.3
3) not to smoke	203	94.0	3.4
4) to avoid polluted areas	169	78.2	2.6
<b>Physical activity</b>			
5) to have regular physical activity	180	83.4	2.7
6) to avoid transportation in a vehicle	118	54.6	1.9
<b>Healthy nutrition</b>			
7) to eat healthy	196	90.8	3.1
8) to control their body weight	155	71.8	2.3
<b>Relaxation – Life satisfaction</b>			
9) to make sure to go to sleep early and get enough sleep	174	80.5	2.7
10) to get satisfaction and joy out of their school activities	185	85.7	2.8
11) to see positively the every day difficulties	183	84.7	2.8
12) to trust in the future	173	80.1	2.6

13) not to be stressed by the changes in their lives	185	85.7	2.8
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\*0=never, 1=rarely, 2=every trimester, 3=every month, 4=every week

### Correlation of the teachers' socio-demographic profile with the health behaviours transferred to the students

Table 9 presents the results of the correlation of the percentages of health behaviours transferred by the teachers with the percentages of their socio-demographic profile. The findings indicate that the specialization of philologists, theologists and health professionals, constitute powerful prognostic factors of health behaviour transfer to students. More specifically: philologists and theologists were found to promote behaviours of relaxation and life satisfaction and health professionals were found to promote behaviours of personal hygiene.

Gender, age and type of school were not found to be related in any way with promoting some health behaviour.

## DISCUSSION

Undoubtedly, teachers, through their daily contact with students, act as role models of health behaviours (Bandura, 1986). Their volunteer participation in health education programs, as suggested by the W.H.O. (1993), is defined by their own health behaviours and by their interests as well.

The teachers' pedagogic profile seems to play an important role in promoting health. It is worthwhile mentioning that the participants spoke about knowledge and information that they have received mainly due to their own interests and motivation, and in a very small degree due to some officially organized effort for their training and enlightenment (Apostolidou & Fontana, 2003; Health Education Council, 1986; Tones, K., 1985).

Furthermore, teachers who participate in organized health education programs are those whose studies are related to health and those who were, through their own actions, trained in health topics. A portion of those who participate in health education activities aim at their personal training and enlightenment on health topics (Apostolidou & Fontana, 2003).

The above facts demonstrate the lack of planning and implementing health education programs, in such a way that they reflect the contemporary needs of both students and teachers.

Appropriate planning, apart from the necessary teachers' training, also offers security by facilitating their work and their role as health promoters (Borra et al., 2003).

Implementing such programs will lead to effective, as well as more successful health promotion in schools. Planning should satisfy the holistic strategic approach of the W.H.O. which involves all the other important persons, apart from students and teachers, such as family members, scientists and important community members (WHO, 1997). This has been recognized by the teachers themselves as a necessity in the present and previous studies as well (Apostolidou and Fontana, 2003; Borra et al., 2003; Wight et al., 2002).

It is important for the teachers to adopt a positive attitude towards health promotion and to actively participate in health promotion activities. Apart from appropriate planning, a necessary condition for the implementation of health education programs, is teachers' continuing education. Self-learning, continuing education, improving teachers' training, should be among the aims of a modern school.

There is literature suggesting that the best teachers are those who constantly read and consider themselves life-time students. When a teacher feels satisfied with his/her knowledge and abilities, without feeling the need to improve, then he/she starts becoming ineffective (Pyrgiotakis, 1999). Improving their professional training does not concern only their teaching abilities; there are many topics related to the effectiveness of teaching that they should pay attention to, such as the reasons why they communicate with others, their ability to inspire, their enthusiasm for their work, and their participation in extra-curricular activities (Hayes, 1999).

## CONCLUSIONS

Health professionals were found to be involved in health education programs and promote mainly behaviors of personal hygiene; while philologists and theologists promote behaviors more related to mental health (relaxation and life satisfaction).

We could argue that teachers would be more effective in their role as health promoters if they had been trained in healthy behaviors. Teachers should acquire knowledge, through modern teaching methods, about health related topics. There is a need for planning continuing education programs and reinforcing them.

The teachers' high proficiency and sensitivity in pedagogic extra-curricular topics and their

personal reading of various topics and of health education topics, was found to be related to high involvement in organized health education interventions, as well as in teaching health topics in school, as has also been supported by other studies (Buston et al, 2002; American Association for Health Education, 1996).

It is necessary to conduct more studies, with larger samples, and in more areas of Greece, in order to acquire a more complete picture of the situation and to promote the schools' role in changing the students' health attitudes and behaviours. It would also be useful to conduct more studies about the teachers' health behaviours and about their continuing education and participation in planning, implementing and evaluating health education programs.

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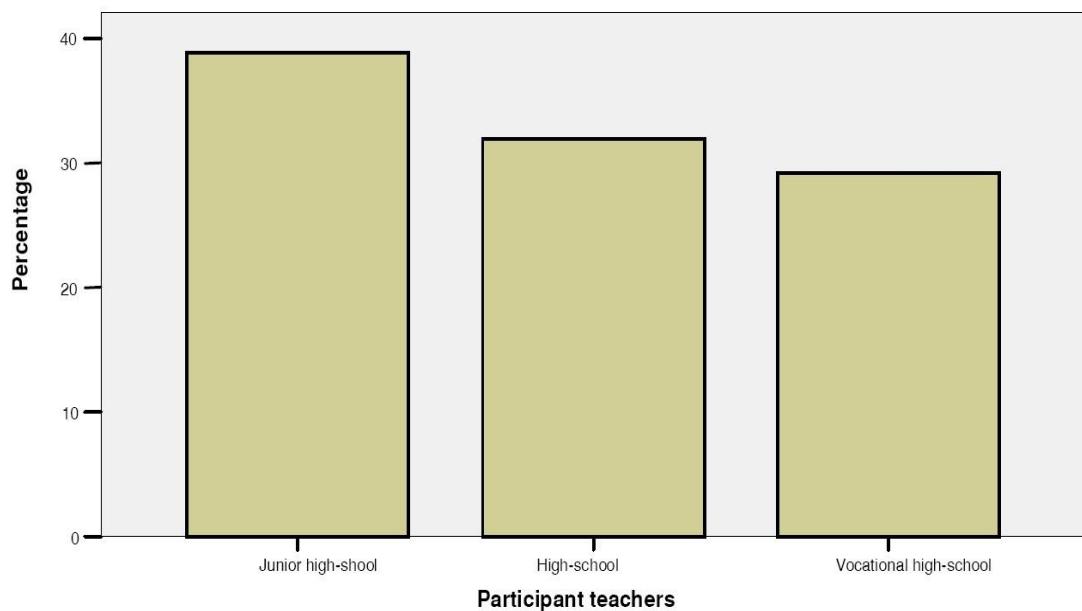
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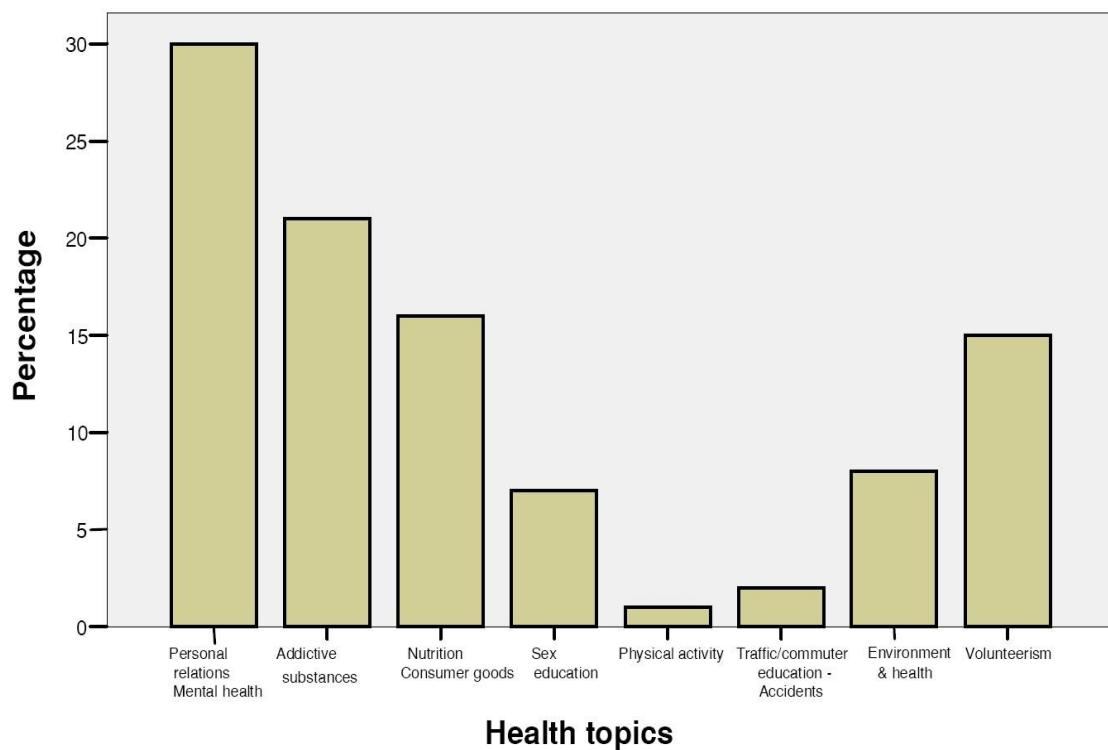
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**Figure 1. Teachers distribution according to secondary school type**



**Figure 2. Health topics of health education programmes**

**Table 9.** Correlation among teachers' socio-demographic profile and health education interventions in the form of counseling

	<b>Personal hygiene</b>	<b>Vaccinations</b>	<b>Smoking</b>	<b>Pollution</b>	<b>Regular physical activity</b>	<b>Avoiding transportation mean</b>	<b>Healthy nutrition</b>	<b>Controlling body weight</b>	<b>Enough sleep</b>	<b>Joys of school life</b>	<b>Seeing difficulties in a positive way</b>	<b>Trust in the future</b>	<b>Minimizing stress</b>
<b>CATEGORIES</b>	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value	X <sup>2</sup> p-value
Gender	2.72 (0.60)	7.32 (0.12)	2.41 (0.66)	3.56 (0.47)	2.20 (0.69)	3.18 (0.52)	3.26 (0.52)	7.45 (0.11)	8.18 (0.07)	7.85 (0.09)	2.74 (0.60)	9.07 (0.06)	4.23 (0.37)
Age	141.54 (0.13)	115.24 (0.70)	109.01 (0.83)	120.65 (0.57)	122.03 (0.53)	125.89 (0.44)	123.85 (0.48)	119.09 (0.61)	116.63 (0.69)	94.64 (0.97)	136.28 (0.21)	109.76 (0.81)	121.00 (0.56)
School type	11.15 (0.19)	12.40 (0.13)	10.61 (0.23)	8.09 (0.43)	6.58 (0.58)	5.11 (0.75)	5.07 (0.75)	7.31 (0.50)	8.68 (0.37)	10.17 (0.25)	5.25 (0.73)	7.61 (0.47)	10.15 (0.26)
Specialization	23.47 (0.02)	35.33 (0.00)	9.99 (0.62)	21.35 (0.04)	10.31 (0.59)	9.95 (0.62)	17.33 (0.14)	1584 (0.20)	8.76 (0.72)	26.47 (0.01)	14.66 (0.26)	13.26 (0.35)	22.69 (0.03)
	Each topic was discussed at least once per trimester												
Philologists etc	62.1%	22.4%	91.3%	73.6%	84.5%	50.0%	89.7%	67.2%	79.3%	97.3%	84.5%	79.3%	98.0%
Social scientists	63.9%	36.1%	94.4%	72.2%	86.1%	52.7%	94.4%	77.7%	80.5%	79.2%	92.7%	83.3%	86.1%
Applied scientists	59.0%	34.8%	94.7%	76.8%	81.1%	57.9%	89.5%	70.5%	80.1%	85.3%	81.0%	77.9%	82.1%
Health scientists	77.7%	62.9%	96.3%	85.1%	85.2%	55.5%	92.6%	77.6%	85.1%	85.1%	88.9%	85.6%	88.9%