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Students' viewpoint to the environment and health (Studentų požiūris į aplinką ir sveikatą)

Santrauka

Teorinis pagrindimas. Psichologinio požiūrio į asmens-aplinkos tarpusavio ryšių atskleidimą teorinis pagrindas ¾ transakcinė perspektyva.

Tyrimo tikslas: Išanalizuoti studentų požiūrius į aplinką ir sveikatą, panaudojant 2000 m. atlikto tyrimo rezultatus.

Metodai: Goldenring-Doctor egzistencinių susirūpinimų skalė, skirta nustatyti studentų susirūpinimą juos supančios aplinkos įvykiais; Susirūpinimų aplinka skalė (SAS), skirta įvertinti studentų nuostatas į pavojingas chemines medžiagas; Individualus sveikatos būklės vertinimas; Nuostatos į gyvenimą; MMPI ¾ įvertinti individualias psichologines savybes.

Rezultatai: Ryšiams tarp kintamųjų išaiškinti buvo panaudotas Spirmeno koreliacijos koeficientas ir faktorinė analizė. Pateiktieji duomenys rodo, kad studentai labiausiai susirūpinę įvykiais, susijusiais su sveikata. Nežiūrint to, jie nepakankamai įvertino užterštos aplinkos grėsmę. Socialinės problemos taip pat kėlė studentų susirūpinimą. Pinigų stoka, žiaurūs nusikaltimai, žmonių neapykanta bei nesugebėjimas rasti darbą buvo nurodyti tarp svarbiausių susirūpinimų.

Išvados: Buvo nustatytas ryšys tarp susirūpinimo aplinka, sveikatos ir individualių psichologinių savybių. Globalios aplinkos problemos nesusilaukė rimto studento dėmesio. Raktažodžiai: aplinka, nuostatos, susirūpinimas, asmens savybės.

Introduction

Concern about the environment became important for all countries throughout the world, because of its effect upon people's health and productivity. Due to the increased sensitivity to environmental problems, essential changes occur in the study of environment and its relationship with humans. In the early 1960's opinions about the environment were considered as the expression of individual dispositions. In 1978 the affective-evaluative and the cognitive-informative approaches were developed by D. Stokols. Later on, W. Mischel shifted attention from individual (traditionally attributed to internal traits) to the situational context. B. Little in 1987 presented a new perspective less related to intraindividual functioning and focusing more on the person in the environment. Person-environment transactional perspective, sugested by W. Ittelson in 1974 still continues to be among the most important. As it was pointed out by M. Bonnes and G. Secchiaroli "use of term transactional is intended to reflect the dynamic, two-way interaction between the person and the environment" (Bonnes, Secciaroli 1995).

Following from the same transactional perspective new trends appeared among investigators over the past decade. The attention was given to the specific environmental problems, relating to the identification of the antecedents of proenvironmental behaviours (Fransson & Garling 1999), optimization (Hartig, Johansson & Kylin 2003), restoration (Staats, Kievat, Hartig 2003) and recreation functions of the environment, also coping with stress. The respective investigators working in the above mentioned direction supported the hypothesis of enhanced restoration in natural versus urban environment (Hartig, Evans, Jamner, Davis, Garling 2003).

From the psychological point of view in explaining and predicting behaviour the most effective way is to find links between perceived seriousness of pollution problems, general environmental evaluation, world ecological problems and self-reported proenvironmental

Sociologija. Mintis ir veiksmas 2003/2, ISSN 1392-3358

behaviours. Sometimes evaluation of environmental events depend upon more general orientations. In this connection the main task of investigators would be to discover what people know about main environmental problems, how do they perceive and evaluate them and how the events are related to their social life. That is why the person in the environment approach was used in the research. On the other hand the information and knowledge serve as a bases for development of environmental viewpoints. For that reason in the process of the research it was necessary to find out the level of knowledge related to the environmental events. In the future students/respondants who have participated in the research are going to became high quality specialists and they will be responsible for person-environment conditions in general: planning of houses, residences, and areas for recreation, management of toxic products and waste, protection of human health conditions, person-environment relationship, decision making processes, related to pollution of the environment. For the above mentioned reasons the decision was made to study the students many-sided viewpoints to the environment.

Object, task and methods of the research

The research was longitudinal: 350 young people age between 17-20 years old were questioned in 1992; 150 students of first year of education at Kaunas University of Technology were questioned in 1995; 243 students participated in the research in 2000; 100 students were questioned in 2003. The main tendencies of the research would be presented on the base of the research made in 2000, the other data would be used only for comparison.

The object of investigation was the environment, its assessment and relations with a health.

The subjects of the research was a chosen specific social group ¾ students of Kaunas University of Technology.

The task of the research was the following:

- To find out students' worries (worry is viewed as a level of the environmental concern/viewpoint to the close, social and global environment;
- To find out students' knowledge about environmental danger;
- To identify individual traits of personality;
- To investigate the relations between environment, individual personality traits and health.

The following methods of investigation were used:

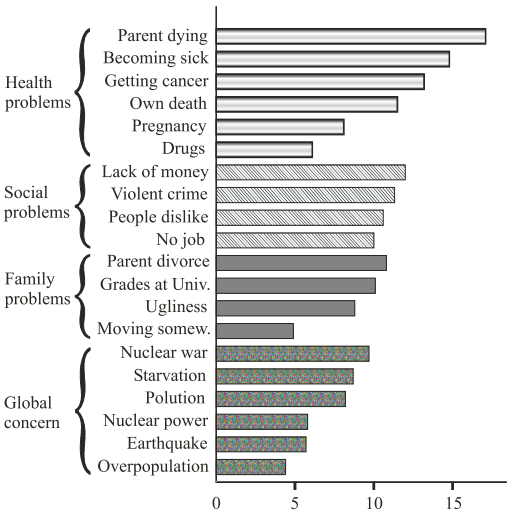
- The Goldenring-Doctor scale of existential worries for assessing students' viewpoints to the environmental events. The scale consists of 20 items;
- Environmental worry scale (EWS) for assessing attitudes to avoiding contacts with dangerous environmental substances. The scale consists of 17 items;
- The individual health state evaluation including 4 items: good, average, weak**,** chronically fatigue;
- Attitudes to life including 3 items: optimistic, pessimistic, depending on circumstances;
- Minnesota Multiphasic Personality Inventory (MMPI) for testing individual traits of the personality. 10 Clinical scales Hs (Hypochondriasis), D (Depression), Hy (Hysteria), Pd (Psychopathia), Mf (Masculinity-Femininity), Pa (Paranoia), Pt (Psychastenia), Sc (Schizophrenia), Ma (Hypomania), Si (Social Introversion); 3 scales of Validity (L, F, K) and 11 Social scales (Responsibility (Re), Creativity (Cr), Erudition (Er), Routine (Ro), Originality (Or), Will (W), Self-confidence (S-c), Self-esteem (Self), Communicativity (Cm), Leadership (Le) and Consciousness (Cn) were used.

Results

Statistical package SPSS was used, data research are described by 73 variables. The main results of the research would be presented in 1-8 diagrams.

Measurements were done using scale ranging, Spearman coefficient of correlation and factor analyses. Three MMPI validity scales, namely F, K and L has been used for the statistical control of biases. The above mentioned subscales did not show significant biases. For the same purpose also serves a chi-square value for aggregate data 243 ($df = 7$; $p < 01$).

Diagram 1
Goldenring-Doctor scale of existential worries



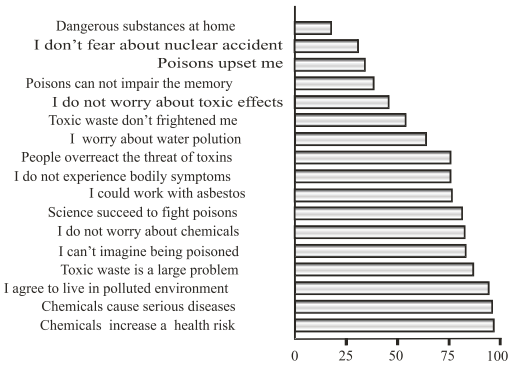
The data presented show that students' worries about environment might be devided into four groups:

1. Students are mostly concerned with events related to health problems. The highest concern ranged from *parent dying; becoming sick; getting cancer; own death, pregnancy, drugs.*
2. Social problems also seem of great concern for students. *Lack of money* was attributed to the most important among social problems. *Violent crimes, people dislike and no job* were evaluated by students as a matter of causing worry in the closest environment.
3. Family problems also trouble our students. Among them students pointed out *parent divorce; grades at the university; ugliness and moving somewhere.*
4. The fourth group might be called a global concern about environmental events. The group of worries students mentioned ranged in the following way: *nuclear war; starvation; environmental polution; nuclear power plants leaking; earthquake, overpopulation.*

Worries about health among students were of paramount importance during all the longitudinal period of investigation. Despite that sometimes they were not able to relate environmental risk and health. E.g. getting cancer students evaluated as the essential worry, but polution was seen as causing less danger to the people. The reality is that environmental polution is a main precondition to cancer of lungs, throat, skin and liver.

The global environmental processes in the world for students were at the bottom of the range: *an overpopulation, the earthquake and nuclear power* were amongst the lowest. The data of other investigations show that concern about global environmental problems was related with a higher economical development.

Diagram 2
Environmental worry scale (EWS)



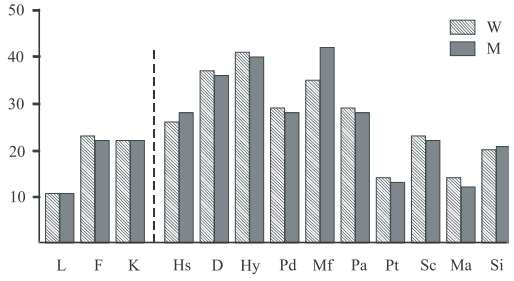
In the diagram 2 there are presented students' worries about the nearest environmental danger and possible consequences if they were to be exposed to different chemicals. 17 variables, expressing possible contacts with potential dangerous substances or events were evaluated by students. It is necessary to point out that students knowledge was not always adequate to a real danger. On one hand they understood that chemicals and toxins are related to a health and might cause serious diseases and they are at an increased health risk. On the other hand they underestimate risks that are associated with frequent or familiar events. E.g. they *worry about water polution*, but they *do not worry about chemicals in general*, and toxic *waste does not frighten* them, or they *could work with asbestos* which is extremely dangerous for health.

Several studies related to environmental exposure have documented some psychological changes of the personality. Disrupted mood, emotional instability, depressed and anxious

Sociologija. Mintis ir veiksmas 2003/2, ISSN 1392-3358

affect in subjects exposed to solvents were found (Bowler, Schwarzer 1991:167-180). In this context it is pertinent to also mention the investigations, related to the Chernobyl Accident in 1986 in Ukraina. Scientists from West European countries (Great Britain, France, German and Holland) proved the hypothesis that attitudes to the atomic energy, its production and consumption were changed due to perception of risk for mental and physical health (Drottz-Sjoberg and Sjoberg 1990: 135-149). J. A. Valciukas from USA presented a clear overview of neurotoxins upon basic psychological functions — such as perception, learning, recall and cognition (Valciukas 2002: 359-370).

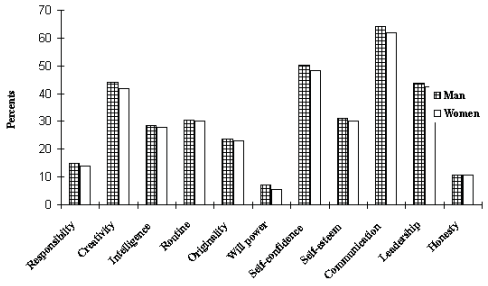
Diagram 3
Profile of MMPI clinical scales



The diagram 3 presents MMPI profile of Clinical scales for men and women, with three traditional validity scales (L, F, K). The three above mentioned validity scales are used to assure the adequacy of the individual's self report. The task of validity scales is to detect "invalid" response sets such as faking, random responding, or exaggerating. It is important to state that in our research validity scales did not reflect intentional misrepresentation.

First of all it is important to note, that the profile of the Clinical scales for men as well as women does not reach 50 scores. The level of clinical significance is equal 65 scores. (Butcher & Graham 1994: 9). It means that in our case there were no important biases, related to psychological traits. Despite the fact that the profile of Clinical scales might be evaluated as normal, there are some elevated scales: Hy, Mf and Hs. Scale Hy (Hysteria) might reflect hysterical reactions to stress; avoidance of responsibility, also **it** might show immature psychologically and self-centered tendencies. Scale Hy was a little bit lower for students-male. Mf (Masculinity-femininity) scale might show lack of stereotyped masculine interests for males and rejection of the traditional role for females. Mf scale has elevation for men and women, but higher scores were found for women. Hs (Hypochondriasis) usually reflect somatic concern, denial of good health. The Hs scale show elevated scores of both genders, but more characteristic for women.

Diagram 4
Profile of MMPI Social scales



Social or content scales as an additional source for information also were used. In our research there were 11 social scales. The purpose of social scales ¾ to assess students self-views (self-confidence; self-esteem); possibility relate to others (communicativity; leadership); cognitive proceses, related to decision making (creativity, routine, originality); behaviour related features (responsibility, consciousness).

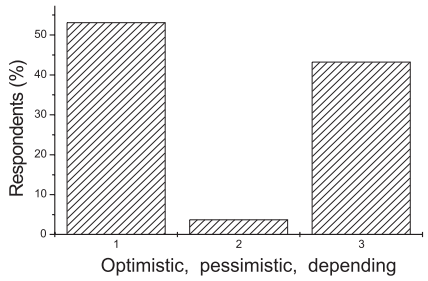
Social scales did not reveal great gender differences. The distribution of social scales was not even. The highest points are related to communicativity; self-confidence; creativity, leadership. Low evaluation show scales of will power; consciousness; responsibility, originality, self-esteem. Social scales reflect students' positive relations to others, which is characteristic for non-conflict relations. Students-self views also have a tendency towards the positive, and from this point of view might be related to psychological adjustment to different

life events. Scales characterizing cognitive processes of the students are about average, with elevation on creativity.

We have to draw an attention to low scales, representing behaviour related features such as responsibility, honesty and will power as well. Evaluating all results of social scales we have to point to some inconsistence between students behaviour intentions (positive self-views, positive intentions relate to others) and actual behaviour features. It seems that such an inadequacy in psychological sciences always was seen as important, but an unsolved problem. Scientists working in this field tend to explain inconsistence between behaviour intentions and real behaviour by social and individual factors. To social factors they attribute social/normative indications that are in conflict with each other, discrepancy between individual and collective interests. Among individual factors usually are indicated different obstacles to implement behaviour intentions also peculiarities of perception.

With a task to evaluate possible variables that might influence attitudes to the environment and health, students were asked to express their attitudes to life in general.

Diagram 5
Attitudes to the life



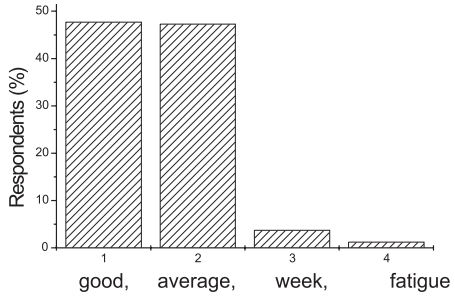
Students were asked to chose from three dimensions to express their attitudes: optimistic, pesimistic or depending on circumstances.

The data in the diagram 5 show that only a half of the students (53%) have an optimistic attitudes to life; 43% of students seems to be dependent on circumstances, 4% of respondents even expressed pessimistic attitudes to life.

Evaluating the data of this diagram we have to take into account existential worries of students, presented in the diagram 1. Among most important problems health and social problems were chosen. In a thorough analysis of the existential worries of students we can see that they draw almost an equal parallel between worry about their own death and such social problems as lack of money, violent crime, people dislike and unemployment. The last one is comparatively the new phenomenon in Lithuania and people are not able to cope with this problem due to the poor social and welfare support. We intend to relate students' attitudes to the life to the problems of health and heavy burden of social circumstances.

Students also were asked to evaluate their individual health state.

Diagram 6
Health state evaluation



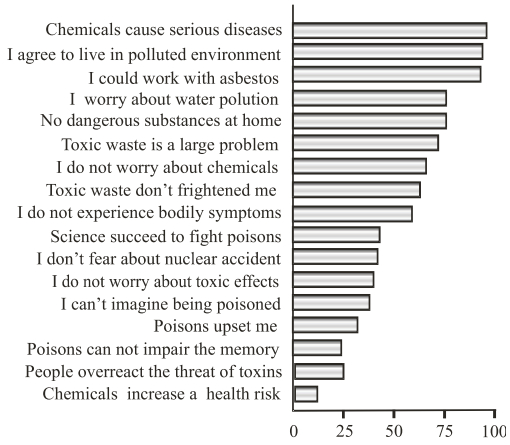
The data of the diagram 6 show that students' health was the following: 48% of students think that their health is good; 47% think that it is average; 5.3% evaluated their health as being weak; 1.2% of students complained on chronic fatigue. Data about students' health is a subject of concern. Possibly there are some factors influencing students' health. Among such factors may be the students' way of life and their environment. According to students' answers they do not care too much for everyday life: 61% of students do smoke; 88% sometimes use alcohol. It means that students' are falling into negative habits. If so, we have to look for some means by which we can decrease

Sociologija. Mintis ir veiksmas 2003/2, ISSN 1392-3358

or compensate for the impact of these habits. Only 21% of students engage in regular sport and exercise; only 5% of students mentioned using a well-balanced diet. These factors might have influence upon students health. Some environmental factors could relate to student's health. Tendencies related to the knowledge about environmental danger were observed within a frame of diagram 2.

When looking at the ability to predict intentions to avoid chemicals it is important to find out whether the student's knowledge of environmental danger might have behavioural implications on the basis of health. To establish this relation the coefficient of correlation was used.

Diagram 7
Correlations between environmental danger and health



In psychological research, a correlation coefficient of .60 or more is judged mostly to be quite high. Correlations in the range from .20 to .60 are practically useful in making predictions. Lower correlations must be judged with caution. Looking to our data, presented in the diagram 7, we have to note that only half of the variables might have a really distinctive value. Even those data we tend to interpret with caution. Of course, we may suspect that the first eight variables at the top of the diagram have some causal factors in common, but we cannot conclude that one of them causes another. E.g. it is true that *chemicals cause serious diseases*, or *toxic waste is a large problem,* but we cannot state that students' negative intentions towards chemicals are related to their health problems. This sounds more logical with a statement *I worry about water pollution* or *I do not experience bodily symptoms* (the last one might relate to their age). Interpreting data of diagram 2, we have drawn attention to the students' inconsistence evaluating environmental danger. The correlations that range between .24 and .59 show that students are not sure about relationship between environmental danger and health. That is why they are not frightened of toxins and were prone to believe in the ability of science to overcome poisons. The last statement *chemicals increase a health risk* did not reveal significant relations with a health (r = .11). It also might be a subject for consideration. In this case minimal coefficient of correlation does not look a logical one. If relations in the above-presented diagram show a real state, we have to be concerned about students capabilities to protect themselves from dangerous environmental consequences.

Diagram 5
Correlations between existential worries and individual traits

	D	Cn	Hy	Mf	Self	Si	Er	Pd	Lea	Hs	Or	Com	Pa	Sc	S-c
Pregnancy	.67	.30				.26									
Getting cancer		.58					.43								
People dislike			.57				.40	.27		.35					
Nuclear power				.55						.23					
Drugs					.52					.27					
Ugliness			.31			.48		.41							
Becoming sick							.46							.38	
Own death		.24						.46							
Overpopulation					.24				.46				.33		
Violent crime					.39				.26	.42					
Parent dying											.40				
Polution						.34			.22			.40	.26		
Parent divorce													.37		
Lack of money			.28											.36	
Starvation		.23	.26		.32										.30

Not all, but the most significant and positive correlations between existential worries and individual traits of students personality are presented in the diagram 5. They ranged from

the .30 to .67. The highest correlation was found between *pregnancy* and scale D (depression) r = .67; *getting cancer* and social scale Cn (Consciousness) r = .58; *people dislike* and Hy (Hysteria); *nuclear power* and Mf (Masculinity-femininity) r = . 55; *drugs* and Self-expression r = .52. They are marked with numbers inside black square. Correlations from .48 to .40 were subsistent to the existential worries, related to a health (*becoming sick, own death, parent dying)*. Their meanings are marked with numbers inside gray square. The distribution of existential worries shows that students did not care about global concern for the environment. Despite that moderately correlations between *overpopulation* and Lea (Leadership) r = .46; between *polution* and Cm (Communicativity) r = .40) were revealed. *Parent divorce, lacke of money, starvation*, representing different attitudes of existential worries (family, social and global) also show significant, but lower correlations, ranging from .37 to .30. All the lower correlations in the diagram are marked with numbers in a white square. The last five existential worries ¾ *earthquake, grades at the university, moving somewhere, no job, nuclear war* also are in correlation with individual traits, but show lower meanings. The correlations lower .30 apear in the diagram as plane numbers.

In general, different groups of attitudes to the environment are related to different individual traits, but most and high correlations were obtained between health and social problems and individual traits of personality.

Discussion

The present study examined students worries related to different environmental events, consequences of dangerous chemicals and its influence upon students' health. Analysis of environmental events revealed priorities of students' concern that were related to health, social environment, family problems. Students did not show too much attention to the global environmental problems. Not worrying about the global environment might be the result of family influence upon students thinking. Low economical development of the country in general also might affect evaluation of environmental problems**.** Worry about environmental problems in comparison with all data of longitudinal research show some tendencies for a change. Compare the data of a survey, made in 1992, new growing tendencies were revealed: *lack of money; moving somewhere; people dislike.* In 1995 another tendency also became important for students — *grades at the university.* The last one is in connection with two factors: low incomes of the inhabitants of Lithuania and decision of government to set a fee for studies at the university if grades do not reach a certain level.

Individual traits of students personality did not reveal serious biases, because the Clinical scales did not reach 50 scores (clinically signifant are scales over 65 scores). The scales with eleavations Hs, Hy and Mf were related with different existential worries. Social scales deserve more attention, because they reflect students non-conflict relations to others and demonstrate features for psychological adaptation. On the other hand lack of will and low responsibility might tell us about negative traits, characteristic not only for students, but others, creating obstacles between behaviour intentions and behaviour actions.

Assessing students' attitudes towards dangerous substances or events related to environmental danger some inconsitence between students' knowledge and behaviour actions were obtained. This fact might be a subject for consideration. Knowledge about dangerous substances or polluted environment appear to be not sufficient to shape students attitudes towards behaviour changes. For comparison we can look at data from research, carried out at University of Ohio in 2002, where undergraduate business students were questioned. Without any doubt Ohio students have better economical and social conditions, but they also expressed mildly positive proenvironmental concern. The investigators revealed that participants were predominantly neutral on their levels of intended proenvironmental behaviour

Sociologija. Mintis ir veiksmas 2003/2, ISSN 1392-3358

(Cordano, Welcomer and Scherer 2003: 22-28). Such inconsistence we tend to explain by students young age and lack of experience. Another possible explanation, related to our students might be an old tradition to understimate environmental danger, because the data of environment polution was in fact kept hidden from the inhabitants. It is enough to rememember Chernobyl explosion in 1986. Despite the catastrophe, that occurred on April 26, a few days later people were forced to celebrate the First of May, the day of the international solidarity of workers. Taking into account the fact that cognitive component (component of knowledge) is one of the basic components for attitudes formation, we have to stress the necessity to provide students with extra information. Students unprepared for environmental risks may not feel vulnerable and therefore not ready for action in case of necessity.

Data about students' health is also a subject for concern**.** As we have seen from the results, students are concerned about health, but correlations coefficient did not reveal significant relations with a health (r = .11). Students health probably was more related to their poor way of life, most probably with a lack of well-balanced diet and also with some environmental factors that did not show direct relations.

Conclusion:

1. Worries of environmental events show a tendency for change in relation to the satisfaction of students' individual needs. Among such urgent needs students pointed out health, social and family problems. Global environmental problems were less important for students.

2. Individual traits of students' personality did not show biases. Clinical scales did not reach clinically significant level.

3. Social scales of students' personality possibly reflect general tendencies that are characteristic for contemporary period of life in Lithuania. We tend to believe that not only students have low will power, low consciousness, average expression of self-esteem.

4. The presented results proved relations between environmental attitudes, personality traits and health state.

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