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THE QUALITY OF LIFE IN PREGNANT WOMEN CONCEIVING THROUGH IN VITRO FERTILIZATION

KVALITETA ŽIVLJENJA NOSEČNIC PO OPLODITVI Z BIOMEDICINSKO POMOČJO

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ABSTRACT

Keywords:
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Objective. The aim was to determine whether pregnant women conceiving through in vitro fertilization (IVF) differ from those conceiving spontaneously in terms of psychological well-being and the quality of life.

Methods. In a prospective study we included 75 women conceived after IVF and 78 who conceived spontaneously in the same time period (control group). All the women were sent a self-report questionnaire about demographic and reproductive history, health, pregnancy concerns, containing Subjective Quality of Life Scale (QLS), Positive and Negative Affect Schedule (PANAS), the Psychological Well-Being Scale (PWB), Beck Depression Inventory (BDI), and Zung Self-Assessment Anxiety Scale (SAS); obstetric and newborn's data were obtained from medical records. Response rate was 66.6% in the IVF and 83.3% in control group.

Results. The mean women's age was 33.8 years in the IVF, and 32.5 years in the control group (NS). There were no significant differences between groups on the most of the outcome measures assessing psychological status. IVF mothers were just less satisfied in "friend/acquaintances" (P=0.03), a higher percentage had sexual problems prior to conception (P=0.03); the length of hospitalization during pregnancy was longer (P=0.02), and the preterm delivery rate was higher (P=0.01). Withingroup changes over gestation time indicated that IVF women, not controls, showed an increase in positive affect (P=0.04) and purpose in life (P=0.05).

Conclusions. IVF women are inclined to social isolation. Despite more medical problems during pregnancy, they reported improved positive emotions and purpose in life as the pregnancy progressed.

IZVLEČEK

Ključne besede:
oploditev v epruveti, psihično blagostanje, kvaliteta življenja, nosečnost

Namen. *Namen študije je bil ugotoviti, ali se počutje in stopnja kvalitete življenja žensk, ki zanosijo s pomočjo postopkov oploditve z biomedicinsko pomočjo (in vitro fertilization - IVF), razlikuje od počutja in stopnje kvalitete življenja žensk, ki zanosijo spontano.*

Metode. *V prospektivno študijo smo vključili 153 nosečnic; 75 žensk je zanosilo po IVF-metodi (IVF-skupina), 78 pa spontano v istem časovnem obdobju (kontrolna skupina). Odzvalo seje 66,6% žensk v IVF-skupini in 83,3% žensk v kontrolni skupini. Vsem je bil poslan anamnestični vprašalnik o biografskih in reproduktivnih podatkih, zdravstveni zgodovini in doživljanju nosečnosti, ki je vseboval tudi lestvico subjektivne kvalitete življenja (QLS), lestvico pozitivnih in negativnih čustev (PANAS), lestvico dobrega počutja (PWB), Beckov vprašalnik depresije (BDI) in Zinged vprašalnik anksioznosti (SAS). Podatke o porodu in novorojencu smo dobili iz porodnega zapisnika.*

Rezultati. *Povprečna starost žensk v IVF-skupini je bila 33,8 leta in v kontrolni skupini 32,5 leta. Skupini se po psihičnem statusu žensk nista razlikovali v večini merjenih spremenljivk. Ženske v IVF-skupini so izražale le manjše zadovoljstvo s svojim socialnim življenjem (P=0,03), imele so več težav v spolnosti pred zanositvijo (P=0,03), odstotek hospitalizacij pri njih je bil višji (P=0,02) in tudi delež prezgodnjih porodov je bil višji (P=0,01). Testiranje sprememb znotraj skupin je pokazalo naraščanje pozitivnih čustev (P=0,04) in občutenja smisla življenja (P=0,05) z napredovanjem nosečnosti v IVF-skupini.*

Zaključek. *Ženske v IVF-skupini težijo k socialni izolaciji. Kljub večjemu številu zdravstvenih težav pa se z napredovanjem nosečnosti krepijo njihova pozitivna čustva in občutenje smisla življenja.*

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NIJZ Nacionalni inštitut za javno zdravje

1 INTRODUCTION

Ever since in vitro fertilization (IVF) was introduced as an infertility treatment option, couples that would never be able to conceive naturally have been given a chance to conceive and have their own biological children. Although many retrospective and some prospective studies on the course and outcome of IVF pregnancies have been performed (1-6), they have not sufficiently elucidated potential unfavourable effects of assisted conception on the course of pregnancy, labour, delivery, and the baby. We believe that in addition to the proven higher multiple pregnancy rate registered in IVF pregnancies (7), which is a known risk factor for preterm delivery and consequently for increased neonatal morbidity and mortality (8), there are other unfavourable effects of IVF conception on pregnancy, as well as the effect of infertility on psychological well-being and quality of life of women who conceive after infertility treatment. The high frequency of multiple births and the high maternal age are interpreted as contributing factors, not the IVF technique itself. Some authors (9, 10) did not find an increased risk for prematurity, low birth weight, or maternal or fetal complications, but a high rate of caesarean sections in singleton IVF mothers compared to age matched control group of singleton spontaneous pregnancies. Obstetric haemorrhages (antepartum haemorrhage, placenta praevia, placental abruption and primary post-partum haemorrhage) are more frequent with singleton births after IVF, ICSI and GIFT (11). Major improvement in the outcome after IVF can be seen during the 25 years period for both obstetric and neonatal variables due to a decline in the rate of multiple births following the reduction in the number of embryos transferred. Some effects are seen also with singleton births and they may be due to a shortening of the period of childlessness before IVF treatment begins and an increased use of ICSI (12).

In spite of the importance of the mind-body connection and fertility, the psychosocial aspects of infertility have not been adequately addressed. Fertility treatment is both a physical and emotional stress for both partners. Depression, state-anxiety, and stress-induced changes in heart rate and cortisol are decreasing the probability of achieving a viable pregnancy (13). A couple that is trying to conceive will undoubtedly experience feelings of frustration and disappointment if pregnancy is not easily achieved, which may result in a severe insult to self-esteem, body image, depression and self-assessed masculinity or femininity (14, 15). There is evidence of three types of relationships between psychological factors and infertility, namely:

- Psychological factors are risk factors of subsequent infertility;
- the experience of the diagnosis and treatment of infertility causes subsequent psychological distress;
- a reciprocal relationship exists between psychological factors and infertility (13).

Infertility treatment is stressful on many levels: physically, psychologically, financially and also time consuming; pregnancy achieved after IVF is considered as a gift for the already exhausted parents (16). Pregnancy itself imposes psychic stress that is further increased in women who conceive after infertility treatment (17). Clinical reports and qualitative studies suggest that pregnancy and parenting may be more complex psychologically after assisted than spontaneous conception (18, 19). Infertile couples who are now expecting frequently experience guilt and shame originating from the time of their infertility and have a feeling of incompetence, defect, and possibly shame due to the method of conception (20). Some studies have presented longitudinal data on the emotional response of pregnant women or young mothers after successful IVF; no differences have been reported between the women who conceived through IVF and those who conceived spontaneously, indicating that the stress of the treatment disappeared when a pregnancy was achieved (3, 10, 21).

Due to the lack of satisfactory data in Slovenia as well as worldwide, we carried out a cross-sectional study to define psychological factors, and also some somatic factors accompanying the pregnancy achieved through IVF.

The aim of this cross-sectional study was to find whether the women conceiving through IVF differ from those conceiving spontaneously in terms of psychological well-being and quality of life, the course and outcome of pregnancy, and the neonate's condition.

2 MATERIALS AND METHODS

A cross-sectional study on well-being of Slovenian women who conceived through IVF (IVF group) and those who conceived spontaneously (control group) was carried out at the Department of Human Reproduction, Division of Obstetrics and Gynaecology, University Medical Centre Ljubljana in a nine month period.

Women between 5th and 26th weeks of pregnancy were eligible to participate in the study. The IVF women were recruited from the IVF registry, and the control group from among the pregnant women who came to regular gynaecologic examinations at outpatient clinics of the Division of Obstetrics and Gynaecology.

All the enrolled women were sent a questionnaire in order to obtain their basic socio-demographic data and infertility history, report on pregnancy complications, mother's and their partner's feelings about the pregnancy (5 level rating scale: 1 – never, 5 – mostly; e.g. "Experiencing fear for the child"), past difficulties with physical and mental health, sexuality, violence, drugs, etc (e.g.: "Have you had sexual problems?" 1. No, 2. Yes; "Have you been a victim of sexual violence?" 1. No, 2. Yes), and a subjective evaluation of experiencing stress in infertility treatment on the Likert scale (from 1 "not even stressful" to 5 "very stressful") and tests / inventories for the assessment of their psychological well-being.

The comparison between the groups involved socio-demographic characteristics, psychological well-being, and quality of life. Additionally, we analysed the data on infertility history, complications during pregnancy and the course of labour obtained from delivery records, and neonatal data obtained from neonatal records. We were also interested whether well-being is changing during pregnancy and we have therefore tested for differences before and after 20th week of pregnancy within the IVF group. At the same time we tested for differences during pregnancy between the IVF and control group.

The women signed a written consent form before they were enrolled in the study allowing their medical records to be accessed for the purpose of the study.

For the assessment of the women's psychological condition, Beck Depression Inventory (BDI) (22) and Zung Self-Rating Anxiety Scale (SAS) (23) were used.

The women's quality of life was assessed using the following tests: Subjective Quality of Life Scale (QLS) (24) which assesses the importance of individual components of quality of life ('friends/acquaintances', 'leisure time/hobbies', 'health', 'income/financial security', 'occupation/work', 'housing/living conditions', 'family life/children', and 'partner relationship/sexuality') and satisfaction with them, the Positive and Negative Affect Scale (PANAS) (25) which assesses the expression of positive and negative emotions; the Psychological Well-Being Scale (PWB) (26) which assesses the ways in which a person copes with existential problems using the score composed of six dimensions (autonomy, environmental mastery; self-acceptance, personal growth, positive relations with others and purpose in life). It took 15-20 minutes to fill out all the questionnaires.

2.1 Statistical Analysis

Statistical analyses were performed using SPSS for Windows version 21 (IBM Corp., Armonk, NY, USA). The difference between the groups was tested using parametric and non-parametric tests (t-test, ANOVA, Pearson's correlation test, chi-square test, Mann-Whitney and Wilcoxon test) considering 95% confidence interval. Statistical significance was set at P<0.05.

3 RESULTS

Study subjects consisted of 153 pregnant women who conceived in the observed nine month, 75 in the IVF group and 78 in the control group. Twenty-five women in the IVF group and 13 in the control group declined their participation; the response rate was 66.6% and 83.3% in the IVF and control group, respectively. One woman in the IVF group and 2 in the control group were later excluded from study for spontaneous abortion, leaving 49 women in the IVF and 63 women in the control group. In the IVF group, 57 babies were born, eight pairs of them were twins (16.33%); in the control group, 64 babies were born, with only one pair of twins among them (1.59%).

The groups were homogeneous by age (33.7 vs. 32.5 years), marital status (65% vs. 50% married), educational level (52% vs. 58% higher education), and employment status (81% vs. 80% with reliable employment). All women in the IVF group conceived after an IVF procedure, whereas the women in the control group conceived spontaneously, but 2 (3.2%) conceived after surgical treatment of infertility and 2 (3.2%) after hormonal therapy for infertility.

There was no difference in the number of previous pregnancies, but we observed more extrauterine pregnancies in IVF group that were statistically significant (16.3% vs. 0.0%) and more childless women in the IVF group (75.5% vs. 44.4%).

In the IVF group the time interval between first attempts to conceive to eventually seeking help for infertility was mean 2 years and 8 months, and the mean time interval between the infertility diagnosis and treatment, IVF attempts included, and achieved pregnancy was 2 years and 6 months. The women's subjective assessment of infertility treatment and IVF procedures was as follows: 2 (4.1%) as highly stressful, 20 (40.8%) as rather stressful, 17 (34.7%) as moderately stressful, and 8 (16.3%) as little stressful.

The women did not differ between the groups regarding their feelings about pregnancy (ambivalence, fear, happiness, disappointment, doubt ...).

Improved psychological well-being in comparison to that from the previous pregnancy was reported by 10 (20.4%) IVF mothers, and by 3 (4.8%) mothers in the control group, the difference was statistically significant (P = 0.03).

Furthermore, IVF mothers experienced sex problems before pregnancy (n=4; 8.2%), whereas those in the control group did not (P=0.03).

Among the items assessing the quality of life (QLS), a significant difference was observed only in the dimension 'friends/acquaintances' which was significantly lower in the IVF than in the control group mothers (P=0.03) There were no statistically significant differences between the groups in positive and negative affects (PANAS), in environmental mastery, self-acceptance, interpersonal relationship, autonomy, personal growth, and purpose in life (PWB scale), and in the level of depression (BDI) and anxiety (SAS questionnaires) (Table 1).

Table 1. Comparison of satisfaction with various sections of quality of life (QLS), dominant emotions (PANAS), psychological well-being (PWB), depression (BDI) and anxiety SAS) between IVF group and control group (ANOVA test).

	IVF group (n=49)		**Control group (n=63)**		***P*-value**
	mean	**SD**	**mean**	**SD**	
Subjective quality of life scale – QLS					
Friends / Acquaintances	9.16	6.04	11.56	5.66	0.033
Free time / Hobbies	7.78	6.63	8.62	6.34	0.495
Health	13.38	6.19	13.51	7.05	0.918
Income / Financial security	5.90	6.06	7.94	5.57	0.067
Profession / Work	7.29	7.66	9.06	5.98	0.174
Home / Life circumstances	15.82	4.72	13.81	6.35	0.067
Family life / Children	16.17	4.78	17.08	4.40	0.308
Relationship with partner	17.16	4.90	15.67	6.61	0.188
Sexuality	11.54	6.92	12.75	6.18	0.336
Positive and Negative Affect Schedule. PANAS					
Positive emotions	35.87	4.97	36.79	4.13	0.299
Negative emotions	20.31	5.89	19.94	6.10	0.747
Psychological Well-Being (PWB) Scale					
Environmental mastery	19.96	2.64	19.78	2.59	0.716
Self-acceptance	20.84	2.49	20.74	2.44	0.834
Interpersonal relations	19.53	3.75	20.10	3.01	0.379
Autonomy	26.94	4.75	26.53	4.41	0.648
Personal growth	26.19	2.97	26.42	3.35	0.706
Purpose in life	20.68	3.19	20.90	2.36	0.676
Beck Depression Inventory – BDI	5.35	4.93	4.35	3.27	0.202
Self-Rating Anxiety Scale – SAS	30.63	6.54	31.27	7.49	0.638

The level of stress during infertility treatment showed an important negative correlation between stress and health (self-assessed): the higher the level of stress the lower the satisfaction of IVF mothers with their personal health (*P*=0.04) (Table 2).

Table 2. Correlation of degree of stress with various sections of quality of life (QLS), dominant emotions (PANAS), results of the PWB Scale, depressive mood (BDI) and anxiety (SAS) in the IVF group.

	Pearson's correlation coefficient	***P*-value**
Quality of life scale QLS		
Friends / Acquaintances	0.23	0.09
Free time / Hobbies	0.11	0.45
Health	-0.30	0.04*
Income / Financial security	-0.09	0.55
Profession / Work	-0.09	0.54
Home / Life circumstances	-0.19	0.17
Family life / Children	0.00	0.99
Relationship with partner	-0.11	0.45
Sexuality	-0.09	0.53
Positive and Negative Affect Schedule. PANAS		
Positive emotions	0.01	0.96
Negative emotions	0.22	0.14
Psychological Well-Being (PWB)		
Environmental mastery	-0.07	0.62
Self-acceptance	-0.16	0.26
Interpersonal relations	0.14	0.35
Autonomy	0.12	0.43
Personal growth	-0.01	0.97
Purpose in life	-0.13	0.39
Degree of depression (Beck Depression Inventory – BDI)	0.25	0.08
Degree of anxiety (Self-Rating Anxiety Scale – SAS)	0.07	0.63

The comparison between IVF mothers pregnant up to 20 weeks (n=18) and those pregnant beyond 20 weeks (n=31) at the time of completing the questionnaire showed a significantly stronger expression of positive emotions (P=0.04), and significantly more purpose in life (P=0.05) in the latter subgroup (Table 3).

Table 3. Comparison of satisfaction with various sections of quality of life (QLS), dominant emotions (PANAS), psychological well-being (PWB), depression (BDI) and anxiety SAS) among women pregnant up to 20 weeks, and women pregnant beyond 20 weeks within the IVF group (ANOVA test).

	IVF group to 20th week (n=18)	**IVF group beyond 20th week (n=31)**	***P*-value**
	mean (SD)	**mean (SD)**	
Subjective quality of life scale – QLS			
Friends / Acquaintances	9.72 (6.75)	8.84 (5.67)	0.63
Free time / Hobbies	6.83 (6.96)	8.32 (6.48)	0.45
Health	13.59 (7.61)	13.26 (5.40)	0.86
Income / Financial security	5.67 (5.89)	6.03 (6.25)	0.84
Profession / Work	7.06 (7.48)	7.42 (7.88)	0.88
Home / Life circumstances	15.00 (5.06)	16.29 (4.53)	0.36
Family life / Children	16.44 (5.03)	16.00 (4.69)	0.76
Relationship with partner	16.11 (6.59)	17.77 (3.57)	0.26
Sexuality	12.50 (6.71)	10.97 (7.09)	0.46
Positive and Negative Affect Schedule. PANAS			
Positive emotions	33.94 (4.34)	36.97 (5.04)	0.04*
Negative emotions	21.56 (7.89)	19.58 (4.33)	0.26
Psychological Well-Being (PWB) Scale			
Environmental mastery	19.83 (3.26)	20.03 (2.26)	0.80
Self-acceptance	20.28 (3.25)	21.16 (1.90)	0.23
Interpersonal relations	18.50 (4.25)	20.13 (3.36)	0.15
Autonomy	26.41 (6.29)	27.23 (3.69)	0.57
Personal growth	25.67 (3.25)	26.50 (2.80)	0.35
Purpose in life	19.44 (4.47)	21.32 (2.09)	0.05*
Beck Depression Inventory – BDI	5.94 (5.56)	5.00 (4.58)	0.52
Self-Rating Anxiety Scale – SAS	29.33 (4.69)	31.39 (7.38)	0.29

ANOVA test revealed statistically significant interaction term group*gestation which means different trends of positive emotions (as measured by PANAS) with the ongoing weeks of pregnancy (*P*=0.001) (Figure 1). The similar conclusion holds for the purpose of life (PWB) (*P*=0.02) (Figure 2).

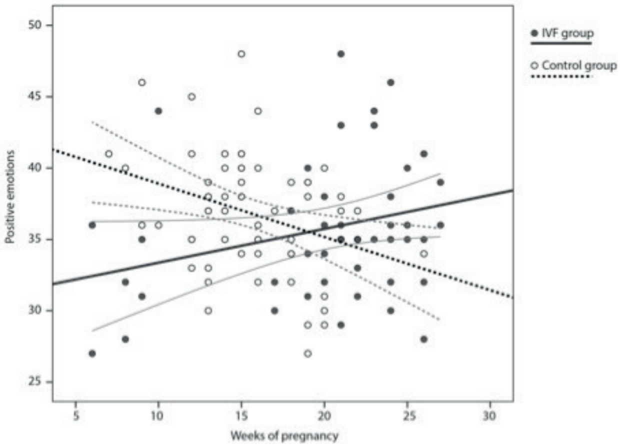

Figure 1. Change of positive emotions during pregnancy.

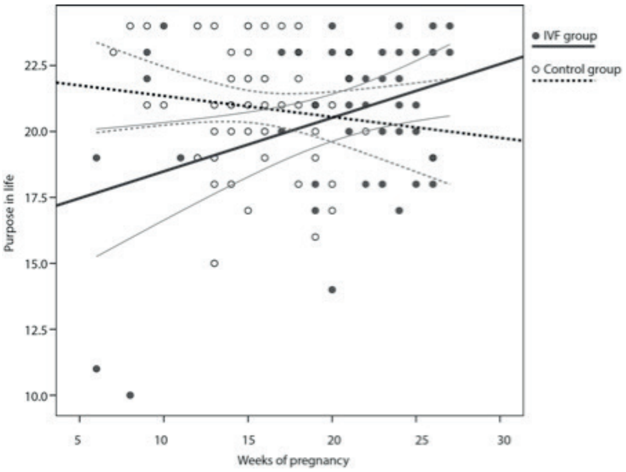

Figure 2. Change of "purpose in life" during pregnancy.

Complications during pregnancy were reported by 13 (26.5%) women in the IVF group, and 9 (14.3%) women in the control group (*P*=0.08), with bleeding being the most frequent complication (12; 24.5% IVF group vs. 8; 12.7% control group; *P*=0.09). Consequently, the percentage of hospitalization was statistically higher in the IVF than in the control group (n=13; 26.5% vs. n=7; 11.5%; *P*=0.02). Furthermore, the use of spasmolytics and gestagens was higher in the IVF than in the control group (n=13; 16.5% vs. n=6; 9.8%; *P*=0.02, and n=20; 40.8% vs. n=1; 1.6%; *P*<0.01, respectively).

4 DISCUSSION

The present study is the first in Slovenia that analysed not only health complications of IVF mothers and their neonates but also the psychological well-being and quality of life in the course of pregnancy after infertility treatment with IVF.

We have found that mothers who conceive through IVF do not experience a higher degree of anxiety or depression. However, we have observed a tendency of these women to social isolation and sex problems before pregnancy that may eventually result in poorer quality of some aspects of life,in comparison with pregnant women who conceive spontaneously.

The sample of mothers who conceived through IVF has two flaws: a relatively old age of control group mothers and a relatively short treatment period before conception.

The mean age of IVF mothers at delivery was 33.8 years (range 26-42 years), and that of control group mothers was 32.5 years (range 24-43 years), which is more than the mean age in the general population of Slovenian mothers. On average, IVF mothers conceived 30 months after starting seeking infertility treatment which is a relatively short interval for infertile mothers. This might be the reason why the effects of infertility treatment on psychological well-being of mothers were not manifested to the extent these effects would have been manifested after a longer treatment period. This relatively short treatment period is partly due to full reimbursement of the costs of IVF treatment which allows a rather rapid successful management of infertile couples, which consequently means less stress in the treated couples. Additionally, we may speculate that the mothers who were under a greater psychological pressure due to infertility and subsequent treatment were very likely not willing to participate in the study. Thus, there might have been an unintended selection of mothers before the data collection. Similarly, when interpreting the results, it should be borne in mind that the sample of IVF mothers was relatively small due to their poor participation; the response rate was 66.6%; it might have been difficult for them to once again go through all the stressful procedures or events they underwent.

As we found later, the control group mothers did conceive spontaneously, but some after surgical treatment on the reproductive tract (1 myomectomy, 3 resections of the septum, and 4 surgeries on ovaries). These women might have carried some of the characteristics of IVF mothers. Namely, the inclusion criterion depended on the mode of conception: either IVF or spontaneous, whereas the anamnestic questionnaire was more specific about conception problems.

Interestingly, 8.2% of IVF mothers reported sexual problems before pregnancy, with37.5% of them confirming that the changeof sexual lifewas due to infertility, whereas none of the control group mothers reported them. Sexual problems have been stressed in some studies (27, 28).The origin of these problems lies in the time when the couple was infertile, when sexual intercourse became a purely mechanical act with the sole aim to achieve pregnancy. The spontaneity and intimacy between the partners are lost, which further negatively affects their relationship. Sexuality might remain the problem between the partners for years after successful pregnancy of the couple, infertile by then. Also, we were surprised to find that 5 (7.9%) control group mothers were victims of sexual violence; among the IVF mothers there were none.

The comparison of the impact of satisfaction with various items determining the quality of life (QLS) showed statistically significant differences only in social life between the groups in this study (Table 1). In IVF couples the tendency to social isolation has been established in various studies (28, 29). The reason for such behaviour may lie in the wish of these couples to avoid family reunions menacing with a constant and emphasized pressure through questions on when they are going to have children. They also avoid friends who have children as they begin to think they do not have anything in common anymore. Infertile couples mourn in solitude thinking that nobody understands them. Some feelings of otherness remain present even after the couple conceives. A pregnant woman, who was infertile, often thinks that the experience related to infertility and infertility treatment separates her from other pregnant women (20). In our study, both groups of pregnant women were, on average, equally satisfied with the relationships with their partners, which is in agreement with the findings of some either studies (30, 31).. There are two studies (10, 32) that have found a significantly better quality of relationship, higher degree of confidence and closer connection between the partners in IVF couples. On the other hand, some other authors (3) found lesser satisfaction of IVF mothers with the relationship with their partner in early pregnancy.

Regarding the results of the PWB scale assessing autonomy, environmental mastery; personal growth, positive relations with others, purpose in life and self-acceptance, there were no differences between the groups; similar results were obtained in the studies focussing on self-confidence and self-trust of women who conceived after IVF (3, 33, 34).

The analysis of the degree ofdepression and anxiety did not reveal statistically significant differences between the groups, which is in agreement with the results of some studies (3, 34-36). On the other hand, some authors (37) reported a higher incidence of mood disorders in women who conceived after IVF. Moreover, some other studies (32, 38) reported a lower incidence of depression symptoms in infertile mothers compared to mothers who conceived spontaneously.

As expected, the percentage of hospitalizations during the current pregnancy was statistically higher in IVF mothers in this study, and so was the rate of complications, bleeding ranking the highest, although the difference was not statistically significant, which might be due to a small sample size.

The occurrence of complications in these women often deteriorates the self-image and confidence in their own body and abilities, and strengthens the feeling of guilt and ambivalent feelings about pregnancy and the baby (16). Women who conceived through IVF/ICSI had higher levels of general anxiety and psychological stress than the women who conceived naturally, around the time of the first trimester screening (39), which was not confirmed in the present study. Recent studies (40-42) analysing congenital anomalies reported a slightly increased risk in IVF babies compared to spontaneously conceived babies. We have also found a slightly higher overall congenital anomaly rate in the IVF (9.1%) compared to the control group (3.2%), but the number of patients was too small for making a firm conclusion.

We may conclude that mothers who conceive after IVF do not experience a higher degree of anxiety or depression, although some women in our sample showed subclinical and clinical levels of anxiety (scoring 45 or more on SAS) and depression (scoring 13 or more on BDI). However, we have observed a tendency of these women to social isolation and sex problems prior conception that may eventually result in poorer quality in some aspects of life if compared to pregnant women that conceive spontaneously. As such, some patients may still need or want interventions to improve quality of life during IVF treatment and pregnancy.

5 CONCLUSIONS

IVF mothers significantly more frequently observed an improvement in their psychological well-being during pregnancy, whereas the psychological well-being of mothers in the control group remained generally unchanged. Nevertheless, the surprising fact is that despite the higher incidence of complications during pregnancy, some of which even require hospitalization, and a higher rate of preterm deliveries, the satisfaction of IVF mothers increases as the pregnancy progresses; moreover, there is growing hope that they will finally have a baby, which increases their purpose in life.

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CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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ETHICAL APPROVAL

Research was conducted according to ethical principles, and was approved by The National Ethics Committee in 2008, reference number 174/07/08.

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BARRIERS TO SCREENING AND POSSIBILITIES FOR ACTIVE DETECTION OF FAMILY MEDICINE ATTENDEES EXPOSED TO INTIMATE PARTNER VIOLENCE

OVIRE ZA PRESEJANJE ZA NASILJE IN MOŽNOSTI DEJAVNEGA ODKRIVANJA OSEB Z IZKUŠNJO NASILJA V PARTNERSKIH ODNOSIH V DRUŽINSKI MEDICINI

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ABSTRACT

Keywords:
domestic violence, qualitative research, mass screening, early diagnosis/early detection

Introduction. In 1996 the World Health Organization declared intimate partner violence (IPV) the most important public health problem. Meta-analyses in 2013 showed every third female globally had been a victim of violence. Experts find screening controversial; family medicine is the preferred environment for identifying victims of violence, but barriers on both sides prevent patients from discussing it with doctors.

Methods. In July 2014, a qualitative study was performed through semi-structured interviews with ten family doctors of different ages and gender, working in rural or urban environments. Sound recordings of the interviews were transcribed, and the record verified. The data were interpreted using content analysis. A coding scheme was developed and later verified and analysed by two independent researchers. The text of the interviews was analysed according to the coding scheme.

Results. Two coding schemes were developed: one for screening, and the other for the active detection of IPV. The main themes emerging as barriers to screening were lack of time, staff turnover, inadequate finance, ignorance of a clear definition, poor commitment to screening, obligatory follow-up, risk of deterioration of the doctor-patient relationship, and insincerity on the part of the patient. Additionally, cultural aspects of violence, uncertainty/helplessness, fear, lack of competence and qualifications, autonomy/negative experience, and passive role/stigma/fear on the part of the patients were barriers to active detection.

Conclusion. All the participating doctors had had previous experience with active detection of IPV and were aware of its importance. Due to several barriers to screening for violence they preferred active detection.

IZVLEČEK

Ključne besede:
nasilje v partnerskih odnosih, kvalitativna analiza, presejanje, dejavno odkrivanje

Uvod. *Nasilje v družini je bilo leta 1996 z resolucijo Svetovne zdravstvene organizacije prepoznano kot najpomembnejši javnozdravstveni problem. Metaanaliza leta 2013 je pokazala, da je vsaka tretja ženska na svetu žrtev nasilja. Nasilje v partnerskih odnosih v lastnem domu za ženske predstavlja večjo grožnjo kot v kateremkoli drugem okolju. Za identifikacijo žrtev nasilja naj bi bila najprimernejša družinska medicina. Mnenja o presejanju so v strokovnih krogih različna. Ovire pri pacientih in pri zdravnikih družinske medicine preprečujejo prepoznavanje in obravnavo žrtev nasilja.*

Metode. *V okviru kvalitativne raziskave smo julija 2014 intervjuvali deset zdravnikov družinske medicine. Razlikovali so se po spolu, starosti, letih delovnih izkušenj in po delovnem okolju. Semistrukturiran intervju je bil usmerjen v iskanje ovir pri presejanju in v možnosti dejavnega odkrivanja nasilja v ambulanti družinske medicine. Zvočni posnetki intervjujev so bili natančno prepisani, skladnost zapisov je preverjena. Na podlagi literature in začetne analize sta bili oblikovani po ena kodirna shema za presejanje in za odkrivanje nasilja v partnerskih odnosih. Nadaljnje besedilo sta dva neodvisna raziskovalca analizirala po metodi analize vsebine glede na kodirno shemo.*

Rezultati. *Vključenih je bilo sedem zdravnic in trije zdravniki družinske medicine, starih od 29 do 65 let, povprečna starost je bila 45,9 leta. Po specialnosti so bili trije specialisti splošne, štirje specialisti družinske in trije specializanti družinske medicine. Pet zdravnikov je prihajalo iz ambulant v mestnem, eden iz ambulante v primestnem in štirje iz ambulant v ruralnem okolju. Glede presejanja je bilo odkritih osem glavnih tem oziroma ovir: pomanjkanje časa, menjavanje zdravnikov, neurejeno financiranje, nepoznavanje jasne opredelitve, dolžnost ukrepanja, nizka zavzetost za presejanje, tveganje za poslabšanje odnosa z bolnikom in neodkritost bolnikov. Kot spodbudi za presejanje za nasilje sta bili prepoznani dve temi: način izvedbe z možnostjo timske obravnave in zavedanje pomembnosti presejanja za nasilje. Za odkrivanje nasilja so bile odkrite naslednje teme: pomanjkanje časa/kompleksnost, organizacija in financiranje, kulturološki vidik nasilja, negotovost/nemoč/strah, pomanjkljiva kompetentnost in usposobljenost, vpliv odkrivanja na odnos z bolnikom, pri bolnikih pa še avtonomija/negativne izkušnje ter pasivnost/toleranca/stigma/strah. Kot spodbude za dejavno odkrivanje nasilja so bile prepoznane štiri teme: zavedanje položaja zdravnika družinske medicine, zavedanje pomembnosti odkrivanja nasilja, pozitivni vplivi odkrivanja nasilja in bolnikova potreba po zaupanju.*

Zaključek. *Vsi sodelujoči zdravniki so imeli predhodne izkušnje z obravnavo nasilja v partnerskih odnosih. Zavedali so se pomembnosti dejavnega odkrivanja žrtev in bili zaradi številnih ovir manj naklonjeni presejanju za nasilje.*

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1 INTRODUCTION

A resolution of the World Health Organization (WHO) in 1996 recognized violence as a major threat to global health (1). In 2002 the WHO published the analysed data of 28 population-based studies; 10-69% of the participants were discovered to be victims of intimate partner violence (2). In 2005 there were between 15 and 71% such victims (3). A meta-analysis of 155 studies from 81 countries, published in 2013, found that every third woman admitted to having been exposed to family violence (4).

Domestic violence is mostly hidden from the public eye and takes place in the home environment (5, 6, 7), where an individual can become a victim of physical, sexual or psychological abuse, including economic violence and neglect (5, 6, 7). The victims of domestic violence are mostly women (8, 9). In 2005, on the basis of the results of a large-scale multi-centre survey, the WHO proposed (10) that the term domestic violence (also family violence) be replaced by the expression intimate partner violence (IPV), so as to recognise the predominance of intimate partner violence compared to other forms of domestic violence, and the impact of intimate partner violence on all the relationships within the family. This expression also includes intergenerational violence, i.e. violence of parents towards children and violence of children towards grandparents (elderly abuse) (10).

In accordance with international recommendations, the detection of IPV should take place at the primary health care level in general/family medicine practice settings (6, 11, 12). Due to the frequency and long-term consequences of violence, there is a growing interest in the identification of cases of IPV (13-18). Screening for violence is defined as the posing of standardized questions on violence to all individuals, even those without symptoms, which should vary as little as possible in different environments (19). In addition to universal screening, other methods of detection of IPV include selective screening (questions posed to certain high-risk groups, such as all pregnant women, or all women seeking abortion); routine inquiry (all the respondents are women, but the method/question would depend on the clinical background or situation, for example, asking all injured women in a certain age group); and active detection of violence (when risk factors are present) (20).

The different effects on the incidence of violence and the resulting variability require specific evaluation of the level of violence in each country. Due to differences in tradition, religion, cultural norms, social conditions and research methodology, the proportion of female victims of lifelong IPV vary more than ten-fold across the European continent: from 4% in Serbia, to 53% in the Netherlands (21-24). Screening is justified for the first assessment of the prevalence of IPV in a particular environment, but not for routine treatment of individuals (1, 6, 11). Results of research, guidelines, and expert opinions regarding systematic screening for violence still differ greatly (20, 22 -24). The WHO clinical guidelines do not recommend screening, particularly in environments in low or middle-income countries (23).

Despite recommendations from professional organizations to actively detect violence, only about 10% of physicians routinely investigate their patients in relation to violence (25).

In Slovenian family medicine, a study in 2012 confirmed previous findings and the evaluation of the frequency of violence; in 2572 patients, a total of 17.9% of participants reported IPV (psychological, physical, or both (26)). In Slovenia, screening for violence is not performed as a part of routine medical treatment. Moreover, the treatment of patients who are potential victims of sexual or physical violence, or of those who were proved to having participated in any acts of violence was identified to be one of the most severe ethical challenges for family doctors (27), aside for the abandoned and the patients without means of livelihood.

The aim of this qualitative study was to obtain a deeper insight into the attitudes of physicians towards screening for domestic violence. We wanted to identify the barriers to screening for violence of family doctors in their respective populations, and to learn about their experiences and obstacles in the active detection of violence.

2 METHODS

In order to obtain an insight into the barriers to physicians screening for domestic violence, a qualitative study using semi-structured interviews was performed in July 2014 (28). This was a phenomenological study on the experience of detecting violence and on the barriers to it, in the light of the nature and importance of screening for violence. A purposive sample of doctors was recruited, from whom we could obtain more information regarding the objectives. They were most relevant for such a survey as they were appropriately knowledgeable about the topic, as allowed in qualitative research (28).

2.1 Participants

The study included ten family doctors of both genders who came from different health centres and worked in different regions, were of different ages and had different years of experience in family medicine. The age of the seven female and three male doctors varied from 29 to 62 years, the mean age was 45.9 years. Three of the participating doctors were specialists in general medicine, four specialists in family medicine and three were trainees in family medicine. Five doctors worked in urban environment, one came from a suburban clinic in and four from clinics in rural areas. Their working experience varied from two to 45 years, and all had already had experience with the detection of IPV. With this sample we were looking for a wide variety of viewpoints towards screening for violence and experience in detecting violence (28).

2.2 Procedure and Measures

A semi-structured interview with pre-prepared questions was used, although free replies were also encouraged. The sub-questions were only implemented when trying to deepen or direct the content and themes relevant to the survey (29). All the interviews were conducted during July 2014.

Before commencing the interview, the participants were informed about the purpose and methods of the research, and were offered the possibility to withdraw from the study at any time. They all agreed to participate. The interviews were conducted in a private room, and lasted between 12 and 19 minutes. The interviewing phase was concluded when the data were saturated, i.e. until new codes within the given category were no longer emerging, which was achieved with the 10th interview. In order to respect the privacy of the participating physicians their names are not disclosed in the text.

The following issues were discussed: (1) According to you, how important a health problem is IPV? (2) What has been your experience in dealing with IPV in your patients? (3) What do you think about screening as a method of detecting domestic violence? (4) What are the barriers to screening? (5) How well qualified do you feel for the detection of domestic violence?

All the audio recordings of interviews were accurately transcribed. After completion, the transcription was rechecked for accuracy. The transcripts were analysed by two independent researchers; in cases of discrepancies in the analysis, the issues were discussed until agreement was achieved.

2.3 Data Analysis

The transcripts of the interviews were analysed by qualitative content analysis and by deductive analysis, which is used when data are tested against known basic features in the new context. The categories and concepts were tested in the following steps (28):

1. Construction/forming of a matrix, which consists of several categories (the categorisation matrix);
2. Definition of the units of analysis (word, phrase, and theme);
3. Testing of the analytical matrix (by encoding the initial interviews);
4. Modification of the categorisation matrix;
5. Analysis/encoding data in the categorisation matrix;
6. Interpretation of the results.

This type of analysis is typified by a rapid reduction of the data. The categorisation matrix was formed according to data from the literature (28-37), and completed according to the results of our own original analysis. The subsequent text was analysed within the categorisation matrix.

3 RESULTS

3.1 Demographics of Participants

The sample consisted of seven female and three male family doctors, aged between 29 and 65 years; the mean age was 45.9 years. Three of the participating physicians were specialists in general medicine, four were specialists in family medicine, and there were three residents/trainees in family medicine. Five doctors came from urban clinics, one from a suburban clinic and four from clinics in rural areas.

3.2 Results of the Analysis

Data are shown separately for the results of the analysis of screening and of the active detection of IPV, according to the definition of each mode of identification of victims (19, 20).

3.2.1 Barriers to Screening for IPV

Based on the expected categories and on the initial coding, the barriers to screening for IPV were classified into three main categories, namely: barriers related to the organization of work within the health care system; barriers associated with physicians; and barriers arising from the patients. The interviewees also stated certain incentives in each of the categories. The results of the qualitative analysis of barriers to screening are shown in Table 1.

The survey identified seven themes as barriers to screening associated with physicians: three originating from the health care system, four pertaining to the doctors themselves, and a single barrier attributed to the patients by the participating doctors. The incentives for screening were presented in two themes.

Table 1. Barriers to screening for intimate partner violence.

	Barriers	Incentives
Healthcare system/ organisation of work	• lack of time • staff turnover • inadequate financing	• method of implementation and possibilities of a team approach
Doctor	• ignorance of a clear definition • poor commitment to screening • obligation to follow up • risk of deterioration of the doctor-patient relationship	• awareness of the importance of detecting violence
Patient	• insincerity	

Some actual statements of the participating doctors are presented by quoting the gender of the respective doctor (M= male, F=female) and the age of the participant in the parenthesis.

Barriers to screening: The health care system and organization of work - Lack of time: *"Yeah, with a proper introduction, the screening would be too long, therefore. And the question arises, how many times it should be repeated. Now, even if you do not ask (=the patient about violence) for one year, two years, one (=the patient) is at risk every day. Time to ask him every time (= about violence), I would not have. Should be continuously monitored (=for violence), it varies from today to tomorrow. "(F, 34)*

Barriers to screening: The health care system and organization of work - Staff turnover: *"If you are a 'new' doctor, you don`t know the patients and therefore all is wrong. Where is the just trust ... "(M, 29)*

Barriers to screening: The health care system and organization of work - Inadequate financing: *"The logistical barrier to dealing with violence is not compatible with the calculations of the health insurance: it is not possible to do(= deal with violence) in a regular clinic." (M, 55)*

Barriers to screening: Doctor - Ignorance of a clear definition of IPV: *"The starting point of screening for violence should be a good definition of the threshold of violence, which is sometimes subjective. The definition should be in terms of action. It is clear what physical violence is, but with psychological-verbal (=violence) things are more scalable."(M, 55)*

Barriers to screening: Doctor - Poor commitment to screening: *"I have never considered to ask about it on a regular basis. I think one should ask about it." (F, 45)*

Barriers to screening: Doctor - Obligation to follow up: *"To just uncover something, without trying to act, is pointless, just like diagnostics without treatment." (M, 55)*

***Barriers to screening: Doctor - Risk for deterioration of doctor-patient relationship**: "This issue (= single screening question for violence) can hurt both, those who are involved and those who are not. Those who do not have contact with this (= violence), could feel threatened, why ask about it now. They would think, why we ask, has there been perhaps some information or what is wrong now."(F, 34)*

Barriers to screening: The patient - Insincerity: *"The main obstacle to the screening question is the reliability of the data. Patients would see the screening as more negative than positive. In particular, the question is, if those exposed would even tell about the violence."(M, 55)*

Incentives: The health system / organization of work - Method of implementation and possibilities in team approach: *"We are overburdened, perhaps the screening could be included into the program of the model practices. Practice nurse has more time to create the climate, to obtain the data, which the doctor during his assembly-line-style work cannot."(M, 55).*

Incentives: Doctor - Awareness of the importance: *"Many things are important: the heart attack to survive, this (= violence) is also important. Violence affects the quality of life and is part of the treatment, which we need."(M, 65)*

3.2.2 Barriers to Active Detection of IPV Cases

After completing the analysis of the interviews, we classified the barriers to active detection of IPV, as seen by doctors, into three main categories: barriers in the healthcare system, i.e. the organization of work; barriers associated with physicians; and barriers arising from the patient. In each of the categories, the interviewees also stated individual incentives. The results of the qualitative analysis of barriers to detection are shown in Table 2.

The survey uncovered twelve main themes, which were developed using the results of the initial analysis. The doctors stated more barriers from their own viewpoint than those which they attributed to their patients, and also found more of their own incentives.

Table 2. Results of qualitative analysis: barriers to active detection of violence.

	Barriers	Incentives
Healthcare system/ organisation of work	• lack of time/ complexity • organisation and finances	• awareness of the position/ role of the family practitioner
Doctor	• cultural aspects of violence • uncertainty/ helplessness/fear • lack of competence and qualifications • impact of the disclosure on the patient-doctor relationship	• awareness of the importance of active detection of cases • positive effects of the disclosure of violence
Patient	• patient autonomy, negative - experience • passive role, tolerance, stigma, fear	• the need to trust

Some of the topics in the active detection of IPV overlapped with the themes found in barriers to screening for violence. In this category, just as in the screening category, participants cited lack of time, inadequate finance, and the risk of deterioration in the relationship with the patient as important barriers.

Other topics were given a different emphasis in screening, which is a process, as against active detection, where they were discussed in the light of further action which could be taken, triggered by the disclosure of IPV.

Barriers to active detection of IPV cases: Healthcare system/organisation of work - Lack of time/complexity: *"…sometimes, with this conveyor-belt style practice, I simply lack the time and the energy to tackle the subject of violence (M, 55 years)."*

Barriers to active detection of IPV cases: Healthcare system/organisation of work - Organization and finances: *"Physicians should be informed, not only familiar, precisely, about what could be expected within each of the services (=which helps victims of domestic violence). We are obliged by law, but we are not connected, we do not get the feedback."(F, 55)*

Barriers to active detection of IPV cases: Doctors - Cultural aspect of violence: *"I ask patients whether it's alright for them. I would like to make sure that you are OK, that you are happy. For other cultures and habits I do not know, but I just want to make sure the patient believes this situation is okay and he/she does not suffer."(F, 45)*

Barriers to active detection of IPV cases: Doctors - Uncertainty / helplessness / fear: *"The victim may be subjective, I would like to hear both sides of the story. It always takes two to quarrel, a dispute can also be provoked."(F, 55)*

Barriers to active detection of IPV cases: Doctors - Lack of competence and qualifications: *"Unimaginably, this woman has been to see me several times, and I know nothing about it (=violence). I told her directly: your problems are not caused by diseases. When I asked her about violence, it all erupted from her. Before that, I perceived this patient as -I will not say- as a hypochondriac."(F, 45)*

Barriers to active detection of IPV cases: Patient - Patient autonomy, negative experiences: *"The patient's will is different than the law. Procedures are problematic because patients have their own will. I have good experience with the services dealing with domestic violence, but only when the victim accepted the assistance."(F, 55)*

Barriers to active detection of IPV cases: Patient - Passive role, tolerance, stigma, shame: *"They are afraid they will not be able to escape, that the situation cannot be resolved, that nothing can be done. No one can help, they are powerless and trapped in it. These people probably do not have an alternative: if they could, they would probably put things in order and leave."(F, 45)*

Incentives: Doctor - Awareness of the position/role of the family practitioner: *"(She) must know that she can turn to me whenever needed. The door has to be left open, but she should not be pushed through the door. I will not say that we can solve everything, but the main thing is for them (=victims) to know where to turn."(F, 45)*

Incentives: Doctor - Awareness of the importance of active detectionof the cases: *"We (= family doctors) are the necessary starting point in the early detection of domestic violence." (F, 55)*

Incentives: Doctor - The positive effects of disclosure of violence: *"Now it is easier for her to trust me, and that makes me feel positive. Now she can come anytime, the door is always open."(F, 34 years old)*

Incentives: The patient - The need to trust: *"If one can trust the doctor, it (=the secret) will remain there and will not go anywhere. You (the victim) must have someone whom you can tell and know it will remain intimate. It helped her that I know now. We talked about the possibilities, what she could do."(F, 45)*

4 DISCUSSION

In this qualitative study the aim was to obtain a deeper insight into attitudes towards IPV detection in family physicians. The results for screening and for the active detection of IPV demonstrate some overlapping themes: lack of time, inadequate finance, endangering the doctor-patient relationship and awareness of the importance of IPV.

All participating doctors openly talked about the issue of screening and the active detection for IPV, and enabled a rich set of data. In the original analysis, there were more than 300 codes. All participating physicians, regardless of the amount of experience in family medicine, had a history of contact with this issue and also had formed a standpoint on it. Their opinions on the five previously mentioned items discussed in the interviews were well harmonized, regardless of the differences in gender, mode and amount of training, location of their practice, age and years of experience.

4.1 Family Doctors' Attitudes towards Screening for IPV

The current organization of work in family medicine clinics tends to reduce the potential for screening, due to limited time for each consultation and understaffing in this specialty (38, 39). The responses expose the fast pace of consultations (like a "conveyor belt") and lack of time to deal with patients, while still carrying a large responsibility for them (Table 1). A cross-sectional study (40) which measured workload in the clinic, carried out among 50 family doctors in Slovenia, showed that the physicians have an average of only 6.93 minutes for each patient (39). This is due to the lack of family doctors in Slovenia compared with the European average, and consequently to an excessive number of patients per doctor (41).

It therefore seems reasonable that doctors are reluctant to take on screening as an additional burden, as they are aware that it is not a common topic in a typical consultation, and stressed that such conversations demand extra time (Table 1). This standpoint was shared by all participating doctors, regardless of their demographic data, mode of training (general medicine or family medicine), years of experience and their working environment. Lo Fo Wong notes that even 10-15 minutes, which is double the average time of consultation in Slovenia, is insufficient for screening and the consequent identification of potential victims of violence, where there are no known risk factors (42). Some studies have shown the inquiry should be repeated several times for the same individuals (13, 43, 44). Such a treatment plan, to detect IPV in multiple consecutive short conversations with prior preparation, taking account of the current limitations of consultation time in Slovenia, was also proposed by one of the interviewees. In a foreign qualitative research study (42), the desire for progressive detection was also expressed from the point of view of the victims; they expected more consecutive direct questioning, in order to prepare themselves for the disclosure.

Doctors have expressed difficulties in connection with the organizational peculiarities of work in family medicine (Table 1). The lack of doctors means a high turnover, and this reduces one of the most important competencies in family medicine – continuity. Doctors in family medicine have normally known and followed up their patients and their families over a long period of time (45). Because of their position, the 'new' doctors usually feel a lower confidence level than required in order to discuss violence (46). On the other hand, experienced physicians in this research recognized that their profession was the right place to detect IPV.

One of the participating physicians expressed the fear that dealing with violence meant an expansion of the health services program in the family medicine clinic (Table1). In their research, Zink and colleagues encountered a similar barrier in family doctors considering family violence; they thought that in their work "there is no need to look for new problems" (43). Lack of resources was also one of the major barriers to screening identified in a study by Lapidus (47). The participants in our interviews expected a clear definition of violence in order to carry out screening (Table 1). While they did not have any doubts or concerns about physical violence, they found the boundaries between certain specific behaviours and psychological violence less clearly defined. Psychological violence is more common than physical violence and has serious consequences, but its definition in different environments and cultures is problematic, as researchers have found, even in large studies (4, 48-50). In the context of the detection of violence, doctors presented a somewhat more flexible stance on its definition, taking into account the ethnic and cultural background, and, in particular, the position of the victim in the family (Table 2). If certain behaviour was perceived by victims as expected, acceptable and harmless, the doctors in the study did not consider it as violence.

The concern of the participating physicians with regard to screening as an effective and reliable instrument for the detection of IPV (Table 1) is consistent with previous findings, which could not confirm evidence-based support for the benefits of screening, and which may show that screening does not meet the criteria for secondary prevention (i.e. screening must, by definition, be an intervention which improves prognosis) (51). A recently published meta-analysis of several studies showed that more victims of violence are detected by screening, but that this proportion is still low compared to the frequency of violence; likewise, no improved outcomes for the victims following the screening could be demonstrated (22). The opinion of other researchers is that screening is justified because it detects violence as a risk factor responsible for a wide range of mental and physical problems (52). However, screening for violence, unfortunately, is not a simple diagnostic test with clear interpretation (42), as in the case of most chronic diseases. The sensitivity of the screening is also questionable in terms of false-negative results, as it may occur during the period of denial, when the victim is not willing to disclose (53). In this regard, doctors were aware of their own limitations during consultation, as has been observed in several other publications (54-60).

The concern of doctors for their own safety in relation to retaliation by the perpetrator of violence was also mentioned while investigating IPV (Table 2). Doctors minding their own safety is understandable; a recent survey on violence against doctors in Slovenia showed considerable exposure on the one hand, and relatively rare or completely lacking mechanisms for protection on the other (61). This phenomenon is not specific to the Slovenian environment, as it has also been reported elsewhere (62).

Doctors highly value and protect the confidential doctor-patient relationship, as well as the privacy of their patients (Table 1, 2). While discussing violence, they have a sense of intrusion into the privacy of patients and are, therefore, reluctant to do it. They fear that, by asking about violence, they may hurt the patients’ feelings, arouse their suspicions or reduce their confidence (Table 1, 2). With these concerns, physicians demonstrate a highly ethical stance, particularly in protecting confidentiality and upholding the principle of do-no-harm to the patient (63). Similar dilemmas and obstacles to screening have also been reported by other authors (64-66). However, any harmful effects of screening have not been scientifically proven (22, 64). Doctors should have sufficient knowledge and skills for the screening, and be properly trained to respond professionally in the event of disclosure of violence (11, 67). Even the subjects in this qualitative research expressed fears within the meaning of the ‘Pandora’s Box’ phenomenon: merely asking about violence is not enough – there needs to be further action. Two recent studies, however, have found the importance of the disclosure of violence and subsequent participation in support programs: even the mere disclosure and subsequent clarification of the concept of violence helped victims to enter the 5-stage model of change (43, 44).

Although the participants of the study were not in favour of screening, they did suggest some urgent organizational conditions under which screening would be potentially feasible (Table 1).

Screening for only the most serious forms of physical violence was mentioned. It is known that different types of violence are interlinked, and therefore the victims of physical IPV are highly likely to be also exposed to mental and sexual violence (5). Screening with a single question about severe physical violence could perhaps identify high-risk victims, but the comprehensive treatment of victims would be neglected and the more frequent victims of psychological violence could be overlooked (5). The option proposed by two of the subjects in this study, of screening in the Slovenian model practices, has not been foreseen in the project program (68).

Notwithstanding the prevailing negative attitude towards screening, all the participants recognized the importance of adequate treatment of violence in a family medicine environment (Table 1, 2). They had all already been exposed to specific situations associated with IPV with their patients, had had experience of it, and been aware of the significance and frequency of domestic violence. The reluctance towards screening of the participating doctors is consistent with the results of research: screening should be implemented only to determine the frequency of violence in individual countries (1, 6, 11). It is primarily the environment of family medicine, as compared to all other environments, that allows the identification of the majority of the victims of IPV; research in family medicine practices (13, 21, 22, 64) in Australia, Ireland and the United Kingdom detected a higher incidence of IPV (between 37% and 40%) compared to studies in the general population in the same environment (an average of 30%) (4, 10, 12, 69, 70).

4.2 Family Doctors’ Attitudes towards the Detection of IPV Cases

In our study, the physicians identified several obstacles to the active detection of IPV from the point of view of the patients: the powerlessness of victims of violence; their fear; a sense of stigma or shame; tolerance of violence; and even passivity and negative experiences with the healthcare system (Table 2). These findings are confirmed by patient-oriented research: the bullying of the victim by the perpetrator or the victim’s fear of reprisal undoubtedly reduce the possibility of the victim reporting IPV (67-71). Similarly to our study, the fear of stigma and shame, which appear due to self-accusation of the victims, and sometimes the attitude of the environment (e.g.: “He’s your own choice.”) were confirmed by other researchers (13, 29, 32). Observation of the helplessness of the victims and their bad experiences with services and institutions that deal with the treatment of violence, e.g. the police and social services in our study (Table 2), are consistent with the findings of other studies, in which the victims cited pressure from family and/or community, and the hope that the violence would cease, as important barriers to disclosure (17, 37, 70).

In connection with the discovery of IPV, the family doctors in the study mentioned relief, a deepening of the relationship with the patient, a better understanding of patients and their problems, solutions to unspecified health problems and an open field of sincere communication following the disclosure by the victim of violence (Table 2); so disclosure of violence brings many positive outcomes for both doctor and patient, not just the latter. Similar positive experiences of physicians are reported by other researchers (42, 55, 56).

Notwithstanding the negative attitude towards screening, which is consistent with current guidelines (36), all the participants expressed great interest in the identification of victims of violence in those with the recognized risk factors. Motivation for the active detection of violence was also recorded in their statements on the importance of awareness of IPV and its consequences (Table 2).

4.3 Required Resources for Dealing with Patients at Risk of IPV in Family Medicine

In the interviews with the doctors, a great desire and need was expressed for specific skills for communicating with patients on this subject, both in terms of screening and in active detection of violence (Table 1, 2). In their view, IPV screening requires different skills from those needed for treating chronic diseases and other risk factors. A desire and readiness to upgrade their skills in both verbal and non-verbal communication was stressed by all participants. Published research confirms that a lack of specific skills is a common reason for non-recognition of victims of violence (16, 54). The experience of the patients shows that an empathic manner when communicating with them reduces discomfort and increases the potential of disclosure of violence, irrespective of the gender of the doctor (55, 56).

In the context of educational activities, some authors do not address the views and attitudes of doctors towards violence (19, 42). In addition, the lack of knowledge of IPV can have negative consequences on the outcomes of screening, not only for patients, but also for doctors (42, 57). The concept of “creating an appropriate atmosphere to talk about violence” appears in the literature, which reports the viewpoint of female victims to screening; as in this Slovenian survey, the participating victims in the literature confirmed that an appropriate atmosphere helped them in overcoming denial, in addition to the doctor listening to them without prejudice or value judgments, showing empathy and allowing them time for decision-making (58-60). The participants in this study spontaneously listed most of these factors (Table 1, 2). They appreciated the trust of the patients while leaving them time and space to decide what to do, and the participating doctors emphasised their impartiality. Further research in this field would be useful, in particular into the performance of different strategies for the early detection of IPV.

4.4 Limitations to the Study

The main limitation of the research is that it was carried out with only ten participating doctors, but saturation of data occurred even in this number of interviewees. Views on the barriers met by the patients could be better obtained not only indirectly from the observations of doctors, but also directly from some of the patients.

However, it was the first qualitative IPV-related study in family medicine in Slovenia, identifying the obstacles as well as the enhancingfactors in the detection of IPV cases. Our findings provided a sufficiently thorough insight into the complexity of this threatening phenomenon, and could be used as basic knowledge for professionals preparing guidelines for family medicine practitioners dealing with patients exposed to IPV.

5 CONCLUSIONS

Slovenian family doctors prefer active detection of violence to systematic screening, which is concordant with the results of other studies and international recommendations.

Considering the importance of IPV as a public health issue, it would be reasonable to try to overcome the identified system/organizational barriers, and to provide necessary resources, organizational and staffing opportunities, and appropriate education, for which the interviewees expressed a lot of interest.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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ETHICAL APPROVAL

The study was approved by the Medical Ethics Committee, consensus number 111/0409, dated 28.05.2009.

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THE OCCURRENCE OF DISEASES AND RELATED FACTORS IN A CENTER FOR ASYLUM SEEKERS IN ITALY

POJAV BOLEZNI IN Z NJIMI POVEZANIH DEJAVNIKOV V CENTRU ZA PROSILCE ZA AZIL V ITALIJI

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ABSTRACT

Keywords:
mental health, primary care, preventive medicine, depression and mood disorders, anxiety disorders, epidemiology

Introduction. Italy is the main recipient of asylum seekers in the European region, and Sicily is their first point of arrival. This geographical position creates a large job for Health Authorities to identify and deal with the health of immigrants. This study evaluates the prevalence of disease among asylum seekers, assessing which are associated factors.

Methods. A cross-sectional study was conducted to analyse demographic and clinical data in an Acceptance Centres for Asylum Seekers from February 2012 to May 2013. All variables that were found to be significant on unvariable analysis for the most frequent pathologies were included in a multivariable logistic regression model.

Results. Post-traumatic stress disorders with 17.4% and major depression with 7.3% were the most frequent diseases. The factors associated with post-traumatic stress disorders among asylum seekers were: major depression diagnosis (OR=2.91, p=0.004),Pakistan as a country of origin (OR=3.88, p<0.001), the largest number of medical visits (OR=1.02, p=0.033) and refugee status (OR=1.97, p=0.036). The variables linked with the diagnosis of major depression from the multivariable analysis were: suffering from post-traumatic stress disorders (OR=3.83, p<0.001), Pakistan as a country of origin (OR=3.45, p=0.004) and the highest number of visits to psychologist (OR=1.15, p<0.001).

Conclusions. The mental wellbeing of asylum seekers needs special attention, and interventions should be done to prevent the consolidation of psychiatric morbidity. A short psychological screening after the arrival might prove helpful here. Moreover, carefully designed longitudinal studies should be carried out when political recommendations try to change the organization of psychological and healthcare services.

IZVLEČEK

Ključne besede:
duševno zdravje, osnovno zdravstveno varstvo, preventivno zdravstvo, depresija in spremembe razpoloženja, tesnoba, epidemiologija

Uvod. *Italija je na prvem mestu med državami, ki sprejemajo prosilce za azil v evropski regiji, Sicilija pa je vstopna točka za priseljence. Ta geografski položaj prinaša veliko dela zdravstvenim organizacijam, ki morajo obravnavati zdravje priseljencev. Pričujoča študija prikazuje prevalenco bolezni in z njimi povezanih dejavnikov med prosilci za azil.*

Metode. *Izvedena je bila pregledna študija in analiza demografskih in kliničnih podatkov v sprejemnih centrih za prosilce za azil od februarja 2012 do maja 2013. Vse spremenljivke, ki so se izkazale za bistvene za univariantno analizo najpogostejših bolezni, so bile vključene v multivariantni logistično-regresijski model.*

Rezultati. *Posttravmatska stresna motnja s 17,4 % in velika depresivna motnja s 7,3 % sta najbolj pogosti bolezni. Dejavniki, povezani s posttravmatsko stresno motnjo pri prosilcih za azil, so bili: diagnoza velike depresivne motnje (OR=2,91; p=0,004), Pakistan kot država izvora (OR=3,88; p<0,001), največje število zdravstvenih pregledov (OR=1,02; p=0,033) in status begunca (OR=1,97; p=0,036). Spremenljivke, povezane z diagnozo velike depresivne motnje iz multivariantne analize, so bile: posttravmatska stresna motnja (OR=3,83; p<0,001), Pakistan kot država izvora (OR=3,45; p=0,004) in največje število obiskov psihologa (OR=1,15;p<0,001).*

Zaključki. *Duševno zdravje prosilcev za azil zahteva posebno pozornost, potrebne pa so intervencije za preprečevanje krepitve psihiatrične obolevnosti. Tu bi bilo lahko v pomoč kratko psihološko presejanje po prihodu. Potrebno bi bilo izvesti tudi natančno zasnovane longitudinalne študije, ko politična priporočila poskušajo spremeniti organizacijo psiholoških in zdravstvenih služb.*

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NIJZ Nacionalni inštitut za **javno zdravje**

1 INTRODUCTION

The migrants, especially refugees and asylum seekers, are at increased risk of several health problems and they have a rising gradual trend (1). In 2010 migrants numbered 232 million, which is equivalent to 3% of the world's population. This is an increase of 77 million in the last 20 years (2). In particular, in 2011 441,300 asylum applications were recorded in 44 developed countries, representing 73,300 claims (+20%) more than in 2010 (368,000) (3). Out of a total, the 38 countries in Europe received 327,200 claims, an increase of 19% compared to 2010.

Italy was one of the main recipients of asylum applications in the region (34,100 claims). After a soar in the number of new asylum applicants in 2008 (30,300 claims), people requesting international protection in Italy descended to a five-year low in 2010 (10,000 claims). Nevertheless, in 2011, this trend hit a peak with an increase of 240% in asylum applications registered. Tunisia became the main country of origin for asylum seekers in Italy with 3,500 claims registered (3).

Sicily, an Italian administrative region, is one of the first points of arrival of migrants in Italy. Its geographical position causes Health Authorities to have to make a major effort in short time to identify and deal swiftly with the health of the migrant population. Due to the long legal procedures, the majority of migrants live in the country for several years and their eventual acceptance rates are very low (30% in 2011) (3).

In Italy, the first contact with the health system for the migrants is a general practitioner, who acts as a "gatekeeper" by deciding whether a patient needs additional hospital care or referral to a specialist. Then migrants stay in one or more reception frameworks prepared by the Ministry of Interior: First Aid and Assistance Centers, Acceptance Centers, Acceptance Centers for Asylum Seekers (CARA), Identification and Expulsion Centers. They are held within these centers awaiting the outcome of administrative processes regarding their application to leave or remain in Italy.

Many asylum seekers are physically and psychologically traumatized by war, war-like conditions and political or ethnic oppression. Furthermore, acute and chronic healthcare problems may not only occur as the direct result of violence, but may also be due to the absence of functioning and reliable health care systems in their country of origin. This population, from other analyses is known to be vulnerable to respiratory, gastrointestinal and particularly to mental illness (4-7).

The aim of this study was to provide a basis to improve organization of social and healthcare services within the structures that temporarily host migrants in Sicily. This was reached evaluating the prevalence of disease among asylum seekers in a Sicilian CARA and assessing which factors were associated with more frequent detected diseases. In addition, this manuscript focused on a topic in a setting which the scientific literature on non-communicable diseases is lacking (8).

2 METHODS

2.1 Study Design

A cross-sectional study of asylum seekers medical records was conducted in a Sicilian CARA from February 2012 to May 2013. A CARA is structure in which asylum seekers or who elude from the border control are sent to with no identity papers. This CARA could host a maximum of 260 asylum seekers in a day.

2.2 Observed Population

A total of 598 asylum seekers stayed in the CARA from February 2012 to May 2013. The inclusion criteria for migrants in this study were:

- the status of asylum seeker;
- the duration of stay in the CARA at least 2 days.

Consequently 17 asylum seekers were excluded from the study because they stayed in the CARA for less than 2 days, with a total of 581 asylum seekers under investigation.

2.3 Data Collection Procedure

Among the staff within the CARA there were two psychologists and three physicians. The CARA had also a medical records database that allows for the register information of each asylum applicant on arrival and during the other visits. Each staff member had a personal account to collect clinical and demographic information. Each asylum seeker has been recorded at least one visit by the physician during the period of stay in the CARA. This physician was a general practitioner who might establish to request a specialized consult or a higher level of care if asylum seekers suffered from more serious diseases. Moreover a visit to a psychologist and to a physician could be requested at any time by asylum seekers during their staying in the CARA.

2.4 Variables in the Analysis

The data collected concerned clinical and demographic information. The observed outcomes were diseases which affect asylum seekers: depression (MD), post traumatic stress disorder (PTSD), hypertension, diabetes, epilepsy and tuberculosis. Each specialist diagnosed diseases according to guidelines and these variables were treated as nominal ones (9-13).

The explanatory variables were demographic and medical characteristic that could explain variability: gender, study title, religion, country of origin, legal status, comorbidity, age, length of stay in the CARA, body mass index, heart rate, number of medical and psychologist visits. The last six variables were considered as quantitative. All qualitative variables were treated just like nominal ones with the exception of study title treated as ordinal variable.

2.5 Data Analysis

The level of significance chosen for all analysis was 0.05 two-tailed. Qualitative variables were calculated in absolute and relative frequencies, while quantitative variables not normally distributed were represented as median (interquartile range, IQR). The normal distribution was assessed with the Shapiro-Wilk test. Differences in clinical and demographic characteristics were tested using Student's T-test for quantitative variables normally distributed, Wilcoxon-Mann-Whitney test on the equality medians for quantitative variables not normally distributed and X2 test for qualitative variables. It was also calculated the odds ratio (OR) and 95% confidence intervals (95% CIs). Next univariable logistic regression analysis was performed to examine the association of explanatory variables with MD and PTSD. In addition to other variables, MD and PTSD were treated as an explanatory factor (comorbidity) in the detailed analysis of the PTSD and MD respectively. All variables founded to be significant at univariable analysis with a significance level p<0.05, were included in a multivariable logistic regression model. The goodness of fit was calculated for each model and the model with the lowest log-likelihood ratio test was considered to have the best predictive ability. The adjusted OR (adj-OR) with 95% CI was also calculated for variables that were not distributed in the final model. The data analysis was performed with the software Stata/MP 11.2.

The authorization to processing data in an anonymous way and ethical approval were issued by the Prefecture, the peripheral arm of the Ministry of Interior; the prefecture managed the presence of asylum seekers in Italy.

3 RESULTS

3.1 Sample Characteristics

In this sample the male sex with 524 records (90.2%) was the prevalent one and the sample had a median age of 25 years old (IQR 9). Men asylum seekers were older (0.8 year) than women even if this difference was not statistically significant (p=0.401). The country of origin most common was Somalia (14.0%), followed by Eritrea (12.6%) and Pakistan (11.4%). Asylum seekers required a median number of 8 medical visits (IQR 14) and a median number of psychological visits of 4 (IQR 4) each one. The majority of asylum seekers have not received a response to their request for asylum 43.7%, followed by 118 asylum seekers (20.3%) who received a subsidiary permission, whilst 60 asylum seekers (10.3%) received a rejection to their request (Table 1).

Table 1. Asylum seekers characteristics.

	Total N=581		
Male [n(%)]	524 (90.2)	**Medical visits [n, median(IQR)]**	8 (2-16)
Age [years, median (IQR)]	25 (21-30)	**Psychologist visits [n, median(IQR)]**	4 (2-6)
Reported country of origin [n(%)]		**Body Mass Index [median (IQR)]**	22.2 (20.7-24.3)
Bangladesh	49 (8.5)	**Heart rate [bpm, median(IQR)]**	70 (69-72)
Eritrea	73 (12.6)	**Study title [n(%)]**	
Gambia	51 (8.9)	Unknown	189 (32.5)
Nigeria	46 (8.0)	Nothing	103 (17.7)
Pakistan	66 (11.4)	Primary school	101 (17.4)
Somalia	81 (14.0)	Secondary school	80 (13.8)
Others	211 (36.6)	High school diploma	83 (14.3)
Length of stay [days, median (IQR)]	148 (65-213)	Degree	25 (4.3)
Depression [n(%)]	46 (7.9)	**Religion [n(%)]**	
Post traumatic stress disorder [n(%)]	101 (17.4)	Muslim	353 (60.8)
Legal status [n(%)]		Catholic	42 (7.2)
Subsidiary permission	118 (20.3)	Evangelist	10 (1.7)
Humanitarian permission	76 (13.1)	Hindu	4 (0.7)
Refugee status	73 (12.6)	Orthodox	73 (12.6)
Rejected request	60 (10.3)	Protestant	10 (1.7)
Unknown	254 (43.7)	Atheist	1 (0.2)
		Unknown	88 (15.1)

3.2 Prevalence of all Observed Outcomes

PTSD is observed in 101 (17.4%) asylum seekers and it was the most frequent disease. MD reported in 46 (7.3%) asylum seekers was the second diagnosis most frequent. The diseases less common in the sample were: hypertension with 4 cases (0.7%), epilepsy and diabetes with 3 cases (0.5%) each one. No case of tuberculosis was found among asylum seekers staying in the CARA.

3.3 Analysis of PTSD

Asylum seekers who suffered from PTSD were more Pakistani (45.8%) than other (13.8%) and received more frequent refugee status (27.4%) compared to the other legal status (15.9%). Those with PTSD were more frequent affected from MD than other (52.2% vs. 14.4%) (Table 2). Asylum seekers who suffered from PTSD had a median of 7 medical visits more (p <0.001) and a median of 3 psychological visits more (p<0.001) than others (data not shown in table). In univariable analysis odds ratios indicated that asylum seekers with PTSD were more likely to have a direct association in 9 of 12 explanatory variables investigated (Table 2).

Table 2. Results of univariable logistic regression analysis of association between post traumatic stress disorder and potential explanatory factors in an Italian center for asylum seekers.

Explanatory factor		N_{tot}	N_{PTSD}/N_{cat}(%)	OR	95 % C.I. limits for OR		*p*-value
					Lower	Upper	
Gender	Females	57	9/57 (15.8%)	1.00			
	Males	524	92/524 (17.6%)	1.14	0.54	2.04	0.738
Age (years)		25		1.03	1.00	1.06	0.027
Country of origin	Other	515	71/515 (13.8%)	1.00			
	Pakistan	66	30/66 (45.4%)	5.16	2.99	8.91	<0.001
Length of stay (days)		148		1.01	1.00	1.01	0.004
Depression	No	535	77/535 (14.4%)	1.00			
	Yes	46	24/46 (52.2%)	6.49	3.47	12.14	<0.001
Medical visits		8		1.05	1.03	1.06	<0.001
Psychologist visit		4		1.10	1.06	1.15	<0.001
Legal status	Other	508	81/508 (15.9%)	1.00			
	Refugee	73	20/73 (27.4%)	1.73	1.01	3.07	0.036
Hearth rate		70		1.07	1.01	1.12	0.011
Body Mass Index		22.2		0.99	0.94	1.06	0.924
Study title	Other	478	83/478 (17.4%)	1.00			
	Nothing	103	18/103 (17.5%)	1.01	0.57	1.77	0.978
Religion	Other	228	22/228 (9.6%)	1.00			
	Muslim	353	79/353 (22.4%)	2.70	1.63	4.48	<0.001

N_{tot}=total number of observations, N_{PSTD}= number of patients with post traumatic stress disorder; N_{cat}= number of patients within the category of explanatory factor; ETC.

From multivariable analysis the factor strongly associated with PTSD was Pakistan like country of origin followed by MD diagnosis, refugee status and the largest number of medical visits (Table 3).

Table 3. Results of multivariable logistic regression analysis of association between post traumatic stress disorder and potential explanatory factors in an Italian center for asylum seekers.

Explanatory factor		OR	limits for OR		*p*-value
			Lower	Upper	
Country of origin	Other	1.00			
	Pakistan	3.88	2.03	7.38	<0.001
Number of medical visits		1.02	1.01	1.04	0.033
Depression	No	1.00			
	Yes	2.91	1.40	6.03	0.004
Refugee as a legal status	No	1.00			
	Yes	1.97	1.04	3.71	0.036

3.4 Analysis of Depression

Asylum seekers highly affected by MD originated more frequently from Pakistan (24.2%) than other nations (5.8%) and they received often refugee status (11.0%) compared to other legal status (7.5%). Those with MD were also affected by PTSD (23.8%) than other asylum seekers (8.7%) (Table 4). Furthermore asylum seekers with MD had a median length of stay 67 days longer (p=0.005) than others, a median of 12 medical visits more (p <0.001) and a median of 5 psychological visits more (p<0.001) than others (data not shown in table). In univariable analysis explanatory variables directly associated with MD were: age, Pakistan as country of origin, length of stay, PTSD, medical and psychological visits (Table 4).

Table 4. Results of univariable logistic regression analysis of association between major depression and potential explanatory factors in an Italian center for asylum seekers.

Explanatory factor		N_{tot}	N_{PTSD}/N_{cat}(%)	OR	95 % C.I. limits for OR		*p*-value
					Lower	Upper	
Gender	Females	57	5/57 (8.8%)				
	Males	524	41 (7.8%)	0.88	0.33	2.33	0.801
Age (years)		25		1.06	1.02	1.10	0.004
Country of origin	Other	515	30/515 (5.8%)	1.00			
	Pakistan	66	16/66 (24.2%)	5.31	2.70	10.46	<0.001
Length of stay (days)		148		1.01	1.00	1.01	0.009
PTSD	No	535	42/480 (8.7%)	1.00			
	Yes	46	24/101 (23.8%)	6.49	3.47	12.14	<0.001
Medical visits		8		1.05	1.03	1.07	<0.001
Psychologist visit		4		1.17	1.11	1.23	<0.001
Legal status	Other	508	38/508 (7.5%)				
	Refugee	73	8/73 (11.0%)	1.28	0.57	2.86	0.549
Hearth rate		70		1.06	0.99	1.13	0.065
Body Mass Index		22.2		1.03	0.96	1.11	0.406
Study title	Other	478	38/478 (7.9)	1.00			
	Nothing	103	8/103 (7.8)	0.97	0.44	2.16	0.950
Religion	Other	228	12/228 (5.3%)	1.00			
	Muslim	353	34/353 (9.6%)	1.92	0.97	3.79	<0.061

N_{tot}=total number of observations, N_{PSTD}= number of patients with post traumatic stress disorder; N_{cat}= number of patients within the category of explanatory factor; ETC.

Variable more strictly linked with the diagnosis of MD from the multivariable analysis was suffering from PTSD, followed by Pakistan as a country of origin and the highest number of visits to psychologist (Table 5).

Table 5. Results of multivariable logistic regression analysis of association between major depression and potential explanatory factors in an Italian center for asylum seekers.

Explanatory factor		OR	limits for OR		*p*-value
			Lower	Upper	
Country of origin	Other	1.00			
	Pakistan	3.45	1.48	8.07	0.004
Number of psychologist visits		1.15	1.08	1.22	<0.001
PTSD	No	1.00			
	Yes	2.83	1.81	8.08	<0.001

4 DISCUSSION

4.1 The Main Findings of the Study

Compared to refugees a decade ago, asylum seekers today are in more unfavourable conditions, as far as the prolonging of temporary residency with an uncertain outcome of the asylum procedure is concerned (14). In this study, the process of asylum seekers is being delayed due to nearly half of them being of unknown legal status (Table 1). The current asylum policies of Italy are comparable to those of most countries implementing mandatory detention. In these countries and in this study, psychiatric disorders are predominant (Table 1). Furthermore, asylum seekers suffering from PTSD are linked with origin from Pakistan to obtain the status of refugee and be to a greater use of medical services within the CARA (Table 3). For asylum seekers to have a case of depression is associated with origin from Pakistan and with greater use of psychological services within the CARA (Table 5).

4.2 Comparison with Other Similar Studies

The results of this study confirm earlier findings on asylum seekers that are a high-risk group with regard to mental health. Distress and psychiatric morbidity are known to be high in this population, with rates ranging from 20% to 40% for PTSD and from 30% to 70% for MD (15,16). This analysis drew on discharge records rather than on patient self-reports (like in comparable studies); the results are highly objective and reliable. This study detected small, non-significant gender differences in psychiatric disorders. This is in sharp contrast to PTSD studies in the general population, where women have a greater risk of developing PTSD than men (17). MD and PTSD appeared to be risk factors for the onset of PTSD and MD, respectively, in this study. The common occurrence of the two diseases is recurrent in migrants (18). Indeed, refugees' pre-migration onset of PTSD and MD is consistent with the assumption that refugee flee their homelands in part to reduce their risk of distress. Whilst post-migration onset is best interpreted in light of data showing that immigrants'well-being generally gets worse with increasing time in host countries (6). Although refugees arrive in host countries with a higher likelihood of exposure to war trauma, PTSD, and depression than their voluntary compatriots, over time the risk of the first onset of those problems within the population is equalized, suggesting that they may be best served by similar mental health programs (18).

In this study, PTSD and MD are associated with Pakistan as country of origin. Several studies produce evidence that it is impossible to consider "migrants" as a homogeneous group in terms of the risk for mental illness, according to Murphy's hypothesis (19, 20). In this sense, psychosocial studies should be undertaken to identify those factors which may, under given conditions, imply an increased risk of psychiatric disorders and influence seeking psychiatric care (21). A previous study reveals the importance of psychosocial factors, in addition to education and employment status factors, on the psychological distress and, consequently, on mental health among Pakistani immigrants. This could be achieved through adopting a strategy that not only deals with better education and employment status but also with providing opportunities to bring them in contact with mainstream local society. In this way, this community will find a way to reduce the burden of decreased social support, or their distress level, by interacting and affiliating with the local society. Indeed, it has been reported that frequent interactions between immigrants and the hosting society has a positive impact on the mental health of immigrants, and vice versa (22).

In this study, PTSD was also associated with a major use of medical services in asylum seekers. This is in accordance with another study showing that asylum seekers had, on average, more than twice as many appointments with a doctor than a resident population (23). Furthermore, the annual healthcare cost increased with the number of psychiatric diagnoses, because asylum seekers with a psychiatric disorder reported significantly more appointments than those without. This also suggests that suffering from a mental disorder may increase the risk of comorbidity and healthcare costs (24). In fact, there was an increase in the annual cost incurred in the medical treatment of asylum seekers. This number was almost 1.8 times that of the comparable resident population (23). This may reflect the general stress that asylum seekers are facing while waiting for their destiny to unfold.

Research in community samples has shown that both pre- and post-migration adversities have a strong impact on mental health of asylum seekers (25). In particular, legal status, as demonstrated in this study, with refugee status, may play a crucial role in the lives of forced migrants, as it determines the presence of many other resettlement stressors (26). Indeed, unlike refugees, asylum seekers are threatened with repatriation on a daily basis, have no legal rights in a host country, are socially and economically marginalized, are forced to live in collective reception centres and have no rights to reunite with family members left behind. When asylum seekers obtain a refugee status, they may be unaware of the post-migratory stressors that they will face in the future, while trying to rebuild existence in a host society. In both cases, psychiatric care should be provided to asylum seekers suffering from PTSD to ensure complete integration into local society.

Furthermore, an independent factor associated with MD among asylum seekers is the number of visits to a psychologist. There are two reasons for this:

- With regards to asylum seekers, traditional medical notions of mental health were dissonant with individuals' self-concepts and culturally unacceptable, so they preferred psychological treatment.
- Qualified psychotherapy in the asylum seekers' languages is a service often not available, reducing the efficacy of psychotherapy treatment system and requiring a greater number of sessions to achieve the goal (21, 25).

In those cases, different cultural conceptions should lead to a greater collaboration between a psychologist and physician, in order to invite asylum seekers, often availing of the aid of the psychologist, to undergo a medical examination in order to diagnose a more serious underlying psychiatric illness early enough.

4.3 Limitations and Strengths of the Study

The main limitation of the study was its focus on one single centre. The lack of studies in this setting justifies the realization of the work in only one CARA. Furthermore, this study was based on a retrospective evaluation, even if the use of CARA medical records reduced the possibility of bias.

The main strength of the study was the fulfilment of the study in a setting where asylum seekers stayed after their arrival for a period of time that could predispose to disease closely linked to the organization of services for migrants.

4.4 Implications of the Study Results for Public Health in Italy and EU

In most countries, asylum seekers are not screened for mental health disorders at any point during the asylum procedure. Consequently, it is not surprising that recent findings on asylum seekers state that this population receives very little specific psychiatric treatment (27). Since the majority of the participants in our study, regardless of the length of their stay, were found to have symptoms of MD and/or PTSD, it is recommended that systematic screenings about depressive and anxious symptoms in asylum centres should be introduced as a standardized routine. A recommended supplementary political initiative would be to introduce a time limit for the stay at any asylum centre, because post-migration environment has considerable influence on mental health, regardless of prior traumatic exposures. Indeed, the level of affective social support in exile is an important determinant of the severity of disorders.

4.5 Suggestions on Future Research in the Field

The findings in the study support anecdotal observations of other researchers, and highlight the concerns raised by health professionals about the adverse effects of detention on asylum seekers (28). Qualitative studies have suggested that psychological factors influencing mental health of detainees include feelings of hopelessness and a sense of injustice (24). Therefore, both the psychological impact of detention as well as factors relating to the detention environment may adversely affect mental health. Psychiatric disorders due to traumatic events experienced pre- and peri-migration strongly influence mental health after the arrival in the host country (26, 29). Although improvements in symptoms subsequent to release have been reported, and longer periods of detention were still associated with poorer mental health outcomes in 3 years following the release, few studies have investigated this issue.

5 CONCLUSIONS

The results of this study are in agreement with other studies suggesting that the mental wellbeing of asylum seekers needs special attention, and that interventions should be developed to prevent the consolidation of psychiatric morbidity. A short psychological screening after arrival might prove helpful here. Moreover, carefully designed longitudinal studies with unselected populations of asylum seekers should be carried out along with political recommendations to change the organization of psychological and healthcare services.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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ETHICAL APPROVAL

The authorization to process data in an anonymous way and ethical approval were issued by the Prefecture, which was the peripheral arm of the Ministry of the Interior that managed the presence of asylum seekers in Italy.

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CONTINUED SMOKING IN LUNG TRANSPLANT PATIENTS: A CROSS SECTIONAL SURVEY

NADALJNJE KAJENJE PRI PACIENTIH PO PRESADITVI PLJUČ: PRESEČNA ŠTUDIJA

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ABSTRACT

Keywords: smoking, transplantation, lung

Introduction. Smoking is associated with a higher incidence of post-lung transplantation complications and mortality. Prior to inclusion on the lung transplant waiting list in the Czech Republic, patients are supposed to be tobacco free for at least 6 months. Our aim was to determine the prevalence of smoking, validated by urinary cotinine, among patients post lung transplantation and prior to inclusion on the transplant waiting list.

Methods. Between 2009 and 2012, we conducted a cross-sectional survey of urinary cotinine to assess tobacco exposure in 203 patients in the Lung Transplant Program in the Czech Republic. We measured urinary cotinine in 163 patients prior to inclusion on the transplantation waiting list, and 53 patients post bilateral lung transplantation.

Results.15.1% (95% CI 0.078 to 0.269) of all lung transplant recipients had urinary cotinine levels corresponding to active smoking; and a further 3.8% (95% CI 0.007 to 0.116) had borderline results. Compared to patients with other diagnoses, patients with COPD were 35 times more likely to resume smoking post- transplantation (95% CI 1.92 to 637.37, p-value 0.016). All patients who tested positive for urinary cotinine levels were offered smoking cessation support. Only one Tx patient sought treatment for tobacco dependence, but was unsuccessful.

Conclusion. Smoking resumption may be an underrecognized risk for lung transplantation recipients, particularly among patients with chronic obstructive pulmonary disease. More rigorous screening, as well as support and treatment to stop smoking among these patients are needed.

IZVLEČEK

Ključne besede: *kajenje, transplantacija, pljuča*

Uvod. *Kajenje po presaditvi pljuč je povezano z višjo incidenco komplikacij in stopnjo umrljivosti. Pacienti pred vključitvijo na čakalno listo za presaditev pljuč v Češki republiki ne smejo kaditi vsaj 6 mesecev. Naš cilj je določiti prevalenco kajenja, potrjeno s stopnjo kotinina v urinu, pri pacientih po presaditvi pljuč in pred vključitvijo na čakalno listo za presaditev.*

Metode. *Med 2009 in 2012 smo izvedli presečno študijo o vsebnosti kotinina v urinu, da bi za 203 paciente, vključene v program za presaditev pljuč v Češki republiki, ocenili izpostavljenost tobaku. Vsebnost kotinina smo izmerili pri 163 pacientih pred vključitvijo na čakalno listo za presaditev in pri 53 pacientih za obojestransko presaditev pljuč.*

Rezultati. *15,1% (95 Cl 0,078 do 0,269) vseh pacientov za presaditev pljuč je imelo stopnjo kotinina v urinu, ki je kazala na aktivno kajenje; nadaljnjih 3,8% (95% Cl 0,007 do 0,116) pa je beležilo mejne vrednosti. V primerjavi s pacienti z drugimi diagnozami imajo pacienti s kroničnimi obstruktivnimi pljučnimi boleznimi 35-krat večjo verjetnost, da bodo nadaljevali s kajenjem po presaditvi (95% Cl 1,92 do 637,37, p-vrednost 0,016). Vsem pacientom, ki so imeli pozitivne stopnje vsebnosti kotinina v urinu, je bila ponujena pomoč za opustitev kajenja. Samo en pacient je obiskoval zdravljenje od odvisnosti od tobaka, a je bil neuspešen.*

Zaključek. *Nadaljevanje s kajenjem je morda premalo poudarjeno kot tveganje za paciente po presaditvi pljuč, še posebej med pacienti s kronično obstruktivno pljučno boleznijo. Potrebno je bolj temeljito presejanje, kot tudi podpora in zdravljenje za opustitev kajenja pri teh pacientih.*

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1 INTRODUCTION

Cigarette smoking is the single greatest modifiable risk factor for death and illness due to lung disease (1). The benefits of smoking cessation are well established. Despite advances in medical therapy, lung transplantation (Tx) remains the best treatment option for patients with end-stage lung disease. The demand for lung transplantation greatly exceeds availability, yet developing rigorous selection criteria and methods to identify suitable transplant recipients continues to present unique challenges.

Patients who actively abuse drugs, alcohol or use tobacco products are routinely excluded from Tx waiting lists (WL), until they have been abstinent for at least 6 months. Among patients with alcoholic liver disease, many programs require a minimum of 6 months of abstinence from alcohol before placement on the transplant waiting list (2). Similar to alcohol dependence, tobacco dependence is a chronic disease characterized by relapse and remission (3). Pharmacological treatment combined with intensive counseling has been shown to improve smoking cessation rates (4-6). While the risk of smoking on post lung Tx outcomes have not yet been adequately described (7), evidence in liver, heart and renal Tx patients suggest that smoking is associated with higher incidence of post-Tx complications and mortality (8-13). Despite efficacy of current cessation therapies, compliance among transplant recipients is often poor, with 10-40% returning to smoking post- Tx (7). Few centres actively screen patients for tobacco exposure or offer cessation support to patients, particularly post Tx (8). Many centres rely on self-reported smoking status, which has previously been shown to be unreliable. (13-15).

Despite the severity of their illness and the knowledge that quitting would have important long-term benefits, many patients continued to smoke (15-17). This may not be due to the lack of motivation to stop smoking, but rather a matter of dependence for these patients (18). Furthermore, despite lung Tx candidates' reliable self-reported disclosure of active smoking, it is unlikely that their survival may depend on inclusion on the Tx WL. Due to the limited number of suitable donors and the high demand for Tx, it is important that centres are able to detect patients who deceptively report smoking behaviour in order to select patients who will have the best outcomes long term. The aim of this study was to determine the prevalence of smoking among patients post lung Tx, as well as prior to inclusion on the Tx WL, and to offer treatment of tobacco dependence to smokers. The only lung Tx center in the Czech Republic is located at the University Hospital in Motol. The centre has performed about 20 lung Tx per year since 1997. To date, physicians in the Czech Republic have relied solely on self-reported smoking status. This study is the first to measure urinary cotinine levels prior to inclusion on the Tx-WL and post lung-Tx among patients in the Czech Republic.

2 METHODS

Between January 2009 and April 2012, we conducted a cross sectional survey of urinary cotinine levels to assess tobacco smoke exposure in 203 patients in the Lung Transplant Program. The purpose was to biochemically validate self-reported smoking status in these patients and determine if ongoing screening might be necessary. All patients had been diagnosed with end-stage lung disease and were cared for by the Department of Pneumology, 2nd Faculty of Medicine, Charles University in Prague, and the University Hospital in Motol, Czech Republic.

Urine samples were obtained from patients at routine visits. 163 patients were tested prior to inclusion on the lung transplant WL. 53 patients were tested post-Tx as bi-lateral lung recipients cared for by Lung Transplant Centre, 3rd Department of Surgery, 1st Faculty of Medicine, Charles University in Prague, and Motol University Hospital, Czech Republic. 13 patients were tested both prior to inclusion on the WL and post-Tx.

Prior to inclusion on the Tx-WL, patients had to meet the following criteria: the terminal state of pulmonary disease with expectancy survival of 12-18 months; the dependence of oxygen inhalation from oxygenator; and exhaustion of all other conservative treatment options. Patients had to meet standard criteria for specific diagnoses and avoid all absolute contraindications, including: malignant tumor, progressive neuromuscular disease, severe systemic disease or infection (HIV, hepatitis B or C), multi organ failure, ideal body weight < 70% or > 130%, long term corticoids treatment > 20mg Prednisone/ day, smoking or drug use during last six months, acute infection, psychosocial instability, or diabetes mellitus with organ complications. Other relative contraindications included: age > 65, the need for invasive ventilation, cardiac disease, or renal disease with creatinine clearance < 50mg/ml/min. Prior to inclusion on the WL, all patients in our sample met the inclusion criteria, but only had to prove they had been smoke-free during the last 6 months. All patients were advised to avoid active and passive smoking. This was validated by a negative urinary cotinine result, which was an obligatory parameter for the inclusion on the transplant WL. Among patients who had a positive or borderline result, passive smoking was discussed, and they were tested again at subsequent visits. All patients were asked about the use of nicotine replacement therapy or nicotine in other forms (none reported). Two patients reported using electronic cigarettes.

Between January 2009 and April 2012, all lung Tx recipients and patients prior to inclusion on the Tx-WL were eligible to be included in the study. All post-Tx patients were tested for urinary cotinine as a part of annual Tx follow up. The data including demographic characteristics and diagnosis was obtained from patients' charts (see Table 1). This study was approved by the ethics committee at University Hospital in Motol, Czech Republic.

Urinary cotinine (COT) was measured as a marker of smoking. Urinary cotinine levels (COT) were assessed by semiquantitatively urine enzyme immunoassay (DRI® Cotinine Assay, Microgenics Corporation, Fremont, CA, USA) (18, 19). Based on urinary cotinine levels, patients were categorized as positive (≥ 500 ng/ml), negative (< 50 ng/ml), or borderline (50-499 ng/ml), according to their level of tobacco exposure. In the case of a positive or borderline result, the measure was confirmed by LC-MS/MS (Applied Biosystems, 3200 Q Trap®, Singapore, Singapore) (19-24). Patients with a borderline or positive result were tested again at subsequent visits. Previously established urinary cotinine cut-off points were used to categorize patients as negative, borderline or positive for tobacco smoke expose (24). These cutoffs were established by Zielińska-Danch et al. (2007) to distinguish non-smokers, passive and active smokers (24). A brief cessation intervention (up to 10 minutes) was conducted with all smokers, as well as the recommendation to visit the Centre for Tobacco-Dependence.

Statistical analyses were performed using MedCalc for Windows, version 12.4.0 (MedCalc Software, Mariakerke, Belgium). For post-Tx patients and patients prior to inclusion on the WL, means and standard deviations were calculated for continuous variables, whilst frequencies and percentages were calculated for the categorical variables.

3 RESULTS

The majority of patients in both observed groups suffered from chronic obstructive pulmonary disease (COPD) or idiopathic pulmonary fibrosis. Patients with Cystic Fibrosis were on average 25.6 years younger than patients with other diagnoses (Table 1).

Table 1. Demographic characteristics of lung transplant recipients' post-transplantation and prior to the inclusion on the transplant waiting list in the Czech Republic 2009-2012.

Characteristics	Pre-WL (N=163)	Post-Tx (N=53)
Gender (% male)	67%	62%
Age (years) (mean ± SD)		
CF group	30.66 ± 10.90	28.68 ± 8.81
Non-CF group	56.28 ± 8.69	54.38 ± 8.88
Medical Diagnosis (%)		
COPD group	69 (42.3%)	26 (49.1%)
Non-COPD group	94 (57.7%)	27 (50.9%)

CF; Cystic Fibrosis; Pre-WL; pre-wait list; Post-Tx; post-transplant; COPD; Chronic Obstructive Pulmonary Disease

Among patients prior to the inclusion on the Tx waiting list, 4.9% (8/163) had at least one positive urinary cotinine test corresponding to active smoking (Table 2). Two patients reported using electronic cigarettes. Another 6.1% of patients (10/163) had borderline results, and the test was repeated. In the case of positive or repeated borderline tests, patients were not included to the WL until they had been smoke-free (negative test for urinary cotinine) for at least 6 months. Prior to inclusion on the Tx-WL, all patients were tested for cotinine in urine.

The prevalence of positive urinary cotinine among patients post-Tx was 15.1% (8/53). An additional 3.8% of post-Tx patients (2/53) had borderline results. One year post-Tx, 80% of all patients were tested for urinary cotinine during the observed period at a median of 1.4 (0.95 – 2.64) years. There was no known selection bias.

Table 2. Urinary cotinine concentrations of lung transplant (Tx) patients post-Tx and prior to the inclusion on the waiting list in the Czech Republic 2009-2012. 80% of all patients one year post-Tx were tested in the observed period.

Urinary cotinine concentrations (ng/ml)	Pre-WL (N=163)	Post-Tx (N=53)
Negative (< 50 ng/ml)	89.0% (145/163) 95% CI 0.821 to 0.921	81.1% (43/53) 95% CI 0.685 to 0.893
Borderline (50 ≤ X < 500 ng/ml)	6.1% (10/163) 95% CI 0.033 to 0.108	3.8% (2/53) 95% CI 0.007 to 0.116
Positive (≥ 500 ng/ml)	4.9% (8/163) 95% CI 0.025 to 0.094	15.1% (8/53) 95% CI 0.078 to 0.269

Pre-WL; pre-wait list; Post-Tx; post-transplant

Regarding patients' positive and borderline urinary cotinine levels, corresponding to active smoking, the prevalence of cotinine was consistently higher among patients with COPD at both time points, compared to patients with other diagnoses (Table 3). All patients who tested positive for urinary cotinine levels were offered smoking cessation support, but only one Tx patient sought treatment for tobacco dependence at the Centre for Tobacco Dependent. That patient did not quit smoking.

Table 3. The comparison of urinary cotinine levels among patients with COPD & Emphysema and patients with other diagnoses post-lung Tx and prior to inclusion on the Tx waiting list.

Urinary cotinine levels	COPD-group (n= 94)	Non-COPD group (n=122)
Pre-WL		
Negative (< 50 ng/ml)	81.2% (56/69)	94.7% (89/94)
Positive and Borderline (≥ 50 ng/ml)	18.8% (13/69)	5.3% (5/94)
Odds ratio	4.13	
95% CI	1.40 to 12.22	
P-value	0.010	
Post-Tx		
Negative (< 50 ng/ml)	61.5% (16/26)	100% (27/27)
Positive and Borderline (≥ 50 ng/ml)	38.5% (10/26)	0% (0/27)
Odds ratio	35.00	
95% CI	1.92 to 637.37	
P-value	0.016	

COPD; Chronic Obstructive Pulmonary Disease, Post-Tx; post-transplant, Pre-WL; pre-wait list

Post-Tx, the prevalence of smoking resumption was 15% (8/53), based on positive urinary cotinine levels. The highest prevalence post-Tx was among patients with COPD, with 38.5% (10/26) having positive or borderline urinary cotinine levels corresponding with active smoking. All patients who tested positive for urinary cotinine levels were offered smoking cessation support.

The odds of smoking resumption was not different for men or women. There was a trend towards women tending to be more likely to have a positive or borderline urinary cotinine result prior to the inclusion on the Tx WL, but the difference was not significant.

The odds of smoking resumption were higher among patients with COPD, compared to patients with other diagnoses, at both time points. Prior to inclusion on the WL, the odds of smoking resumption was 4.13 times higher among patients with COPD (Table 3), and 35 times higher post-Tx, compared to patients with other diagnoses.

4 DISCUSSION

Our most remarkable finding was the high prevalence of smoking resumption post-Tx, particularly among patients with COPD. Despite the fragility of their condition, 15% of all tested lung Tx recipients had urinary cotinine levels corresponding to active smoking; a further 3.8% had borderline results. Compared to patients with other diagnoses, patients with COPD were 35 times more likely to resume smoking post-Tx.

Our findings are similar to those of Vos et al. who found that 11% of lung Tx recipients self-reported smoking resumption post transplantation (8). Similarly, the prevalence was higher (23%) among patients with emphysema due to COPD (8). Risk factors, including shorter cessation period prior to transplantation, lower socioeconomic status, exposure to second-hand smoke, emphysema, and death of a spouse were all associated with a higher likelihood of smoking resumption post-Tx (8). In a group of 331 lung Tx patients, Ruttens et al. found that the prevalence of post-Tx smoking was 12%, and they identified peer group smoking as an important risk factor for smoking resumption (25).

Over a period of 13 years, Botha et al. covertly assessed smoking habits among cardiac transplant patients. They found that 27% tested positive for urinary cotinine levels corresponding to active smoking at least once post transplant; 15% tested positive repeatedly (12). Post cardiac transplantation, smoking shortened median survival and was the most significant determinant of overall mortality (12). Among liver transplant recipients, Lee et al. found that 12% self-reported smoking resumption post surgery (27). Bright et al. similarly found that 17% of liver transplant recipients' self-reported ongoing tobacco use (28). They also found that self-reported smoking behaviour was not the most reliable measure, as 11% of liver transplant recipients who denied tobacco use, had serum cotinine levels that corresponded to active smoking (28). Among renal transplant recipients, Nguyen et al. found that 34% of patients with serum cotinine levels corresponding to active smoking, claimed to be non-smokers (13).

Ensuring that candidates are abstinent prior to transplantation is important, but this is only half of the equation. Few centres actively screen patients for tobacco exposure or offer cessation support to patients, particularly post transplantation (8). Until 2008, the Pneumology Clinic and the Lung Transplant Centre in Prague relied solely on patients' self-reported smoking status. No further validation was deemed necessary, as those patients were considered to be too ill to continue smoking. We found that 4.9% of transplant candidates prior to inclusion on the WL tested positive for urinary cotinine levels corresponding to active smoking; a further 6.1% had borderline results. Those findings clearly speak to the degree of nicotine dependence among some patients, the need for active screening, and the importance of offering an ongoing smoking cessation support to patients both pre- and post-Tx.

Despite the fact that patient compliance with cessation measures is often poor, this problem may be perpetuated by a number of factors. Beyond self-reported smoking status, few centers actively screen for tobacco use, or collect a comprehensive smoking history on their patients. Factors, such as the duration of abstinence period, quit attempts, the age of initiation, demographics, behavioural and psycho- sociological factors have all been shown to influence cessation (29, 30). The implementation of a more rigorous screening program will help centres identify patients who may benefit from an ongoing cessation support, and those patients who may be the most promising candidates for Tx.

To date, pharmacological treatment for nicotine withdrawal symptoms combined with intensive counseling have been shown to improve quit rates (4-6). Our findings underscore the need for physicians to proactively address smoking behaviour and screen patients for smoking at each visit. Unfortunately, many physicians are ill prepared to talk to their patients about smoking and, therefore, do not intervene (31). While physicians need support, information and training to effectively intervene, there is also the need for a reliable system of tobacco treatment centres, where patients can be referred to in order to receive the specialized cessation support they need.

Limitations of the current study include: a small sample size (dictated by the number of lung Tx in the Czech Republic, which is around 20 per year) and the availability of sociodemographic characteristic (e.g. socioeconomic status, marital status, stress/ anxiety, depression, etc.), as well as more detailed information about patients' smoking histories (e.g. quit attempts, the duration of abstinence, the age of initiation, smoking frequency, the degree of nicotine dependence, etc.). Without proper screen protocols in place, the medical staff cannot proactively identify patients who may have relapsed, or refer them to appropriate cessation supports. Another limitation is that only 80% of all patients were tested one year post-TX in the observed period. Despite results of a pilot study that showed the importance of an ongoing screening, testing may not have been perceived as a priority by staff, and, in some cases, samples were never collected. In some cases, patients did not show up for follow-up visits, or there were issues relating to handling and processing samples.

All biochemical tests can trigger false results. In the case of urinary cotinine, the use of nicotine replacement therapy or ingestion of nicotine in any form will result in a positive test, even though the patient may have quit smoking. In the case of a false positive result, the patient should be questioned about any tobacco smoke exposure in more detail, and another test should be conducted at a subsequent visit. All patients in the study were asked about the use of nicotine replacement therapy or the use of nicotine in any form; none was reported. Two patients reported using electronic cigarettes. The biological cutoffs used included a range that would account for even higher levels of exposure to environmental tobacco smoke, so there is little likelihood of a false positive result due to passive smoking. A false negative result is also possible in the case where enough time has passed for cotinine to be eliminated from the patient's system prior to the test, but this result is not likely in heavy smokers.

Despite the fragility of their condition, smoking continues to be an issue for many patients with end stage lung disease. The prevalence of smoking among patients post lung Tx, as well as prior to the inclusion on the Tx-WL, provides evidence that an ongoing screening is necessary to detect smoking resumption. The implementation of routine screening protocols may help centers identify those candidates who are likely to have the best outcomes post transplantation.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist. There was no financial relationship with any organization that might have an interest in the submitted work, or other relationship or activity that could appear to have influenced the submitted work. Authors do not have any financial conflict of interest arising from involvement with organisations that seek to provide help with, or promote, recovery from addiction.

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ETHICAL APPROVAL

The study was approved by the ethics committee at the University Hospital in Motol, Czech Republic (Reference No.: EK – 735/13).

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THE DRINKING HABITS OF USERS OF AN ALCOHOL DRINKING SCREENING WEBSITE IN SLOVENIA

PIVSKE NAVADE UPORABNIKOV SPLETNE STRANI, UGOTOVLJENE Z VPRAŠALNIKOM O PITJU ALKOHOLA V SLOVENIJI

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ABSTRACT

Keywords:
websites, anonymous AUDIT questionnaires, personalized feedbacks

Background. Alcohol consumption in Slovenia is one of the highest in Europe. In Slovenia there were a few epidemiological studies on drinking habits among adult population, but none of them has used the AUDIT questionnaire or the Internet for research.

Objective. The aim of this study was to analyse the drinking habits of the visitors of our website www.nalijem.si, which included an anonymous questionnaire for self-assessment of alcohol drinking.

Methods. A cross sectional survey was conducted between January 2010 and December 2013. The front page of our website included an invitation to fill in the anonymous web-based questionnaire; a part of it was the AUDIT 10 questionnaire. Everyone who filled in the questionnaire completely received an individualized feedback on his drinking.

Results. 54.020 persons visited our website, 15.817 (29.3%) of them started to fill in the questionnaire, 12.800 (80.9%) filled it in completely. In the analysis, 9.087 (71.0%) persons were included who completed the questionnaire for themselves. There were 37.1% (N=3.373) women and 62.9% (N=5.714) men. The average age was 33 years, the majority was employed (59.7%, N=5.222). The minority drank alcohol 2-4 times per month (32.8%, N=2.977) and most of them (64.5%, N=5.869) drank more than 3 units of alcohol per one occasion on a typical day. The average AUDIT 10 score was 11.7 for men, 8.1 for women.

Conclusions. A large percentage of participants were identified as hazardous and harmful drinkers, which should be a matter of serious concern.

IZVLEČEK

Ključne besede:
spletni anonimni vprašalniki AUDIT, individualna povratna sporočila

Izhodišče. *Poraba alkohola je v Sloveniji med največjimi v Evropi. V Sloveniji je malo epidemioloških raziskav o pitju alkohola med odraslo populacijo, nobena od njih pa ni uporabila vprašalnika AUDIT ali bila opravljena po internetu.*

Namen. *Namen naše raziskave je bil ugotoviti pivske navade obiskovalcev naše spletne strani www.nalijem.si, ki vključuje tudi anonimni vprašalnik za samooceno pitja alkohola in individualizirano spletno povratno sporočilo o pitju obiskovalca.*

Metode. *Pregledna presečna raziskava je potekala od januarja 2010 do decembra 2013. Na prvi strani naše spletne strani je bilo povabilo za izpolnjevanje anonimnega spletnega vprašalnika o pitju alkohola, katerega del je bil vprašalnik AUDIT. Vsak obiskovalec, ki je v celoti izpolnil vprašalnik, je prejel individualizirano povratno sporočilo o svojem pitju.*

Rezultati. *Našo internetno stran je obiskalo 54.020 obiskovalcev, 15.817 (29,3%) se jih je odločilo reševati spletni vprašalnik, 12.800 (80,9%) obiskovalcev je rešilo celotni vprašalnik. V analizo je bilo vključenih 9.087 (71,0%) preiskovancev, ki so rešili vprašalnik v celoti in za sebe. Bilo je 37,1% (N=3,373) žensk in 62,9% (N=5,714) moških. Povprečna starost je bila 33 let, večina obiskovalcev je bila zaposlena (59,7%, N=5,222). Večina je pila alkoholne pijače 2- do 4-krat na mesec (32,8%, N=2,977), 64,5% (N=5,869) preiskovancev je pilo 3 ali več meric alkohola ob eni priložnosti, kadar so pili. Povprečni seštevek AUDIT je bil 11,7 za moške in 8,1 za ženske.*

Zaključek. *Velik delež obiskovalcev smo identificirali kot tvegane in škodljive pivce alkohola, kar je zaskrbljujoče.*

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1 INTRODUCTION

Alcohol is the second leading risk factor for diseases and premature death in Europe and it is related to more than 60 different diseases and injuries (1-3). It is also responsible for social, mental and emotional damage in the population, including accidents, crime and domestic violence, all of which lead to very high social costs (4). The registered yearly alcohol consumption in Slovenia is from 10.3 to 13.5 litres of pure alcohol per person aged over 15 years or more; in addition, there is 5-7 litres of unregistered consumption, which is 2.5 times more than the world's average (2, 5).

Preventive activities addressing the hazardous and harmful drinking should be routinely performed in primary health care; however, they are not frequent: doctors and nurses often avoid them because of a lack of time and training, the fear of worsening the doctor - patient relationship, and the belief that people are not susceptible to brief interventions (6). Although a large percentage of family doctors try to implement the screening for alcohol consumption into their daily practice, the actual results of screening are low (7). Patients themselves say that their physicians rarely ask them about alcohol drinking, even if it is for the people who drink hazardously or harmfully, or are addicted to alcohol (8-10). The fact that the majority of hazardous and harmful drinkers are not recognized by their physicians (11) shows the necessity of different approaches to their identification, and one of them can be the employment of the Internet.

In Slovenia, there were a few epidemiological studies on drinking habits among adult population between 2000 and 2010. The Countrywide Integrated Non-communicable Diseases Intervention – CINDI and European Health Interview Survey - EHIS showed that the number of abstainers was increasing and the number of risky drinkers was decreasing. The number of less risky drinkers was stabile (12, 13).

Website questionnaires have many potential advantages over questionnaires in paper form: they are accessible free of charge, 24 hours a day, from home or another location, are not locally dependent, they provide anonymity and access control, immediate feedback to users, automatic data recording with fewer transcription errors, interactive learning, quick data analysis and low long-term costs (14-16). The most apparent disadvantage of web-based questionnaires is limited access to a computer or World-Wide-Web, which appears to be a problem in lower social classes. According to research of MOSS (measuring thevisits ofwebsites), the Internet was used by 70% of Slovenian population (aged 10-74) in the first four months of the year 2012 (17). 49% of Slovenian web users were interested in information related to health. The majority of them were aged between 25 and 44 years (48%) and they were mostly women (58%).

Studies in different countries have shown that an anonymous survey and the provision of appropriate information through the Internet was more acceptable to many hazardous and harmful drinkers of alcohol than traditional ways of monitoring and providing information, and that they could even be useful for the improvement of their health (18, 19). Young people, who are, according to many studies, at higher risk of alcohol abuse (20-22), prefer to use new communication technologies to traditional methods of health promotion (23). Through an interactive website it was possible to reach groups of people who avoided or did not need consultations with their doctors. Although a web-based delivery of information was not as effective as a personal consultation with a doctor, those who drank hazardously or harmfully often did not come to the doctor or did not talk about it with him or her anyway (24, 25).

The aim of our study was to analyse drinking habits of the visitors of an interactive website, which in addition to informative, educational and counselling content on alcohol issues includes also a questionnaire for self-assessment of alcohol drinking.

2 PATIENTS AND METHODS

A cross sectional survey was conducted between January 2010 and December 2013. On a free website www.nalijem.si, an innovative questionnaire for self-assessment of alcohol (Supplementary files) consumption was installed. The questionnaire was designed by Marko Kolšek (Slovenia) in collaboration with Kypros Kypri (Australia) and John A. Cunningham (Canada), based on experiences of the authors of the website www.CheckYourDrinking.net and experiences partly described by Hallett et al. (26). The questionnaire was partly translated, partly modified and some new questions were added to it. It contained demographic data (gender, age, weight, education, and marital status), questions about drinking habits, the experience and consequences of drinking; altogether, there were 28 questions. The front page of our website included an invitation to fill in the anonymous questionnaire for self-assessment of alcohol drinking. Everyone who filled in the questionnaire completely received an individualized feedback with the AUDIT score and recommendations about their drinking according to their answers. Recommendations were different for hazardous and harmful drinkers, or for a person who could be addicted (e.g. explanation of low risk drinking limits, advice to cut down drinking, advice to read other topics at our website, to read a self-help booklet to cut down, advice to talk with their doctors, advice to seek help, etc.). The information about the website was spread by means of mass media, several websites, and some public events and exhibitions.

As the screening method for identification of hazardous or harmful drinking, the AUDIT questionnaire (Alcohol Use Disorder Identification Test) was used, which contains 10 questions and is considered as the gold standard questionnaire to screen for hazardous, harmful drinking and alcohol addiction (27). It has been developed by the World Health Organization (WHO) for the primary health care. Drinkers were classified according to the recommendations explained in the original WHO publication: AUDIT score 1-7 = low risk drinker, 8-15 = hazardous drinker, 16-19 = harmful drinker, 20 and over = addiction.

In this period 54.020 persons visited our website and 15.817 (29.3%) of them started to fill in the questionnaire. 12.800 (23.7%) visitors filled it in completely. 9.087 (71.0%) respondents aged between 10 and 99 years, who filled in all the questions and answered the questionnaire for themselves, were analysed, because other 3.813 responders indicated that they had completed the questionnaire for somebody else or just out of curiosity.

The data were statistically analysed using the SPSS 21.0 package (SPSS Inc., Chicago, IL). We calculated the descriptive data. In the bivariate analysis, we used the independent t-test to determine the differences between the means of two interval variables; Pearson Chi-Square test was used to determine the differences between nominal variables. In the analysis pertaining to sex of the participants and the AUDIT score, their age and the AUDIT score and their level of education and the AUDIT score, we used the ANOVA test to determine if a statistically significant relationship existed between particular demographic characteristics and the likelihood of AUDIT score. Tests were performed at the significance level of $p<0.05$.

The study was approved by the National Medical Ethical Committee on April 14th, 2009 (No 107/04/09).

3 RESULTS

9.087 of our website visitors filled in the whole questionnaire for themselves between January 2010 and December 2013; of those 37.1% (N=3.373) were women and 62.9% (N=5.714) men. The average age was 33 years (from 10 to 99 years), with 61.6% (N=5.600) under 36 years of age. Mostly they were single (33.2%, N=2.944) and finished secondary school (43.8% N=3.918). As for their employment status, more than half of respondents were employed (59.5%, N=5.222), followed by students (22.5%, N=1977).

The drinking habits of respondents on a typical day, when they were drinking, was 3-4 units of alcohol (24.4%, N=2.218), whereas 40.1% (N=3.651) of respondents drank more than 5 units a day (Table 1). Men drank 7 units or more (27.4% (N=1563)), whilst women drank mostly 0-1 units of alcohol per day (25.2% (N=850)); the differences are statistically significant ($\chi^2=510.513$, $p<0.05$).

Table 1. Units of alcohol drunk per occasion on a typical day when they were drinking.

Units of alcohol	Number (%) of men	Number (%) of women	Total: Number (%)
0-1 unit	618 (10.8)	850 (25.2)	1.468 (16.2)
1-2	983 (17.2)	767 (22.7)	1.750 (19.3)
3-4	1.436 (25.1)	782 (23.2)	2.218 (24.4)
5-6	1.114 (19.5)	516 (15.3)	1.630 (17.9)
7 or more	1.563 (27.4)	458 (13.6)	2.021 (22.2)
Total: Number (%)	5.714 (100.0)	3.373 (100.0)	9.087 (100.0)

The majority of the respondents drank alcohol 2 - 4 times per month (32.8%, N=2.977), whereas 3.5% (N=322) were abstainers (Table 2).

Table 2. The frequency of drinking alcoholic beverages in the last 12 months.

The frequency of alcohol drinking	The frequency of drinking alcohol No. (%)	The frequency of men drinking 6 or more units per occasion No. (%)	The frequency of women drinking 4 or more units per occasion No. (%)
Never	322 (3.5)	813 (14.2)	938 (27.8)
Once or less per month	1.357 (14.9)	1.893 (33.2)	1.281 (38.0)
2-4 times per month	2.977 (32.8)	1.883 (33.0)	793 (23.5)
2-3 times per week	2.484 (27.4)	735 (12.9)	227 (6.8)
4 or more times per week	1.947 (21.4)	385 (6.7%)	132 (3.9)
Total	9.087 (100.0)	5.709 (100.0)	3.371 (100.0)

In the last year, 33.2% (N=1.893) of men drank once or less per month, more than 6 units on one occasion, while 33.0% (N=1.883) of them drank 2-4 times per month (Table 2). Women drank 4 units or more on one occasion, mostly once a month or less (38.0%, N=1.281); however, 10.7% (N=359) drank ≥ 4 units 2 or more times per week and drank hazardously or harmfully (Table 2).

The study also showed negative consequences and risky behaviour as a result of drinking during the past year: 28.2% (N=2.564) of respondents had problems in partnership and 24.7% (N=2.240) had problems at studying and at work because of their drinking. Half of male

Table 3. The type of drinking according to AUDIT 10 score by sex.

The frequency of alcohol drinking	Abstinent AUDIT= 0	Low risk AUDIT=1-7	Hazardous AUDIT= 8-15	Harmful AUDIT=16-19	Addicted AUDIT≥20	Total
Men count	124	1810	1992	858	925	5709
% within sex	2.2%	31.7%	34.9%	15.0%	16.2%	100.0%
Womencount	144	1821	879	270	257	3371
% within sex	4.3%	54.0%	26.1%	8.0%	7.6%	100.0%
Total count	268	3631	2871	1128	1182	9080
% within sex	3.0%	40.0%	31.6%	12.4%	13.0%	100.0%

(50.5%, N=2.885) and 20% (N=676) of female respondents were drinking and driving, the difference between the sexes is statistically significant (χ^2=8.26, p<0.05). 47.0% (N=4.269) of respondents had to take care of someone who was drunk.

36.3% (N=3.296) of respondents thought that their drinking was not good for their health. 40.6% (N=2.319) of them were men and 29% (N=977) women, the difference is statistically significant (χ^2=1.24, p<0.05). Respondents thought that their drinking had an influence on their satisfaction in 27% (N=2.457), of which 30.9% were male (N=1.766) and 20.5% female (N=691); the difference is statistically significant (χ^2=1.17, p<0.05).

The average AUDIT score was 10.4 (11.8 for men and 8.1 for women). According to the AUDIT questionnaire, 31.7% (N=1.810) of men and 54% (N=1.821) of women drank at low risk, on the other hand 41.7% (N=1.406) of women and 66% (N=3.775) of men drank hazardously, harmfully or were addicted to alcohol (Table 3). The differences between men and women are statistically significant (χ^2=5.516, p<0.05).

There are significant differences according to AUDIT score between age groups in men (F=12.9, p<0.05) and also in women (F=6.94, p<0.05) (Table 4). Women had higher AUDIT score in the group 65 years and over (m=9.0) and the lowest score in the group 25-35 years (m=7.4). Men had the highest AUDIT score in the group 18-24 years (m=12.6) and 25-35 years (m=12.1). The lowest score had the group 56 years of age and more (m=9.7)

In both sexes the AUDIT score decreased with the higher degree of education (Table 4); the difference is statistically significant (female AUDIT F=8.524, p<0.05; male AUDIT F=27.589, p<0.05).

Men and women had the highest AUDIT score when they drank 7 units or more per occasion (m=16.8 and m=18.1); the difference is statistically significant (female AUDIT F=915.604, p<0.05; male AUDIT F=1210.433, p<0.05) (Table 4). Smokers had significantly higher AUDIT scores

Table 4. Differences according to the average AUDIT 10 score between age groups, educational groups and drunk units of alcohol in men and women.

					95% confidence interval for mean	
		N	Mean AUDIT score	std. deviation	Lower bound	Upper bound
Age group						
10-17 years	Women	213	8.74	7.344	7.75	9.73
	Men	196	10.89	6.852	9.93	11.86
18-24 years	Women	1062	8.74	6.021	8.38	9.11
	Men	1225	12.59	6.960	12.2	12.98
25-35 years	Women	991	7.41	6.570	7.00	7.82
	Men	1909	12.06	7.455	11.73	12.40
36-55 years	Women	959	7.66	7.343	7.19	8.12
	Men	2006	11.46	7.798	11.12	11.80
<56 years	Women	146	8.95	8.766	7.52	10.39
	Men	373	9.73	7.821	8.94	10.53
Total	Women	3371	8.05	6.819	7.82	8.28
	Men	5709	11.77	7.512	11.58	11.97

					95% confidence interval for mean	
		N	Mean AUDIT score	std. deviation	Lower bound	Upper bound
Educational group						
Without primary school	Women	17	13.82	11.770	7.77	19.88
	Men	35	19.09	13.107	14.58	23.59
Primary school	Women	43	8.64	7.196	7.45	9.83
	Men	275	13.93	8.042	12.98	14.89
Vocational school	Women	159	8.43	7.853	7.20	9.66
	Men	629	13.87	8.578	13.20	14.54
Secondary school	Women	1.484	8.66	6.822	8.31	9.00
	Men	2.431	11.89	7.279	11.60	12.18
College	Women	276	7.26	6.913	6.44	8.08
	Men	548	11.40	7.551	10.77	12.03
University	Women	1.091	7.17	5.972	6.81	7.52
	Men	1.491	10.52	6.610	10.18	10.85
Master's or doctor's degree	Women	139	7.21	7.573	5.94	8.48
	Men	231	10.07	7.615	9.09	11.06
Total	Women	3.309	8.00	6.746	7.77	8.23
	Men	5.640	11.77	7.500	11.57	11.96
Units of alcohol						
0-1 unit	Women	850	2.25	2.488	2.09	2.42
	Men	617	2.71	2.925	2.57	2.94
2 units	Women	767	5.30	3.297	5.06	5.53
	Men	981	6.60	3.630	6.37	6.82
3-4 units	Women	781	8.77	4.886	8.42	9.11
	Men	1436	10.51	5.118	10.24	10.77
5-6 units	Women	516	12.90	5.872	12.39	13.41
	Men	1113	14.12	5.891	13.78	14.47
7 units or more	Women	457	16.77	7.417	16.09	17.45
	Men	1562	18.09	7.151	17.74	18.45
Total	Women	3371	8.05	6.819	7.82	8.28
	Men	5709	11.77	7.512	11.58	11.97

than non-smokers in both sexes: women (10.6 vs. 6.4, t=-18.63; p<0.05) and men (14.1 vs. 10.1; t=-20.791, p<0.05); in addition, they more often drank 7 units or more (31.3%, N=1.169), whereas non-smokers mostly drank 3-4 units on one occasion (24.6%, N=1.320). The difference is statistically significant (χ^2=596.58, p<0.05).

4 DISCUSSION

The main aim of this research was to analyse drinking habits and to identify hazardous and harmful drinkers with a web-based questionnaire.

In Slovenia, only a few studies about drinking habits have been carried out and none of them used a web-based questionnaire as the method of data gathering. We were surprised by the great number of responders to the questionnaire (although the questionnaire contains 28 questions), which can probably be attributed to the respondents' desire or curiosity to learn something about their alcohol consumption without being exposed to a personal contact with medical professionals. In studies from the United States (28) and Spain (29) in which the full AUDIT questionnaire was used, a much smaller proportion of participants on the website completed the entire questionnaire.

Website as the screening method can capture a greater proportion of population that is not covered by traditional screening methods (especially younger population). Most of previous studies using web-based questionnaire were carried out on the population of university students (26, 30), whereas in our study a much broader population was included (the average age was 33 years).

The average AUDIT score for all responders in our study was 10.4, which shows that many of the responders may were among hazardous, harmful drinkers or even addicted to alcohol. However, this score is much smaller than in a similar study in New Zealand (16.6 points) (30), which is probably due to student population that was included in their study.

The proportion of men and women, who drank hazardously or harmfully, in our study, differs to a great extent from the studies in some other countries (31, 32), as well as from other Slovenian studies, where up to 52.5% of men were found to be harmful or hazardous drinkers, while our study shows 66.1% of men as harmful or hazardous drinkers (3); an even bigger difference was noticeable among women (41.7% vs.16.5%) (5, 12, 13, 33, 34). The most probable reason for this difference is the anonymity provided by the website questionnaire in contrast to a paper or telephone version in the previous studies. The reason could also be the inclusion of a larger proportion of a younger age group and the use of the AUDIT-C questionnaire in contrast to the AUDIT-10 in our study.

The highest AUDIT score was, in the group of 56 years of age and more, in women (9.0), whereas in men it was in the group 18-24 years of age (12.6). Elderly men (56 years and more) had a higher AUDIT score (9.7) than elderly women. Already O'Connell et al. concluded in their study that alcohol abuse is common in the elderly. Since elderly patients tend to take more medications, there may be an increased risk of drug-alcohol interaction (35). The lowest AUDIT score in women was in the group between 25 and 35 years of age (7.41), which can be explained by the fact that in this age group women can be pregnant and they drink less accordingly.

In our study, the AUDIT score was significantly higher in the group of smokers (11.48) than in non-smokers (7.76). Similar results were found by Meyerhoff et al. (36), who recommended to intensify alcohol screening among those who smoke, because addictions to alcohol and nicotine are often comorbid addictions.

In both sexes, the AUDIT score decreased with the higher degree of education; as in other Slovenian studies (13), the majority of risky drinkers had a low level of education (a finished vocational school or less).

Men and women had the highest AUDIT score (16.7 for women and 18.1 for men) when they drank 7 units of alcohol or more per occasion, which indicates that the AUDIT questionnaire could detect occasional heavy drinkers (binge drinkers). Likewise, in the study by Tuunanen (37), it was showed that the AUDIT questionnaire is effective in detecting binge drinking, if the cut-off point for the AUDIT score is ≥7. However, authors stated that the AUDIT questionnaire is applicable only to populations in which binging is the dominant drinking pattern. The correlation between a high AUDIT score and heavy occasional drinking could indicate that, in Slovenian population, binging is the dominant drinking pattern. On the other hand, it could be the result of study population of younger average age. However, further studies are needed to confirm this.

There are some limitations of our study. Due to the nature of websites and anonymity, we cannot determine whether almost one-third of participants who did not complete the whole questionnaire had the same drinking habits as those who did it. Our results also cannot be generalized to the whole Slovenian population because the visitors of our website probably are not the representative sample.

5 CONCLUSIONS

The results of our research cannot be generalized to the whole Slovenian population; nonetheless, a high AUDIT score in the male group of 18-24 years of age and in the female group above 56 years of age should be a trigger for alarm. The Internet (i.e. the website) has proven to be a well-accepted methodological tool, especially for young people, as well as a new means of warning and educating population about alcohol drinking habits and encouraging the reduction of alcohol consumption.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

FUNDING

The study was not funded.

ETHICAL APPROVAL

The study was approved by the National Medical Ethical Committee on April 14th, 2009 (No 107/04/09).

SUPPLEMENTARY FILES

http://www.nalijem.si/vprasalnik_za_samooceno_pitja/vprasalnik/

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THE IMPACT OF SOCIO-ECONOMIC DETERMINANTS ON THE VACCINATION RATES WITH ROTAVIRUS AND HUMAN PAPILOMA VIRUS VACCINE

VPLIV SOCIALNO-EKONOMSKIH DETERMINANT NA PRECEPLJENOST S CEPIVOM PROTI ROTAVIRUSNIM OKUŽBAM IN OKUŽBAM S ČLOVEŠKIM PAPILOMA VIRUSOM

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ABSTRACT

Keywords:
socio-economic determinants, vaccination rates, human papilloma virus, rotavirus

Background. Socio-economic inequalities may have an impact on the uptake of selfpaid vaccines. The aim of the study was to identify the effect of some socio economic determinants on vaccination rates with self-paid human papilloma virus (HPV) and rotavirus (RV) vaccines.

Methods. Vaccination coverage data, available in electronic database cepljenje.net (administered by the National Institute of Public Health), were collected at administrative unit level. The socio-economic determinants (the average gross pay in euros, the unemployment rate, the educational and households structure, the population density, the number of inhabitants, the number of children aged from 0 to 4, the number of women aged from 15 to 30) were extracted from Statistical Office of the Republic of Slovenia web page. The strength of the correlation between socioeconomic variables and self-paid HPV and RV vaccination rates was determined.

Results. Rotavirus vaccination rates show a slight negative correlation with the number of residents per administrative unit (ρ=-0.29, p=0.04), and no correlation with other socio-economic variables. Likewise, no correlation has been found between HPV vaccination rates and the selected socio-economic variables.

Conclusion. Ecological study did not reveal any correlations between socio economic variables and vaccination rates with RV and HPV self-paid vaccines on administrative unit level.

IZVLEČEK

Ključne besede:
socialno ekonomske determinante, precepljenost, humani papiloma virus, rotavirus

Izhodišče. *Socialno-ekonomske neenakosti lahko vplivajo na precepljenost s samoplačniškimi cepivi. Namen raziskave je bil ugotoviti vpliv povezanosti izbranih socialno-ekonomskih dejavnikov na stopnjo precepljenosti s samoplačniškima cepivoma proti humanemu papiloma virusu (HPV) in rotavirusu (RV).*

Metode. *Podatke za analizo o precepljenosti na ravni upravne enote smo pridobili iz elektronske podatkovne baze cepljenje.net (skrbnik Nacionalni inštitut za javno zdravje). Socialno-ekonomski dejavniki (povprečna bruto plača v evrih, stopnja brezposelnosti, struktura izobrazbe prebivalstva, velikost gospodinjstva, gostota prebivalstva, število prebivalcev, število otrok, starih med 0 in 4 leta, število žensk, starih med 15 in 30 let) so bili na voljo na spletnih straneh Statističnega urada Republike Slovenije. Izračunali smo korelacijo med socialno-ekonomskimi spremenljivkami in deležem precepljenosti s samoplačniškimi cepivi proti HPV in RV.*

Rezultati. *Precepljenost proti rotavirusu šibko negativno korelira s številom prebivalcev v upravni enoti (ρ=-0,29, p=0,04), medtem ko povezanosti z ostalimi spremenljivkami nismo ugotovili. Prav tako nismo ugotovili povezanosti med stopnjo precepljenosti proti HPV in katero koli izmed vključenih socialno ekonomskih spremenljivk.*

Zaključek. *Z ekološko študijo za nobeno od izbranih socialno-ekonomskih spremenljivk nismo dokazali ustrezne moči povezave na ravni upravne enote.*

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1 INTRODUCTION

Slovenia, as many developed countries, has a well-established vaccination program, which is the basis for the implementation of mandatory and optional vaccinations. High vaccination coverage for mandatory childhood vaccinations has been accomplished, and the burden of vaccine preventable communicable diseases has been effectively reduced (1–3). All vaccines from the mandatory program are paid by the insurance company and are, therefore, free of charge from the user's point of view, while vaccines from the optional program are entirely self-paid with one exception. The vaccination with human papilloma virus (HPV) vaccine has been added to childhood vaccination program in 2006, as optional for girls in the 6th grade and, if not accepted at that time, offered again in the 8th grade. Afterwards, and for boys/ men of any age, HPV vaccine is available as self-paid vaccine (4–6). The vaccination coverage for six-graders is approximately 50%, which is nearly half of the coverage reached by mandatory vaccinations for diphtheria, tetanus, pertussis, Haemophilus influenza type b and polio for pre-school and school-aged children (3, 7).

Adolescents not included in the free of charge HPV vaccination program, and young adults rarely decide to get vaccinated in Slovenia (7). Low vaccination coverage with optional HPV vaccine is in accordance with low uptake of other optional vaccines; e.g. Slovenia has one of the lowest vaccination rates against influenza among EU/EFTA countries with only 4%–5% of the population accepting influenza vaccine. The coverage rate for tick-borne encephalitis (TBE) vaccine is much lower compared to the neighbouring Austria, even though the risk of TBE, especially in the north-western parts of the country, is considerable (8). Only a fourth of all parents decide to vaccine their infants with self-paid rotavirus (RV) vaccine. The vaccination rates against RV therefore remain too low to effectively reduce the number of RV infections and hospitalizations (9).

Newer vaccines (i.e. HPV, RV, pneumococcal conjugated vaccine) are usually more expensive compared to those which are in use for many decades. According to previous studies, high cost represents an important barrier to vaccination (10). Apart from the cost, low vaccination rates can be associated with many different causes, but only a few studies address socio-economic inequality as a possible barrier for achieved higher vaccination rates. The correlation between a lower rate of chronic non-communicable diseases and high socio-economic status has been proven. Those with a higher education or a better economic status are, in general, more empowered to adopt health-promoting decisions (11–14). The socio-economic status affects the incidence and outcome of communicable diseases, like hepatitis C, sexually transmitted diseases and tuberculosis, even in developed countries (15, 16). The correlation between a lower socio-economic status and other infectious diseases has been less thoroughly studied. A lower socio-economic status can also have an unfavourable effect on the decision whether to vaccinate with vaccines, which are not a part of the national vaccination program and are, therefore, not financially supported by the state, which is particularly true for newer, often more expensive vaccines (17–19).

Currently, there were no studies in Slovenia aiming to explain causes for low vaccination rates with self-paid vaccines on an individual level. There are two published studies focusing on enabling and inhibiting factors for vaccination with seasonal and pandemic influenza vaccine (20, 21).

The aim of present ecological study was to analyse the correlation between the vaccination rates for self-paid HPV and RV vaccines and seven different socio-economic determinants at the administrative units (AU) level: average income, educational structure, unemployment rates, household size, population density, number of inhabitants and the number of children aged 0–4/the number of women aged 15–30.

2 METHODS

2.1 Data Sources

The number of individuals who were completely vaccinated with self-paid HPV or RV vaccine was obtained from the cepljenje.net electronic database. The database is designed to monitor the vaccination coverage in Slovenia. The administrator of the database is the National Institute of Public Health. Primary care physicians are required to report the number of vaccinations to the regional units of the National Institute for Public Health, which in turn report to the National Institute of Public Health (22). The database cepljenje.net does not contain any personal data. The data was available by individual vaccination providers aggregated by regional units of the National Institute for Public Health, therefore we had to integrate the data by AU for the years 2011, 2012 and 2013.

Socio-economic variables (the average gross pay in euros (EUR), the educational structure, the household structure with one, two, three, four, five or more than five members, the unemployment rate expressed in a percentage, the number of inhabitants, the number of children aged 0–4, the number of women aged 15–30, the population density or the number of inhabitants per square kilometre (inhabitants/km2)) were obtained from the web site of the Statistical Office of the Republic of Slovenia (SORS) for the years 2011, 2012 and 2013. The data was available only by municipalities, therefore we had to integrate the data by AU using SORS's code list of basic spatial units.

2.2 Statistical Analysis

The vaccination rates (per 1000) for RV were calculated out of the number of children who were given either two doses of Rotarix or three doses of RotaTeq fractioned by the number of children aged 0–4 who lived in the same AU.

Vaccination rates for HPV (per 1000) were calculated by fractioning the number of women who received three doses of the vaccine and the number of women in an AU aged 15–30.

The values of four socio-economic variables, e.g. the number of inhabitants, population density, unemployment rate, average gross pay and vaccination rates for RV and HPV, were summarized by using the average, standard deviation, median and range.

The educational structure and the size of the households were classified by AU. The data was entered into a graph and the distance chi-square (χ^2) was calculated. Educational structure was divided from the AU with the highest proportion of higher educated population to the AU with the lowest, so that the higher the value of χ^2 represented a lower educational structure. The structure of households was sorted from the AU with the lowest proportion of households with two or fewer members, so that the higher value of χ^2 represented more households with two or fewer members.

In the first step of the analysis, the correlations between socio-economic variables (the number of inhabitants, the number of children aged 0–4, the number of women aged 15–30, population density, unemployment rate, average gross pay and the educational structure expressed as a χ^2 distance) were analysed. Data for the structure of households by AU was available only for the year 2011, so it was analysed separately in relation to RV and HPV vaccination rates.

The variables including the number of inhabitants, the number of children aged 0–4 and the number of women aged 15–30, were expressed in a logarithmic (log10) scale, because of their range. The correlation between all the explanatory variables was demonstrated by scatter graphs and by Spearman's correlation coefficient rho (ρ) for the pairs of variables. The Spearman's ρ considers a strong correlation in the range -1.0 to -0.7 or 0.7 to 1.0, a weak correlation -0.7 to -0.3 or 0.3 to 0.7, and no correlation in the range -0.3 to 0 or 0 to 0.3 (23).

The vaccination rates for RV and HPV were presented with scatter graphs with each of the explanatory variables. On each graph, the data was combined for all three years; the values for each year are color-coded (2011- black, 2012 - dark grey, 2013 - light grey). The aim was to study the correlation in the diagrams by shape (linear or nonlinear), size (correlation coefficient) and direction (positive or negative). The correlation size was demonstrated by Spearman's ρ and the p-value. The shown p-values are only approximate; they are corrected for multiple groups, but not for their dependence. The vaccination rates on each diagram are shown on a logarithmic scale; the values themselves are not in logarithm, only the scale is adjusted accordingly.

3 RESULTS

3.1 Vaccination Rates by Administrative Units

The vaccination data were not reported by all 58 AU during the whole study period. Therefore, RV vaccination data from 42, 37 and 29 AU were analysed for the years 2011, 2012 and 2013, respectively. The RV vaccination coverage range varied widely (from the highest number of vaccinated in AU Radlje ob Dravi 178.7/1000 in 2012, to the lowest in AU Žalec 0.4/ 1000 in the same year).

HPV vaccination data was available from 44, 37 and 30 AU in the years 2011, 2012 and 2013, respectively. Seven AU (Dravograd, Grosuplje, Izola, Metlika, Ribnica, Slovenske Konjice, Trebnje and Tržič) did not submit any data on HPV vaccination in the 3-year period. Similar as for RV vaccination rates, the numbers of vaccinated against HPV significantly varied between AU; from the highest in 2011 in AU Ilirska Bistrica (257.4/1000) to the lowest in 2012 in AU Pesnica (0.6/1000). A constantly high vaccination rate was observed only in AU Ravne na Koroškem (in 2011 130.3/1000, in 2012 122.5/1000 and in 2013 131.2/1000).

3.2 Socio-economic Features of Administrative Units

The average, standard deviation, median and range for the unemployment rate, average gross pay, population density and number of inhabitants in 2011–2013, are presented in Table 1. In the observed period, the number of inhabitants had remained almost unchanged. The average gross wage and unemployment rates have both shown a slight upward trend.

Table 1. Average ± standard deviation, median and range for population, population density, unemployment rates and average gross pay for the years 2011, 2012 and 2013.

Year	2011	2012	2013
Population (per 1000)			
Average ± standard deviation	35.3 ± 47.5	35.4 ± 47.7	35.5 ± 48.1
Median	21.0	21.0	21.1
Range	8.4-347.1	8.4-348.6	8.4-352.3
Population density (population/km^2)			
Average ± standard deviation	118.8 ± 106.8	119.0 ± 107.0	119.0 ± 107.5
Median	83.2	83.7	83.3
Range	20.2-554.1	20.2-557.1	20.1-557.8
Unemployment rates (%)			
Average ± standard deviation	14.5 ± 4.7	14.7 ± 4.7	16.3 ± 4.5
Median	13.6	13.9	15.1
Range	7.1-29.9	5.7-29.4	6.9-28.9
Average gross pay (euro)			
Average ± standard deviation	1344 ± 117	1377 ± 118	1378 ± 121
Median	1328	1358	1351
Range	1171-1745	1200-1765	1202-1813

The educational structure did not change significantly in the three year period. A slight rise (2%) of highly educated individuals has been observed. The largest proportion of highly educated resided in AU Ljubljana (26%-28%), followed by AU Vrhnika, Piran, Maribor, Domžale and Kranj (average 22%), and the lowest in AU Ormož and Lenart (11% on average). The difference in the educational structure between the Western and Eastern Slovenia is noticeable; AU in the west have generally a higher educational level than those located in the east.

Data on household size was available only for the year 2011. The largest proportion of smaller households was observed in AU Maribor and Piran (66% of households with two or fewer members), followed by AU Celje and Trbovlje (64%). The largest proportion of bigger households was observed in AU Škofja Loka (10% of households with 5 members and 8% of households with six or more members).

3.3 The Correlation between Explanatory Variables

The scatter graphs between explanatory variables and Spearman's ρ have shown the following characteristics:

1. The correlation between pairs is mostly nonlinear (this also applies for the pair population/population density (ρ=0.51), because the number of inhabitants is in a logarithm scale). The only exception seems to be the correlation between the educational level and the average gross pay (ρ=-0.68).
2. High correlations between the number of inhabitants and the number of women aged from 15 to 30 (ρ=0.99), as well as the number of inhabitants and the number of children aged from 0 to 4 (ρ=0.97) stand out; therefore, the analysis requires only one of the two variables to be sufficient. This correlation was expected.
3. The unemployment rate weakly correlates with other variables; the exception is a weak correlation with a low educational structure (ρ=0.55).
4. The educational structure weakly correlates with other explanatory variables.

3.4 The Correlation between RV Vaccination Rates and Socio-economic Variables

An overview of the number of children aged between 0 and 4, and RV vaccination rates in the observed three years is presented in Table 2. The RV vaccination rates vary widely among individual AU and have shown a decline in the observed three year period (from 22.4 per 1000 children in 2011 to 15.0 per 1000 children in 2013).

Table 2. Average ± standard deviation, median and range for the number of children aged 0-4 and RV vaccination rates.

Year	2011 (n*=42)	2012 (n=37)	2013 (n=29)
The number of children aged 0-4 years (per 1000)			
Average ± standard deviation	2.1 ± 3.0	2.3 ± 3.2	2.5 ± 3.7
Median	1.1	1.3	1.3
Range	0.4-19.1	0.5-19.6	0.4-20.1
Vaccination rates; the number of vaccinated per 1000 children aged 0-4			
Average ± standard deviation	22.4 ± 30.9	19.4 ± 35.1	15.0 ± 27.1
Median	7.7	5.2	2.1
Range	1.1-146.1	0.4-178.7	0.6-102.2

Note 1: *n – the number of AU reporting the data

Scatter graphs for the pairs of variables (RV vaccination rates and socio-economic variables) are presented in Figures 1 to 5. Four out of five scatter graphs have shown no correlations between RV vaccination rates and socio-economic variables (unemployment rate ρ=-0.02 (Figure 2), population density ρ=-0.16 (Figure 3), average gross pay ρ=-0.06 (Figure 4) and educational structure ρ=0.12 (Figure 5)).

The only exception is the number of inhabitants (Figure 1), which has shown a weak negative correlation with RV vaccination rates (ρ=-0.29, p=0.04). Administrative units with a higher number of inhabitants have generally lower vaccination rates than those that are less populated. The two variables linearly correlate in a logarithmic scale. The regression analysis (from the following equation: log10 (RV vaccination rates) = -0.6 log10 (population in thousands) + 3.5) shows that 1,000 more inhabitants in an AU means an approximately 6.5% smaller proportion in RV vaccination rates (exponential decline).

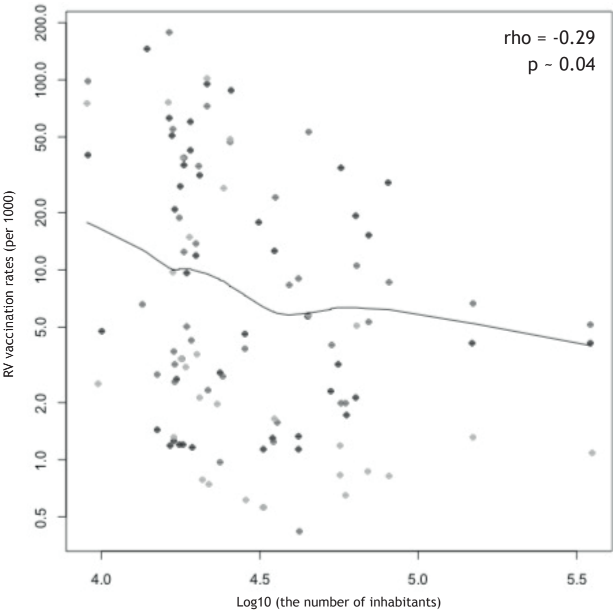

Figure 1. Scatter graph between RV vaccination rates and population.

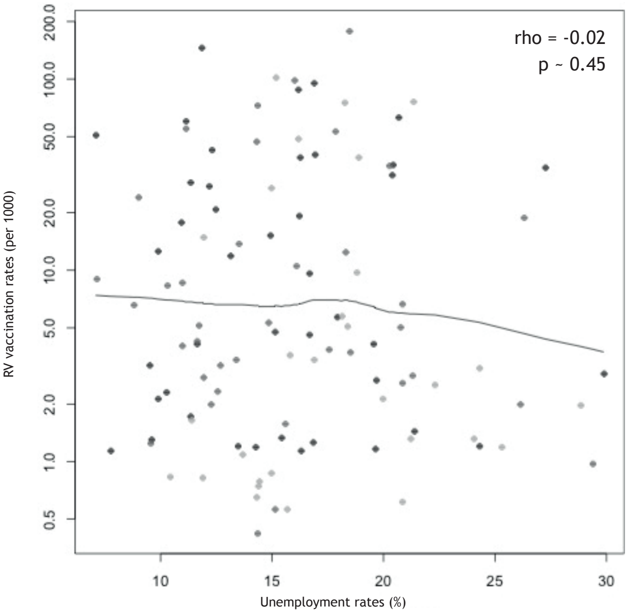

Figure 2. Scatter graph between RV vaccination rates and unemployment rates.

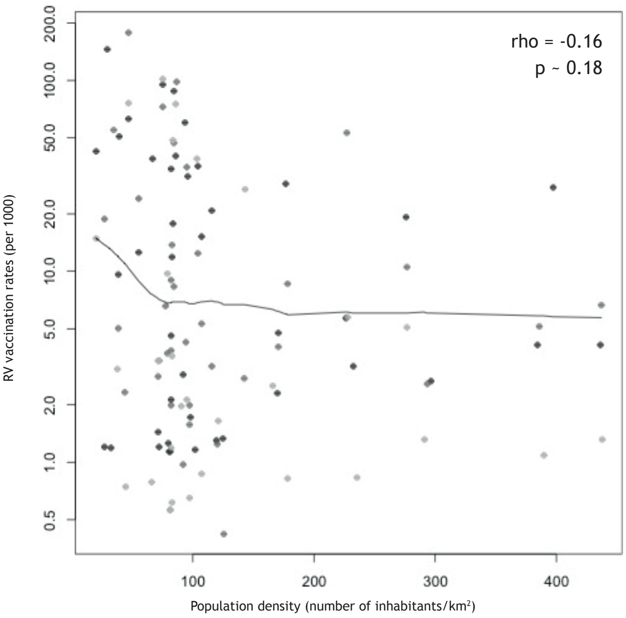

Figure 3. Scatter graph between RV vaccination rates and population density.

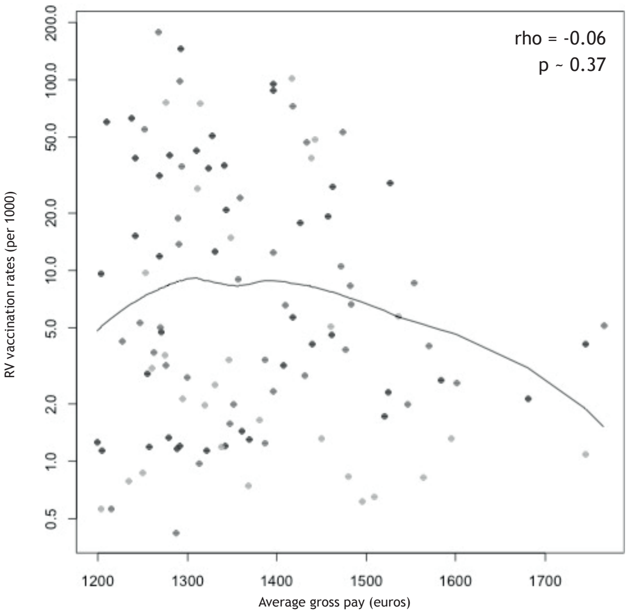

Figure 4. Scatter graph between RV vaccination rates and average gross pay.

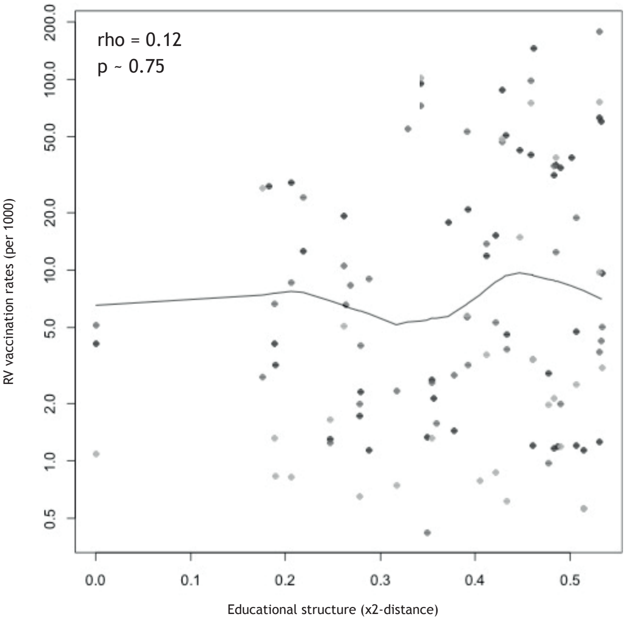

Figure 5. Scatter graph between RV vaccination rates and educational structure.

3.5 The Correlations between HPV Vaccination Rates and Socio-economic Variables

An overview of the number of women between 15 and 30 years and HPV vaccination rates in the observed three year period, are presented in Table 3. HPV vaccination rates vary widely between administrative units and have shown a decline in the observed three years (from 36.4 per 1000 women in 2011, to 16.5 per 1000 women in 2013).

Table 3. Average ± standard deviation, median and range for the number of children aged 0-4 and RV vaccination rates.

Year	2011 (n*=44)	2012 (n=37)	2013 (n=30)
Women aged 15-30 years (per 1000)			
Average ± standard deviation	3.5 ± 5.1	3.7 ± 5.4	3.9 ± 6.1
Median	1.9	2.0	1.9
Range	0.9-33.6	1.2-32.9	0.8-33.4
Vaccination rates: the number of vaccinated per 1000 women aged 15-30 years			
Average ± standard deviation	36.4 ± 59.1	21.2 ± 27.9	16.5 ± 30.3
Median	8.5	7.3	4.1
Range	1.0-257.4	0.6-122.5	1.7-131.2

Note 2: same as for Table 2.

Figures from 6 to 10 present scatter graphs for the pairs of variables (HPV vaccination rates and socio-economic explanatory variables). All five scatter graphs show no correlation between any of the presented variable pairs (population ρ=-0.13 (Figure 6), unemployment rate ρ=-0.05 (Figure 7), population density ρ=-0.07 (Figure 8), average gross pay ρ=-0.01 (Figure 9) and educational structure ρ=0.13 (Figure 10)).

The data on the household structure was available only for the year 2011 and hence analysed separately. No correlation between household structure and RV or HPV vaccination rates has been found.

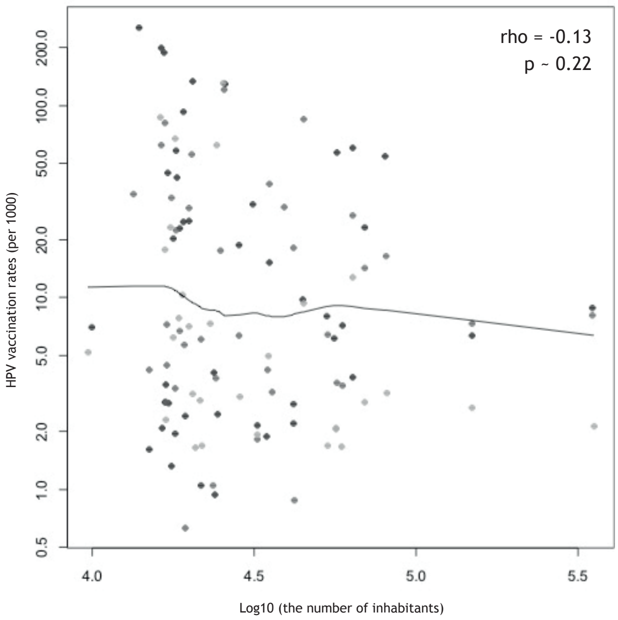

Figure 6. Scatter graph between HPV vaccination rates and population.

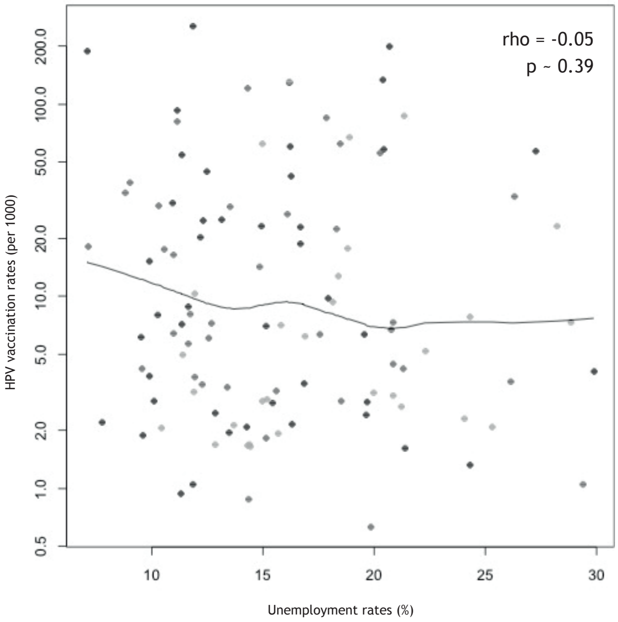

Figure 7. Scatter graph between HPV vaccination rates and unemployment rates.

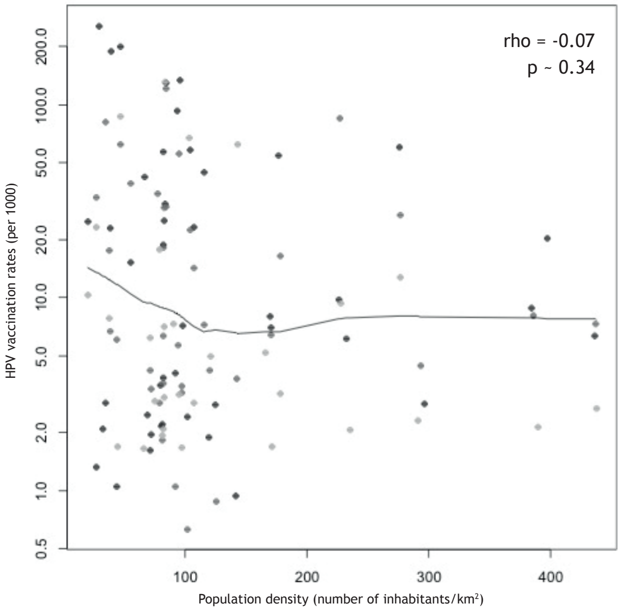

Figure 8. Scatter graph between HPV vaccination rates and population density.

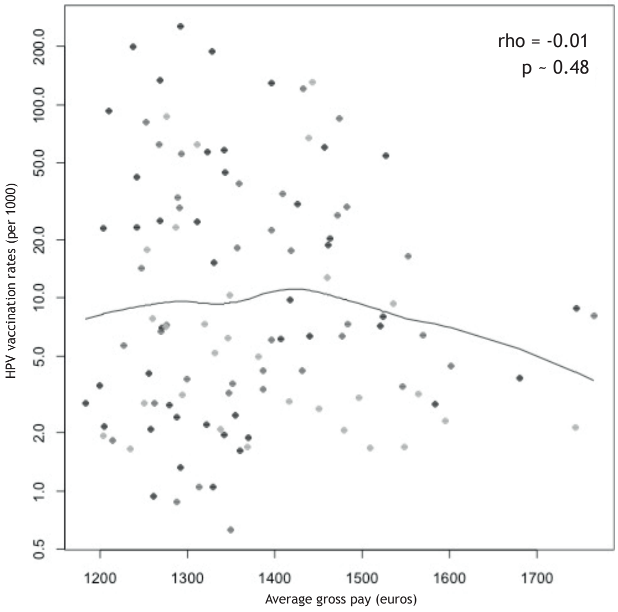

Figure 9. Scatter graph between HPV vaccination rates and average gross pay.

4 DISSCUSION

The aim of the ecological study was to determine whether there was a relationship between selected socio-economic determinants and HPV or RV vaccination rates at the AU level in Slovenia. We made a hypothesis that unfavourable socio-economic factors should show a certain impact on the vaccination rates for self-paid HPV and RV vaccines. The difference of economic indicators (income inequality and unemployment rates) and consequent inequalities in health that exists between eastern and western parts of Slovenia could similarly mirror in different vaccination coverage for self-paid vaccines (24).

The proposed hypothesis has not been confirmed, as we found no correlations between the level of immunization with HPV or RV vaccine in target groups and any of the included socio-economic variables. The only exception was weak negative correlation between RV vaccination rates and the number of inhabitants in an AU (ρ=-0.29, p=0.04). The administrative units with a larger population have, on average, lower vaccination rates than those with fewer inhabitants. The decline is exponential; 1000 more inhabitants in an AU according to this model correspond to a decline in vaccination rates for approximately 6.5%. The model explains only a small part of the variation in vaccination rates, which indirectly implies that other factors have a considerable effect.

For both self-paid vaccines, the vaccinations rates have declined in the observed three years' period. We assume that the drop in vaccination coverage has multiple causes, one of them being distrust in the safety and efficiency of vaccines in general.

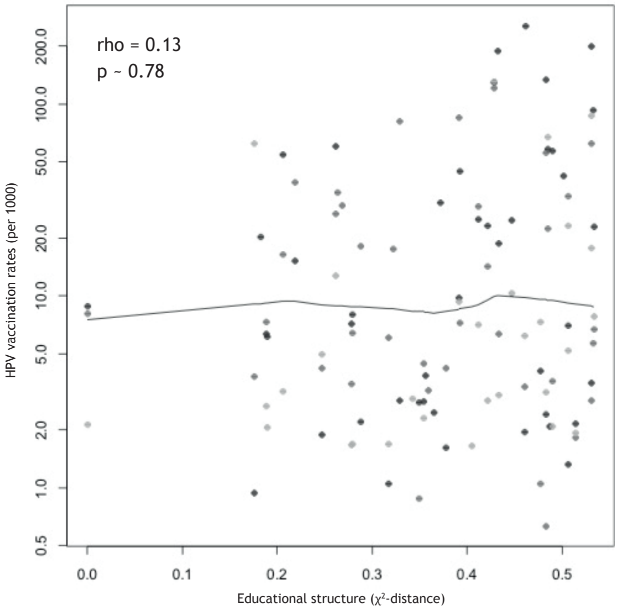

Figure 10. Scatter graph between HPV vaccination rates and educational structure.

In Europe, the main obstacles for achieving higher immunization against RV are the belief in the low burden of the disease, unfavourable cost analysis and doubts about the safety of the vaccine (25). However, immunization against RV is still high in some countries. A Belgian study from 2012, found out that important determinants of low vaccination rates are a household size (lower vaccination rates in larger families) and an unemployed mother, mostly because the vaccine is partially self-paid. Nevertheless, Belgium has reached high (90%) vaccination coverage against RV (26). In our study, no correlations have been found with regards to the average household size or unemployment rates and the number of vaccinated with the RV vaccine at the AU level. The unemployment rate in relatively young adults, i.e. the part of the population with the highest percentage of infants, might show a correlation to RV vaccination rate.

The price of vaccination has the major impact in economically disadvantaged environments if the vaccine has to be self-paid. Therefore, the finding of Mortensen that the price itself represents a major obstacle for HPV vaccination of young women between 16 and 26 years of age, who have to pay fully by themselves, is not surprising (27). A Polish study has shown that a high cost of RV vaccine was proven to be an important barrier to vaccinate. The researchers concluded that better immunization could be achieved with financial support for young low income families. Furthermore, parents' decision whether to vaccinate or not was based on the advice or initiative of the medical staff; the concern about unwanted side-effects was shown to be unimportant (28).

In our study, lower vaccination rates in AU did not correlate with lower average income per resident. The average income difference between AU might be too small to have an impact on the level of vaccination rates in Slovenia. A study with a different design (i.e. income and unemployment data collected on an individual level) might find a link between higher income per family member and better vaccination rates. Furthermore, we found no relationship between the proportions of higher educated in an AU and the immunization rate. It would be interesting to know what kind of correlation exists (if any) on an individual level with regards to parental education and vaccination coverage with RV vaccine. Since among the opponents of vaccination are often individuals with a high level of education, the correlation could even be negative.

Individual studies have also shown that poor immunization coverage is influenced by geographical inequalities; lower vaccination rates were found in rural areas (29).

We assume that socio-economic determinants are only one of the many determinants that play an important role in the decision-making process. Perception of severity, concerns about the influence on health, the fear of alleged and real side-effects, the perceived low efficacy of the vaccine, beliefs that vaccination is not required, scarce knowledge about the vaccine, the ability of health workers to professionally and appropriately present the vaccine and its benefits, and the fear that HPV vaccine will have negative effects on the image of sexuality and cervical cancer screening among minors, were found to influence the acceptance (7, 30-32).

Declining HPV vaccination rates in the three-year period in younger women may reflect the trend of disadvantageous economic conditions or the negative impact of the media and online campaign against the vaccine. An example of a negative campaign is available on the website of the association "We are change" (http://wearechange.si/vodilna-raziskovalka-hpv-cepiva-prizna-da-nekoristna-verjetno-nevarna/). The data presented on the above-mentioned webpage is not confirmed by scientific studies, but is probably read by many and its views are accepted without any critical thought. Given the relatively weak campaign for HPV vaccination from the public health side, the non-scientific data prevails when deciding for or against vaccination. A study is warranted to gain the knowledge about the impact of those pieces of information on information seekers, as no such study has been performed in Slovenia yet.

The main limitations of our study were the incompleteness of the data (the data from some AU missing) and the type of study selected (ecological study). Even though this type of a study was the most appropriate for the initial investigation of our hypothesis, it is important to acknowledge that the relationships observed for groups do not necessarily hold for individuals, that aggregating data loses information and therefore the diversity and deviations between individuals are poorly detected. A better insight would be gained by studying socio-economic determinants on the individual level in correlation with RV or HPV vaccine acceptance or declination (24).

5 CONCLUSSION

Ecological study did not reveal any correlations between socio-economic variables and vaccination rates with the two self-paid vaccines. Therefore, we can only assume that other factors (beliefs, attitudes, scarce knowledge) play an important role in the decision-making process to get vaccinated with RV and HPV vaccine.

These findings represent the starting point for a methodologically different research, aiming to identify the key factors that impede, support and enable vaccine acceptance. A multifaceted understanding of determinants is needed to support the development of effective policies for self-paid vaccinations in Slovenia.

CONFLICTS OF INTEREST

The authors declared that they have no financial, professional or personal conflicting interests related to this article.

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AN INCREASING TREND OF ILLICIT DRUG USE AMONG ROMANIAN UNIVERSITY STUDENTS FROM 1999 TO 2011

NARAŠČUJOČI TREND UPORABE PREPOVEDANIH DROG MED ROMUNSKIMI UNIVERZITETNIMI ŠTUDENTI OD LETA 1999 DO LETA 2011

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ABSTRACT

Keywords:
illicit drug use,
Romanian youth,
health promotion

Aim. The present study investigates the evolution of illicit drug use among Romanian university students from 1999 to 2011.

Methods. The study was performed in Cluj-Napoca, Romania, in three phases: in 1999 (T1), in 2003 (T2) and in 2011 (T3).The study was carried out by means of anonymous questionnaires among university students aged 19-24.

Results. The results show that among girls the lifetime illicit drugs use increased statistically significantly from 2.5% in 1999 to 7.5% in 2003 and to 15% in 2011. Among boys the trend was also increasing, the prevalence of illicit drug use was 14.2% at T1, 18.1% at T2, and it increased dramatically to 30.6% at T3. The percentage of students reporting cannabis use was almost identical with the total prevalence of illicit drug use. Ecstasy was the second most frequent drug used by the students; its consumption had also an increasing trend during the examined periods (from 0 to 5.6% among girls and from 0.8% to 11.2% among boys).The results of the bivariate correlation analyses show that lifetime illicit drug use was associated with having friends who experimented with illicit drugs both among boys and girls. Moreover, girls who declared stress management problems and depressive episodes were more likely to try illicit drugs, while among boys illicit drug use was associated with poorer academic performance.

Conclusions. The data pointed out by our study call for comprehensive actions regarding the prevention of illicit drug use among Romanian young people.

IZVLEČEK

Ključne besede:
uporaba prepovedanih drog,
romunska mladina,
promocija zdravja

Namen*. Ta študija se nanaša na porast uporabe prepovedanih drog med romunskimi univerzitetnimi študenti v obdobju od leta 1999 do leta 2011.*

Metode*. Študija je bila razdeljena v tri sklope v romunskem mestu Cluj-Epoca; prvi sklop je bil izveden leta 1999 (T1), drugi leta 2003 (T2), zadnji pa leta 2011 (T3). Za namene študije je bila izvedena anonimna anketa med univerzitetnimi študenti, starimi med 19 in 24 let.*

Rezultati*. Rezultati kažejo, da se je doba uporabe prepovedanih drog pri ženskah bistveno statistično povečala iz 2,5% v letu 1999, na 7,5% v letu 2003 in 15% v letu 2011. Trend pri moških prav tako narašča, saj je prevalenca uporabe prepovedanih drog v letu 1999 znašala 14,2%, v letu 2003 18,1%, v letu 2011 pa močno poskočila na 30,6%. Odstotki študentov, ki so navedli uporabo kanabisa so bili skoraj identični s skupno prevalenco uporabe prepovedanih drog. Ekstazi (MDMA) je bil pri študentih na drugem mestu; uporaba te droge je prav tako beležila naraščajoči trend v obravnavanem obdobju (od 0 do 5,6% pri ženskah in od 0,8% do 11,2 pri moških). Rezultati analiz bivariantne korelacije kažejo, da je obdobje uporabe prepovedanih drog tako pri moških kot pri ženskah povezano s prijatelji, ki so eksperimentirali s prepovedanimi drogami. Študentke, ki so navajale težave z zdravljenjem stresa in obdobji depresije, so bolj nagnjene k uporabi prepovedanih drog, medtem ko je uživanje prepovedanih drog pri moških povezano s slabšimi študijskimi rezultati.*

Zaključki*. Podatki, ki smo jih pridobili s študijo, zahtevajo celostne ukrepe v smeri preprečevanja uporabe prepovedanih drog med romunsko mladino.*

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1 INTRODUCTION

The concept “illicit drug” includes cannabis (herbal cannabis and cannabis resin), amphetamines, LSD or other hallucinogens, crack, cocaine, ecstasy and heroin. Illicit drug use by young people has serious health and social consequences (1). These effects depend on the type and potency of drug, route of administration, consumed dose, frequency of use and health status of the user. Illicit drug use represents a threat to mental stability and increases the odds of death from accidental or intentional drug overdoses, as well as engagement in other unsafe behaviours, such as driving under the influence, having unprotected sex, being involved in delinquent behaviour and dropping out of school. Teens that begin drug use at an early age are at risk of developing addiction and continued drug habits into and throughout adulthood (2-10). Moreover, intravenous drug use is associated with an increased risk of acquiring HIV/AIDS and hepatitis B and C, due to the sharing of used needles (10, 11).

After the fall of the communist regime in 1989, Romania started a process of political, economic and socio-cultural changes, which led, in 2007, to the admission of Romania into the European Union. Along with these socio-economic changes, the health risk behaviours of Romanian young people, such as illicit drug use, also suffered several changes (10-12). National representative studies carried out by the National Agency against drugs in Romania, show that the prevalence of illicit drug use during lifetime among the general population older than 15 years increased from 1.7% to 4.3% from 2007 to 2010. The highest prevalence at both time points were among the age group 15-24 years - 4.1% in 2007 and 9% in 2010 (13). One quarter of European 18–21 year olds and 41% of 21-24 years olds report having consumed an illicit drug in their lifetime (14). Moreover, studies from other countries underline the importance of drug use studies among university students, since they focus on people 18–25 years old, which is the age group that has been demonstrated to have the highest prevalence of drug use in the general population in several countries, but also because they might be at risk due to several individual factors (stress, depression, anxiety) as well as contextual influences (peer social norms and peer pressure, accessibility to illicit drugs, spending leisure time in places where they can purchase illicit drugs) (14-20).

Hence, the present study investigates the evolution of illicit drug use among Romanian university students between 1999 and 2011, giving a special attention to possible gender differences. Factors associated with illicit drug use will be also investigated.

2 METHODS

2.1 The Study Sample and Procedure

The study was performed in Cluj-Napoca, an important university town in the North-West region of Romania, in 1999 (T1), in 2003 (T2), and in 2011 (T3). It involved university students randomly chosen from 8 dorms belonging to the 4 main universities of the town. In 1999, a number of 60 students (30 girls, 30 boys) living in the selected dorms were randomly chosen from each university, driving to a total sample of 240 students (7). In 2003 and 2011, the sample selection was the same, but at each time point 80 students (40 girls and 40 boys) were randomly chosen from each university, leading to a sample of 320 students in each of the last two waves. Students’ age was between 19-24 years.

The selection of students was made by randomly choosing two participants per room from 15 different rooms of each dorm in 1999, and from 20 different rooms of each dorm in 2003 and 2011 (dorms had rooms with 2-4 students living in each room). The students were informed about the voluntary participation in the study. The refusal rate was low (between 2.8% and 3.7%) and the students who refused to participate were replaced with students chosen from the same university, living in the same dorm.

2.2 The Instrument

All students were asked to fill in an anonymous questionnaire, which investigated several issues connected to illicit drug use. This questionnaire was developed especially for this study based on the data from the existing literature. The data collection performed in 1999 investigated only the issues connected with illicit drug use, while in 2003 and 2011, the questions connected with the investigation of illicit drug use were included in a questionnaire investigating a broader area of health risk behaviours among university students (10).

The present study is including the following variables: the use of illicit drugs at least once during a lifetime and in the last month, the number of times of illicit drug use during a lifetime, the type of used drugs, the temptation to use illicit drugs without doing it, the intention to use drugs in the future. Due to the availability of the data collected by the questionnaires used in 2003 and 2011, the following pieces of information were also included regarding these two time points: an academic performance declared by students (0-in the first third of their academic year group, 1-in the second third of their academic year group and 3- in the last third of their academic year group), declaring having stress management problems (-2 –I totally disagree, -1- I disagree, 0-I do not know, 1-I agree, 2-I totally agree), declaring having depressive episodes (-2 –I totally disagree, -1- I disagree, 0-I do not know, 1-I agree, 2-I totally agree) and declaring having friends who experimented with an illicit drug use at least once during their lifetime (0-No/I do not know, 1-Yes)

2.3 Data Analyses

The data analysis was performed with SPSS-15 statistics program. Statistical significance is reported at $p<0.05$.

The chi-square tests were used in order to evaluate the differences regarding the illicit drug use related behaviours, which were observed between boys and girls in each time period, but also between the data regarding female or male samples collected at different time points. For the data collected in 2003 and 2011, bivariate correlations were used in order to assess the association between illicit drug use during lifetime (0-no, 1-yes) and several other variables, namely: academic performance (0-in the first third of their academic year group, 1-in the second third of their academic year group and 3- in the last third of their academic year group), declaring stress management problems (-2–I totally disagree, -1-I disagree, 0-I do not know, 1-I agree, 2-I totally agree), declaring having depression episodes (-2 –I totally disagree, -1-I disagree, 0-I do not know, 1-I agree, 2-I totally agree) and having a friend who has experimented with illicit drug use at least once during lifetime(0-no/I do not know, 1-yes).

3 RESULTS

3.1 The Prevalence and Patterns of Illicit Drug Use

Table 1 shows that illicit drug use was more frequent among boys than girls at all three time points. Among girls the consumption of illicit drugs at least once during lifetime increased statistically significantly from 2.5% in 1999 to 7.5% in 2003 and 15% in 2011. Among boys the trend was also increasing, the prevalence was 14.2% at T1, 18.1% at T2, and it increased dramatically to 30.6% at T3. The use of illicit drugs more than 2 times during lifetime has also increased among both genders.

The illicit drug use in the last month was observed mainly in 2011, the prevalence being 2.5% among girls and 6.2% among boys.

Table 1 also shows that herbal cannabis and cannabis resin were the drugs most frequently consumed. Thus, the percentage of students reporting cannabis use was almost identical to the total prevalence of illicit drug use. Ecstasy was the second most frequent illicit drug used by the students; its consumption had also increased from the first to the third time point (from 0 to 5.6% among girls and from 0.8 to 11.2% among boys). The other types of illicit drugs were less frequently consumed.

The temptation to use illicit drugs among students who did not consume illicit drugs during lifetime (non-users) also increased from T1 to T3, both among girls (from 0 to 7.3%) and boys (from 3.8% to 11.7%).

The intention of using drugs in the future among the non-users was absent at T1, but it increased at T3 to 2.9% among girls and to 7.6% among boys. Among students who consumed illicit drugs at least once during their lifetime the intention of consuming illicit drugs in the future also increased between the first and the last time point, from 0 to 12.5% among girls and from 5.8% to 14.3% among boys.

3.2 Factors Associated with Illicit Drug Use during Lifetime

The results of the bivariate correlation analyses show that both in 2003 and 2011 illicit drug use at least once during lifetime among girls was associated with having friends who experimented with illicit drug use at least once ($r=0.274$, $p<0.001$ in 2003; $r=0.351$, $p<0.001$ in 2011). Moreover, in 2011 girls who used illicit drugs at least once during lifetime were more likely to declare stress management problems ($r=0.239$; $p<0.01$) and depressive episodes ($r=0.180$, $p<0.05$).

Among boys illicit drug use at least once during lifetime was associated at both time points with having friends who experimented with illicit drug use ($r=0.348$, $p<0.001$ in 2003; $r=0.340$; $p<0.001$ in 2011) as well as with having poorer academic performance ($r=0.169$; $p<0.05$ in 2003; $r=0.163$; $p<0.05$ in 2011).

Table 1. Illicit drug use related behaviours among Romanian university students.

Behaviour	1999		2003		2011	
	Girls	Boys	Girls	Boys	Girls	Boys
	N=120 %	N=120 %	N=160 %	N=160 %	N=160 %	N=160 %
Lifetime use of any illicit drug						
Never	97.5*[a,b]	85.8[b]	92.5*[c]	81.9[c]	85*	69.4
1-2 times	1.7*[b]	10	4.4*	11.9	7.5*	15.6
More than 2 times	0.8*[b]	4.2[b]	3.1*	6.2[c]	7.5*	15
Illicit drug use in the last month	0	0	0	0.6[c]	2.5*	6.2
Lifetime use of different types of illicit drugs						
Herbal cannabis/cannabis resin	2.5*[a,b]	14.2[b]	7.5*[c]	17.5*[c]	14.4*	29.4
Cocaine	0	2.4	0	2.5	0	3.7
Amphetamines	0	0	1.2	3.7	2.5	3.1
Ecstasy	0[b]	0.8[a,b]	1.2*[c]	5c	5.6*	11.2
LSD	0	0	0	2.5	1.2	2.5
Heroin	0	0.8	0	0.6	0	0
Lifetime temptation of using illicit drugs among students who never used these substances	0*[b]	3.8[b]	2.7*[c]	6.1[c]	7.3*	11.7
Intention to use illicit drugs in the future among students who never used these substances						
Probably yes	0	0	0	2.5[c]	2.9*	7.6
Definitely yes	0	0	0	0	0	0
Intention to use illicit drugs in the future among students who declared consumption of these substances at least once during lifetime						
Probably yes	0[b]	5.8	8.33	10.3	12.5	14.3
Definitely yes	0	0	0	0	0	0

a - statistically significant differences at chi 2 test between the samples from 1999 and 2003 ($p<0.05$)
b - statistically significant differences at chi 2 test between the samples from 1999 and 2011 ($p<0.05$)
c - statistically significant differences at chi 2 test between the samples from 2003 and 2011 ($p<0.05$)
* - statistically significant differences at chi2 test between boys and girls($p<0.05$)

4 DISCUSSION

This study investigated the illicit drug use related behaviours among students from one big university town in Romania. It has two main strengths. The first one is the study sample, since it represents one segment of Romanian population which has not been included in national representative studies performed until now. In Romania, the National agency against drugs was performing national representative surveys among the general population older than 15 years in 2004, 2007 and 2010, but they did not include information about subgroups, such as university students (13). Moreover, ESPAD- The European School Survey Project on alcohol and other drugs was also performed in Romania, allowing the comparison of Romanian school students with their counterparts from other countries, but the data is limited to the age group 15-16 years (1, 21).

The second strength is that it gives an overview on the evolution of illicit drug use among Romanian university students from 1999 to 2011.

The main finding of the study is the increasing trend of illicit drug use from 1999 to 2011, especially cannabis and Ecstasy, which was observed in both genders. Moreover, the intention to use illicit drugs in the future increased both among students who used or did not try illicit drugs before. An increase in illicit drug use (mainly cannabis) was observed also by another study performed among younger Romanian adolescents aged 15-16 years (21), as well as by a national study performed among the general Romanian population older than 15 years (13). At European level, population survey data suggest that, on average, 31.6% of young European people aged 15–34 years have ever used cannabis, while 12.6% have used the drug in the last year and 6.9 % have used it in the last month. The countries with high prevalence of cannabis consumption in the last year included the Czech Republic, Italy and Spain. The countries with low prevalence of cannabis use in the last year (less than 5%) were Romania, Malta, Greece and Cyprus (14).When looking at trends regarding the last year prevalence of cannabis use among young adults aged 15 to 34 from Europe, of the 12 countries with repeated surveys during the period 2003–2008, the majority report a stable situation (Denmark, Germany, Spain, Hungary, Sweden, Finland, and the United Kingdom). Five countries report an increased cannabis use over this period, of at least two percentage points in Bulgaria, Estonia and Slovakia, and about eight percentage points in the Czech Republic and Italy(14). The ESPAD studies showed that the prevalence of lifetime cannabis use among 15-16 years old school students increased from 2007 to 2011 in several countries of Europe, such as Monaco, France, Poland, Latvia, Romania, Cyprus, Greece, while remaining stable or even decreasing in other countries (e.g. Ukraine, Malta) (21). Unfortunately, less data based on national representative samples are available with regard to illicit drug use among university students in Europe, but several studies performed among university students from different universities in Europe give information with respect to these issues. For instance, a study performed in 2005 in Poland indicates a prevalence of 38.3% of illicit drug use at least once during lifetime among university students from Krakow (19). A French study from 2009 shows a prevalence of illicit drug use of 44% among university students (16). A study performed in seven universities in England, Wales, and Northern Ireland show that 30% of the university students used illicit drugs at least once during lifetime (18). A study from one university in Italy presents that 50.4% of subjects have already tried an illegal drug (17).

Moreover, with respect to gender differences, our study showed that the lifetime use of illicit drugs was higher among boys than girls at each time point, but the ratio of males to females among students reporting the use of illicit drugs in their lifetime varied from 5:1 in 1999 to 2:1 in 2011. Other international studies also underline that illicit drug use is still more frequent among boys than girls in many countries, but differences among genders have started to diminish (4, 14, 15, 21). Similar trends are observed with respect to alcohol and tobacco consumption (21) and might be occurring due to changes in girls' social behaviour, desire for emancipation and social recognition, women's struggle for space in the job market, stress, excessive activity, anxiety, and difficulty coping with problems (22, 23).

The results of our study present friends' influences as playing an important role with respect to illicit drug experimentation, underlining the importance of including in the educational programs for young people issues connected with identification and resistance to peer pressure.

Moreover, among girls, depression and stress are factors associated with illicit drug use, which raise the challenge of developing services which would help university girls to deal with these problems in order to prevent illicit drug use.

Among boys, poor academic performance was associated with illicit drug use, which could be the consequences of the fact that these students are involved in several health risk behaviours, which might influence also their time management and focus for performing academic tasks, with short and long term consequences on their social development.

This study is subject to limitations. First, due to funding and logistical restrictions, the study involved only students from one big university town in Romania. This is inevitably a limit to the generalization of the findings of the study beyond its sample. Second, another common limitation with most studies on this topic is the reliance on students' self-reports. Although some respondents may not report truthfully, the likelihood of honest responses is maximized in this survey by conducting it anonymously. Thirdly, this study included limited data on factors which could be associated with the consumption of illicit drugs among Romanian young people. Hence, future studies should focus more on these issues, since an insight in the determinants of such behaviour might help develop evidence-based prevention actions. Fourthly, the association identified between illicit drug use and several other factors is based on cross-sectional data, so no conclusions could be derived with regard to causality.

5 CONCLUSIONS

The data resulting from our study call for comprehensive health promotion actions, needed in order to prevent the development of illicit drug use to a higher extent in the future in Romania. Hence, as studies from other European countries also suggest, several strategies and measures should be adopted and implemented both on a declaratory and on a practical level in order to prevent the increase of illicit drug use among Romanian young people (10, 21-24). It is recommended that the Romanian government takes an active role in enhancing illicit drug use prevention and health promotion. Suggested means are, for instance: the enforcement of legislative means for discouraging the access to illicit drugs for young people, the inclusion of illicit drug use prevention and health education in the curriculum of junior high school, senior high school and universities, funding the development and evaluation of prevention programmes as well as the dissemination of tested effective programmes at the national level, the promotion of community programmes, and the encouragement of exchanges of good practice, guidelines and quality standards at both national and international level. Long-term strategies must be implemented based on the cooperation between governmental institutions, academic areas, non-governmental organizations and mass media (10, 23, 24).

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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ETHICAL APPROVAL

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1 INTRODUCTION

Excessive alcohol use amongst university students is a major public health concern. Heavy alcohol intake amongst the student population has implications for individual and educational institutions as well as for the wider society. Students have been reported to drink at higher levels than their non-student peers (1), making this an issue of public health concern, given the negative social and health consequences of heavy alcohol intake and the link with other unhealthy behaviours (e.g. cigarette smoking and recreational drug use) (2).

Harmful use of alcohol is related to premature death and avoidable disease, and presents a major avoidable risk factor for neuropsychiatric disorders, cardiovascular diseases, cirrhosis of the liver and cancer. It is associated with several infectious diseases, such as HIV/AIDS and tuberculosis, and contributes significantly to unintentional and intentional injuries, including those due to road traffic accidents and suicide (3).

As levels of alcohol intake increase, so does the prevalence of a variety of risky behaviours, including unsafe sexual activity, behaviour leading to injury and damage of property, violence and illegal behaviour (4). An increased frequency of injury and assault inevitably leads to an increased strain on care and emergency services, as links between alcohol consumption and hospital admissions are well established.Spikes in heavy drinking among 18-24-year-olds are possibly a function of developmental processes occurring in this transitional period, sometimes called “emerging adulthood” (5). During this period of role instability, college attendance is only one of the major life options; young adults may also move away from home (without attending college), begin full-time jobs, take time off to “find themselves,” or join the armed forces (6).

There is little consistent information available regarding the pattern of alcohol consumption amongst Romanian student population (7, 8). The data drawn from the European School Survey Project on Alcohol and Other Drugs carried out in 2011 showed that the percentage of Romanian teenagers (15-16 years) who consumed alcohol during the last 30 days was lower than the European average intake in the case of the countries which participated in ESPAD project (an average of 49 versus 57) (9).

The aim of the current research was to describe drinking patterns of Romanian full-time undergraduate students and alcohol related behaviours.

2 THE METHOD

A cross-sectional study was performed during February-June 2013, the second semester of the academic year 2012/2013.

Students were selected randomly from two main universities in Romania, a university for medicine and a university for law, due to accessibility. The majority were from The Faculty of Medicine (67.3%), and 32.7% from the Faculty of Law. The distribution of participants by the year of study was fairly even: about one-third were in the first year of study, 36.5% in their third and another third in the last year of study (4th year). In order to participate in mandatory activities, in medical school students are divided into 4 groups in each academic year (there are six academic years). The groups (of about 80 students) are divided in six subgroups. Our study included 12 groups from the first year and 12 groups from the third year. All the subgroups present in the classes on the days of data collection were selected. From the law school we included in our study the whole number of the fourth year study, due to logistic accessibility. The selected student sample comprised of 521 students, from a total of 655 medical students and 160 law students. Pen and paper questionnaires were delivered to the students. Questionnaires were administered during mandatory activities (such as lectures, practical activities or exams) to encourage participation. Students were informed that the questionnaires were anonymous and confidential, and that participation was voluntary. All the students agreed to participate (except students who were absent for a legitimate reason). The response rate was 89.82%. During data collection the research team was present in the classrooms. The time required to complete the questionnaire was 25-35 minutes. Informed consent was given by the participants in the study.

2.1 The Instrument

Data were collected using a validated questionnaire which included the Student Alcohol Questionnaire (10). We had the questionnaire translated by two independent translators and, after that, back-translated into English in order to ensure the validity of the translation. Some questions were adapted to Romanian customs and regulations. It contained eight demographic items, six questions for determining quantity-frequency level, 19 statements or problems resulting from drinking. The reliability of the Romanian version of Student Alcohol Questionnaire is similar to the English version (11).

Calculations for this method are based upon the “rule of thumb”: an average glass or a can of beer (50cl) is roughly equivalent to an average size glass of wine (15cl) or a shot of spirits (5cl); in terms of grams, this is approximately 10g of absolute alcohol, according to the European standard unit.

The instrument assessed the usual frequency and quantity of beer, wine and spirits, consumed by the student. The frequency response categories were assigned constant values, so as to make it possible to calculate units per week (every day =7.0, at least once a week but not every day = 3.5, at least once a month but less than once a week = 0.5, more than once a year but less than once a month = 0.12, once a year or less or not at all = 0). To compute the drinks of alcohol consumed on a weekly basis, a mean score was calculated by multiplying the quantity by the recoded frequency weight for each beverage type and summing up the three scores.

From the beverage (beer, wine or distilled spirits) most frequently used and the amount of beverage consumed on a typical occasion, a quantity-frequency level was calculated for each subject, who was then placed in one of three categories, namely: abstainers with no alcohol consumed in the last 12 months; light to moderate drinkers or low risk drinkers; and at risk drinkers or heavier drinkers. Different categories of drinkers were used for males and females. Male students who drank over 21 drinks per week and female students who drank over 14 drinks per week were considered at risk drinkers. In contrast, males who consumed 21or less and females who consumed 14 or less drinks per week during the previous 12 months were considered low risk drinkers.

Only students who had consumed any amount or type of alcohol in the previous 12 months (i.e. drinkers) were asked to report on behavioural problems associated with drinking. A mean score was calculated for each student by assigning one point for each of the 19 problems experienced at least once during the previous 12 months. We divided the reported problems as a result of drinking in six categories, namely: physical problems (hangover, nausea and vomiting), driving problems (driving after drinking, driving after excessive drinking, driving drunk, being stopped by the police for driving while intoxicated), academic problems (skipping a class after drinking, missing a class after drinking, coming to a class after drinking, receiving a lower grade because of drinking), problems with authorities (having trouble with the law because of drinking, having trouble with school administration because of drinking), violence problems (fighting with someone after drinking and damaging university property, setting of a false fire alarm because of drinking), others (being criticized by a date because of drinking, losing a job because of drinking, participating in a drinking game, forced someone or were forced to have sex, being aware of the drinking problem).

2.2 Data Analyses

For other calculations, such as the cross-tabulation of various demographic variables and drinking patterns, χ^2 analyses from the Statistical Package for the Social Sciences Program (SPSS 20) were used.

The χ^2 test was used to assess differences in data, Anova with post-hoc Games Howell test to assess the variation between categories. We considered statistically significant the results with $p<0.05$.

3 RESULTS

The sample of 468 undergraduate students consisted of 35.5% of males and 64.5% of females. The average age of the students was 21.9±3.22 years.

Students in the fourth year drank more than students in the first year or students in the third year. Males drank more than females ($p<0.001$).

Most of the students were living in rented apartments with other friends (students) (25.4%) or on university campuses (25.4%). About 60% of participants were unmarried and over one third (35.9%) were involved in relationships. Statistical analyses showed that there were no differences in alcohol consumption depending on the living situation (Table 1). On the other hand, marital status influenced the amount of alcohol intake. Religion appears to be a reason to decrease the alcohol intake.

Table 1. The alcohol intake depending on characteristics of the study group.

Variables	The number of respondents (percent)	Total g of absolute alcohol/week	t* or F**	p
Gender				
Male	166 (35.5)	118.30±126.84	t=2.78	<0.001
Female	302 (64.5)	84.11±112.77		
Age (mean±SD)	21.9±3.22 years			
Year of study				
1st	144 (30.8)	67.19±100.87	F=8.62	0.004
3rd	171(36.5)	88.70±126.67		
4th	153 (32.7)	92.73±110.94		
Living situation				
With parents	132 (28.2)	84.73±121.77	F=0.742	0.564
Rented apartment (alone)	72 (15.4)	118.16±132.54		
With other friends (rented apartment)	119 (25.4)	95.17±102.47		
University Campus (dormitories)	119 (25.4)	93.30±115.63		
Private university building	16 (3.4)	118.47±170.62		
***NR	10(2.2)			
Marital status				
unmarried	282 (60.2)	84.68±118.46	F=0.320	<0.001
in a relationship	168 (35.9)	79.51±99.10		
married	13 (2.8)	89.56±134.72		
divorced	5 (1.1)	126.10±271.90		
The importance of religion				
Important	178 (38.05)	65.68±90.68	t=0.178	<0.001
Not important	289 (61.75)	110.85±127.69		
***NR	1(0.2)			

*t test
** Anova
***non-respondents

We divided the study group into three subgroups: abstainers, low risk drinkers and at risk drinkers, as we have shown above, depending on the consumed amount of alcohol. The study reveals that 15.2% of students did not drink alcohol (18 males and 53 females) (Table 2). 69.9% of males and 66.2% of females drank within the low risk level of alcohol consumption (1-21units/week for males and 1-14 units/week for females). The findings showedhigh percentages of heavy drinking students (17.3%), composed especially of males (19.3%). There was no statistically significant difference in the participants in terms of heavy drinking by gender ($\chi^2=0.470$, df=1, p>0.05).

Table 2. Categories of drinkersby gender.

Categories of drinkers	Total number (%)	Males number (%)	Females number (%)
Abstainers	71 (15.2)	18 (10.8)	53 (17.6)
Low risk drinkers	316 (67.5)	116 (69.9)	200 (66.2)
At risk drinkers	81 (17.3)	32 (19.3)	49 (16.2)

We calculated the amount of alcohol ingestion depending on the type of beverage and the percentage of absolute alcohol contained in it. Beer appears to be the most popular beverage and the beverage most likely to be consumed by heavy drinkers (Table3).

Table 3. Amounts of alcohol consumed, by the type of beverage and percentage of absolute alcohol contained in it.

Categories of drinkers	Low risk drinkers Males	Low risk drinkers Females	At risk drinkers Males	At risk drinkers Females
Grams of beer/ week (mean±SD)	34.71± 47.27	12.40± 13.99	179.97± 88.85	147.23± 96.41
Grams of wine/ week (mean±SD)	34.71± 47.24	12.72± 12.61	89.17± 80.15	99.32± 85.74
Grams of spirits/ week (mean±SD)	10.77± 14.79	9.64±1 6.74	45.26± 63.64	38.91± 58.72
Total Grams of alcohol/week (mean±SD)	64.19± 57.60	34.77± 27.08	314.44± 115.49	285.47± 105.503

Problems resulting from drinking. Most students who drink at risky levels reported physical problems (hangovers, nausea and vomiting). Other problems reported in higher score by heavy drinkers were academic problems, such as coming to a class after drinking and missing a class after drinking (Table 4). Certain types of problem behaviour, such as problems with violence (fighting) or the authorities, were reported without differences between the categories of drinkers (Table 4).

Table 4. Scoring reported problems resulting from drinking.

Problems	Low risk drinkers (mean±SD)	At risk drinkers (mean±SD)	t (t test)	p value
Physical problems	4.77± 2.35	6.44± 2.28	5.71	<0.001
Problems related to car driving	4.60± 2.07	4.75± 1.85	0.588	<0.05
Problems related to academic performance	5.07± 2.36	6.32± 2.65	4.133	<0.001
Problems with authorities	2.15± 0.83	2.09± 0.40	0.619	>0.05
Problems with violence	2.34± 1.20	2.44± 1.18	0.645	>0.05
Others	5.77± 2.21	6.43± 2.73	2.66	0.02

Table 5 shows a multivariate analysis between the categories of drinkers, divided by the quantity–frequency levels of alcohol intake, hours of individual study and grade point average. As the findings show, the number of hours of individual study is statistically significantly associated with the level of alcohol ingestion (F=3.242 and p=0.007). The present study shows that abstainers had the greatest numbers of study hours per week. Despite these differences in studying hours, grades obtained by students in the previous semester were not associated with quantities of alcohol drinking.

Table 5. Multivariate analyses between categories of drinkers and hours of individual study/week and grade point average in the previous semester.

Categories of drinkers	Hours of individual study/week*	Grade point average in the previous semester**
Abstainers	21.31±13.76	8.04±0.93
Low risk drinkers	18.95±13.09	8.43±6.17
At risk drinkers	15.77±10.32	7.80±1.08
Total	19.13±14.30	8.48±5.53

*Anova F=3.242, df=5, p=0.007
**Anova F=0.454, df=5, p=0.810

4 DISCUSSION

Binge drinking represents a rising problem in Europe, and the younger population is the most exposed category. The aim of this study was to estimate alcohol consumption among Romanian university students and to describe alcohol ingestion related behaviours. There is a lack of research regarding drinking amongst young adults attending university. The vast majority of these studies are based on the US and on Canadian samples. The data provided by WHO statistics showed that the average annual alcohol consumption for Romanian people over 15 years of age measured in pure alcohol was about 14.4 litres per capita per year in 2010 (including the unrecorded consumption). In Central and Eastern European countries, there was an overall increase in alcohol consumption per capita between the years 1990 and 2010 (13). Large population studies within the USA have suggested that students aged 17–23 years have much higher binge drinking rates than older students. Recent concerns have been focused on the practice of binge drinking, typically defined as consuming five or more drinks in a row for men, and four or more drinks in a row for women, in the past 30 days (14). A shorthand description of this type of heavy episode drinking is the 5/4 definition. It should be noted, however, that colleges vary widely in their binge drinking rates – from 1 percent to more than 70 percent –

and a study on one campus may not apply to others (15). In addition, hazardous drinking in men occurs with over 21 units of drinks consumed per week and in women with over 14 units of alcohol consumed per week. According to this definition, the findings of the present study show that 17.3% of the students were heavy drinkers, consuming about 300.58±100.91 grams of absolute alcohol per week. The results of our study reveal a great incidence of heavy drinking among women (16.2%) compared to men (19.2%). On the other hand, the results of our research are similar to other studies indicating that male students, in particular, tended to consume alcohol more often and in higher quantities (16-18).Other studies showed that this proportion of heavy drinking decreased significantly at the age of 24 with both genders (19). Wechsler suggested that women who drink are less willing to recognize their alcohol problem (20).

In terms of living arrangements, in our study, students who were living in rented apartments reported higher levels of alcohol consumption than students who were living with their families. Nevertheless, the results were not statistically significant. These findings are similar to the ones of other studies which revealed that factors influencing student drinking are: a substantial amount of unstructured time, living situation (e.g., at home with parents, on campus, off campus), university life. Other studies showed that rates of alcohol abuse and dependence are roughly equivalent for college and non-college individuals, and that the development of alcohol-use disorders among young adults is more related to their living situations (e.g., at home with parents, on campus, off campus) than to a college status itself (21-23). In our survey, 28.9% of the participants were living with their parents and the rest of them with college mates or alone (15%), supporting the data from previous studies which show that students who chose not to drink often do so because their parents had discussed alcohol use and its adverse consequences with them (24, 25).

Marital status and religion appear to influence the alcohol intake. The results are consistent with other studies which show that people involved in a relationship are less likely to consume large amounts of alcohol (26).

Analyses of drinking habits in our university population indicate that students in the fourth and third year drank more than students in the first year. Certainly, the pattern of changes in alcohol consumption over the academic years differs across different studies (27, 28).

Furthermore, this study provided the evidence of behavioural consequences associated with alcohol consumption. Consistent with findings from previous studies, our study shows that students who drank over low risks limits reported physical problems and were more likely to develop risky behaviours, like driving under the influence of alcohol (29). However, violence or problems with authorities were poorly reported by drinking students, regardless of the findings of other studies (30). We should take into account that respondents who participated in this study were medical and law students. Medical and law school environments might influence students' behaviours after drinking (through both formal and informal or hidden curriculum).

On the other hand, the survey reveals the effects of excessive drinking on academic performance. The data of our study showed that at risk drinkers reported a significantly higher score of academics problems, such as missing school, coming to a class after drinking and cutting a class after drinking, including receiving a lower grade after drinking, suggesting that drinking problems interfere with academic performance and assignments. The results also showed that alcohol consumption had a negative effect on study hours and that the amount of alcohol consumed correlates in a negative way with the time spent on academic activities. Apparently heavy drinkers obtained the lowest semester grades compared with other categories of drinkers, but results are not statistically significant.

More research evidence is required before the question of whether or not alcohol consumption has a detrimental effect on academic performance can be answered (31). In addition, it is essential that the 'pattern' of consumption be considered. For example, binge drinking once a week on Friday might have very little detrimental effect on academic performance, but drinking 2–3 units regularly (yet still staying within 'sensible' weekly guidelines) at lunchtime before afternoon classes may not be without effect (32).

One of the limitations of this study is the self-administered questionnaire (33). As with all questionnaire surveys, it is difficult to assess the accuracy of the data. However, the questionnaire was completed by the students on voluntary, anonymous and confidential basis, which we think promotes a more reliable response. Restrictive (medical, legal) educational program concerning alcohol consumption itself among selected university students could have impact on the results. Another limitation of our study pertains to the assessment of the amount of alcohol intake. Romanian drinks could contain different amounts of pure absolute alcohol from the ones we considered in this study.

While behavioural consequences have been highlighted, the immediate physiological consequences of hazardous drinking may be less obvious, but just as important. Binge drinking is associated with adverse effects on blood homeostasis and cardiac rhythm, ischemic heart disease, white blood cell activity, female reproductive level and the fetus (1, 34).

Despite efforts, the magnitude of college student drinking and alcohol-related problems has not decreased significantly in the past 15 years (35). Taking into account the large number of heavy drinkers, the study highlights the need of alcohol drinking prevention among Romanian students. It is possible that heavy drinking is related to other risky behaviours, such as illicit drug experimentation and tobacco use – behaviours we did not discuss in this study.

The educational programs should increase student awareness of alcohol related problems, change attitudes and beliefs, and foster each student's determination to avoid high risk problems. The prevention should focus on student drinking on campus, and also cover off-campus behaviour (36), because the study showed that about 40% of students are living in rented apartments in the city. The educational programs should focus not only on individuals, but also on groups, institutions, communities and public policies (37, 38).

Legal measures should be adopted to limit alcohol sales on campuses or near them.

5 CONCLUSIONS

The study reveals that 15.2% of Romanian university students did not drink alcohol and about 17% were heavy drinkers (drinking five drinks more than once a week). The most frequent drinking problems and behaviours are also related to academic performance and had even occurred in the past, suggesting drinking experimentation at a younger age. Our findings reveal the need of public health and individual policies which would reduce drinking and alcohol-related consequences.

CONFLICTS OF INTEREST

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ETHICAL APPROVAL

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THE ANALYSIS OF SLOVENIAN POLITICAL PARTY PROGRAMS REGARDING DOCTORS AND HEALTH WORKERS FROM 1992 TO 2014

ANALIZA PROGRAMOV SLOVENSKIH POLITIČNIH STRANK V LUČI VSEBIN, POVEZANIH Z ZDRAVNIKI IN ZDRAVSTVENIMI DELAVCI OD LETA 1992 DO LETA 2014

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ABSTRACT

Keywords:
medical doctors, health workers, party programmes, political parties, Slovenia

Introduction. The study focuses on the programmatic bases of Slovenian political parties since independence. It presents an analysis of party programs and their preferences regarding doctors and other health workers, as well as the contents most commonly related to them. At the same time, the study also highlights the intensity of the presence of doctors on the policy agenda through time.

Methods. In the study, 83 program documents of political parties have been analysed. The study includes programmes of political parties that have occurred in parliamentary elections in Slovenia between 1992 and 2014 and have exceeded the parliamentary threshold. The data were analysed using the content analysis method, which is suitable for analysing policy texts. The analysis was performed using ATLAS.ti, the premier software tool for qualitative data analysis.

Results. The results showed that doctors and other health workers are an important political topic in non-crisis periods. At that time, the parties in the context of doctors mostly dealt with efficiency and the quality of services in the health system. They often criticize doctors and expose the need for their control. In times of economic crisis, doctors and other health workers are less important in normative commitments of parties.

Conclusions. Slovenian political parties and their platforms cannot be distinguished ideologically, but primarily on the principle of access to government. It seems reasonable to conclude that parties do not engage in dialogue with doctors, and perceive the latter aspassive recipients of government decisions—politics.

IZVLEČEK

Ključne besede:
zdravniki, drugi zdravstveni delavci, strankarski programi, politične stranke, Slovenija

Izhodišča. *Študija se osredotoča na programsko podlago delovanja slovenskih političnih strank po osamosvojitvi. Predstavlja analizo strankarskih programov in njihovih stališč do zdravnikov in drugih zdravstvenih delavcev ter vsebine, s katerimi jih najpogosteje povezujejo. Ob tem študija izpostavlja tudi intenzivnost prisotnosti zdravnikov na dnevnem redu politike skozi čas.*

Metode. *V študiji je analiziranih 83 programskih dokumentov političnih strank, ki so med letoma 1992 in 2014 nastopile na volitvah v Državni zbor in presegle parlamentarni prag. Podatki so analizirani s pomočjo metode analize vsebine, ki je primerna za analizo političnih besedil. Analiza je bila izvedena s pomočjo programskega orodja za analizo kvalitativnih podatkov ATLAS.ti.*

Rezultati. *Rezultati so pokazali, da so zdravniki in drugi zdravstveni delavci pomembna politična tema v obdobjih, ko ni kriz. Takrat se stranke v povezavi z zdravniki največ ukvarjajo z njihovo učinkovitostjo in kakovostjo storitev v zdravstvenem sistemu, pri čemer se pogosto izpostavljajo tudi kritike zdravnikov in potreba po njihovem nadzoru. V času gospodarske krize se kaže manjša pomembnost zdravnikov in drugih zdravstvenih delavcev v normativnem delovanju strank.*

Zaključki. *Slovenske politične stranke se v svojih programskih izhodiščih ne ločijo po ideološki liniji, temveč predvsem po načelu dostopa do oblasti. Zaključiti velja, da stranke dialogu z zdravniki ne posvečajo pozornosti in dojemajo zdravnike kot pasivne prejemnike odločitev vlade oziroma politike.*

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1 INTRODUCTION

Political parties are coalitions of people seeking to control the governing apparatus by legal means. They act solely in order to attain the income, prestige, and power which come from being in office (1). Broadly speaking, political parties are the main actors in the political life of a community, and their only goal is to reap the rewards of holding office. They treat policies purely as means to attain their private ends, which they can reach only through election. In other words, "parties formulate policies in order to win elections, rather than win elections in order to formulate policies" (2). The latter are therefore often tailored to public opinion, and the most influential forces in the party (politicians and their consultants) prepare them, rather than professionals, as is expected (3). Political parties have an important role in democratic governments in which two or more parties compete for control of the governing apparatus in every election. While parties that have lost elections stay in an opposition, winning (government) parties are the locus of the ultimate power in society (1).

Ever since Slovenia achieved independence, Slovenian politics (governments) have often been reproached for not being able to meet healthcare challenges and for preventing the introduction of healthcare reform and stabilization of the public healthcare system (4). Despite all of the strategies and measures implemented to date, the system continues to face basic challenges, such as increasing the efficiency of the healthcare system and subsequently maintaining a balance between increasingly greater needs for treatment and its costs and limited funding (5). In particular, the government was charged with the neglect of changed orientations in healthcare (e.g., changed demographic indicators, the changed workload of doctors and other health workers, and the absence of analyses (6) and a regulatory mechanism for making decisions regarding people's needs) and problems arising from the system of financing primary healthcare (7). Ever since the early stages of Slovenia's independence, politicians who have been making healthcare decisions have not shown a proper desire for change, which their acting according to the principle of "putting out fires" reflects (8).

Frequent generous promises and commitments reflect the lack of clear priorities in Slovenian politics and merely force doctors and other health workers into making unpleasant compromises and, subsequently, providing a lower level of service than professional guidelines envisage (9). Slovenian healthcare (medical community) has been drawing attention to these problems for quite some time now (8). Doctors' appeals for the political elite to be more open and prepared to engage in dialogue are the consequence of various problems piling up, such as the gap between the system's promised and actual capacity, lack of staff, and financial and infrastructural problems (9–12). Problems in healthcare system are reflected in the diminished prominence of the medical profession and healthcare in general and, also strongly interfere inter alia with the doctor-patient relationship because this relationship affects patients' trust in the professionalism of doctors and other medical staff (9).

The medical profession has called upon political parties and politicians multiple times to take a view on doctors' position in Slovenian society or to provide mechanisms that would enable doctors and other health workers, as the presumed providers of healthcare activities, to take part in shaping healthcare policies (8). However, the question that might prove key to the potential partnership between doctors and politicians is what kind of a partner politicians actually see in doctors.

1.1 Why Study Political Party Healthcare Programs?

As key actors of a representative democracy system (1, 13), political parties usually create their own programs based on their ideological orientations and preferences and use their programs to formally demonstrate their value starting points and views on individual public policies. The "semantic nodes" (14) in their program documents allow political parties to distinguish themselves from competitive parties and provide an opportunity to voters and various other organized interest groups[1] to grant them political support (15). Because this last process includes choice, the key component of obtaining voters' support is the focus on the differences in the material that the parties communicate during their election campaigns (15). In practice, this means that political party programs offer voters and interest-group representative's information on what course of action the party will pursue if it wins, but it also means that the voters withdraw their support if the party does not manage to fulfil the normative starting points set out in its program (15). Even though the majority of voters ignore political party programs, these programs nonetheless represent a comparable set of conceptual starting points that present the publicly declared objectives of political parties and are the only reliable proof of politicians' commitments at the normative level (1, 13, 15).

The basic purpose of analysing political party programs is thus to systematically monitor the information that the parties convey about their visions for regulating specific

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[1] This applies especially to political systems with considerable neo-corporate components. Slovenia is a system with a considerable share of neo-corporate mechanisms (e.g., the second chamber of parliament, trade unions as large intermediary neo-corporatist interest organizations, government pacts with "social partners," etc.) (16–18).

public policy areas. By identifying the scope, order, and complexity of various public policy areas in the party programs, one can determine the party's priorities, which later usually find a place in government measures (15).[2] Therefore, studying political party programs is useful not only from the viewpoint of identifying the signals that parties send to voters and other important healthcare decision-makers but also from the viewpoint of predicting what they will do when (or if) they come to power.

1.2 Contextualization in the Existing Body of Research on Healthcare and Politics

A number of researchers are studying the impact of healthcare policy on people's health, but only a few are dealing with the impact of party policy on healthcare policy and/or its results (19). Soroka and Lim (20) conducted one of the few studies of party programs from the perspective of healthcare policy, using the US and UK as examples and focusing on the general and specific healthcare policy goals as set out in party programs (20). Similarly, a study by Benrick and Myers focused on how much attention political parties dedicated to healthcare issues in their programs (21). In the US, this link between political parties and healthcare policy is strengthening, which is the result of Obama's planned healthcare reforms and the increased attention that other political actors have also begun to dedicate to these topics (22–25).

The majority of Slovenian studies dealing with conditions in the field of healthcare policy provide a chronological overview of the development of public health legislation (4, 26–28). These studies are primarily based on the analysis of public policy documents and draft reforms, and showboth unsuccessful and successful implementations of individual measures under various governments. Among other things, the analysis of the program identity of parliamentary parties in the first parliamentary elections in 1992 showed that the majority of parties included healthcare in their programs in one way or another, but the analysis did not indicate what position Slovenian political parties took on this public policy or its providers (29). However, the medical profession largely draws attention to the negative influence of party policy on healthcare and the work of the health ministry (30), but does not locate the origin of the issue itself within the operation of political parties.

This study fills the highlighted gaps and rectifies the lack of a comprehensive study of political party programs, as it focuses on the conceptual basis of parties' operations and reveals whether political parties create inappropriate conditions for the successful operation of public healthcare policy in their (normative) starting points or whether this is more a question of their operation and lack of fulfilment of their program commitments. This study thus offers the basis for correcting the political parties' problematic attitudes towards doctors and other health workers and provides an evaluation of the extent of attention that Slovenian political parties dedicate to this area.

2 METHODS

2.1 The Data

This study covers the period from Slovenia's first parliamentary elections until 2014, and it is the first Slovenian study of this type. It analyses 83 program documents of political parties that participated in the National Assembly elections between 1992 and 2014, and passed the electoral threshold. Of these, 47 are party programs that were mainly adopted at party congresses, and 36 are electoral manifestos that the parties used in the parliamentary elections. The study thus includes all relevant political parties' program documents and official positions. We employed a purposive sampling procedure that is virtually synonymous with qualitative research. We used the technique of "criterion sampling" (31) and selected cases (parties and their programs) that meet a certain criterion, which, in our case, is a leap of the electoral threshold in parliamentary election.

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[2] Both a test of individual governments' expenditures for individual areas and the final versions of the coalition agreements that the parties drew up based on their programs confirmed a connection between the party programs and the operation of governments (13).

Table 1. Analyzed political party program documents.

Political party	Party acronym	The number of program documents				Total
		‘92-‘97	‘98-‘03	‘04-‘09	‘10-‘14	
The Alliance of Alenka Bratušek	ZaAB	0	0	0	1	1
The Democratic Party	Demokrati	1	0	0	0	1
The Democratic Party of Pensioners of Slovenia	DeSUS	1	2	3	3	9
The Civic List	DL	0	0	0	3	3
The Liberal Democracy of Slovenia	LDS	2	1	3	2	8
The Party of Miro Cerar	SMC	0	0	0	1	1
The Youth Party of Slovenia	SMS	0	1	0	0	1
The Positive Slovenia	PS	0	0	0	3	3
The Slovenian Democratic Party (formerly The Social Democratic Party of Slovenia)	SDS	5	2	4	2	13
The Slovenian People’s Party*	SLS	2	2	3	3	10
The Slovenian National Party	SNS	1	2	2	1	6
The Slovenian Christian Democrats (The New Slovenia – The Christian Democrats)	SKD/NSi	2	3	5	3	13
The Social Democrats (formerly The United List of Social Democrats)	ZLSD (SD)	3	1	3	3	10
The Greens of Slovenia	ZELENI	1	0	0	0	1
The United Left	ZL	0	0	0	1	1
Zares – Social Liberals	ZARES	0	0	2	0	2
Total		18	14	26	26	83

* The SLS+SKD coalition program from the national election in 2000

We divided the programs analysed into four periods based on the time of their creation: three six-year periods (starting in 1992) and one final period covering the election years 2011 and 2014. During this time, the parties participated in seven parliamentary elections using party programs or programs prepared especially for the elections.

2.2 The Instrument

We performed the first part of the analysis using the ATLAS.ti software tool and the keyword-in-context (KWIC) technique, through which one can use a selected keyword to capture the parts of a text around the keyword (32). By viewing the context of a selected part of a text, one can establish what a given word refers to in that part of the text. We defined the keywords used refer to doctors and other health workers and the roots of three words: zdravnik [zdravn*], “doctor;” zdravstveni [zdravstv*], “health;” and medicinski [medicin*], “medical.” We coded all parts of the text manually in ATLAS.ti and excluded the parts of the programs analysed that did not refer directly to doctors and other health workers (zdravstveno varstvo, “healthcare,” medicina, “medicine,” etc.). The analysis thus included those parts of the text that mentioned health workers as part of the word phrase [zdravstv* “health” | delavec “worker” | osebje “staff” | tehnik “technician”] or [medicin* “medical” | delavec “worker” | osebje “staff” | tehnik “technician” | sestra “nurse” | brat “male nurse”] and doctors were mentioned as “doctors” or as “specialists” for a given area (e.g., GP, family doctor, surgeon, pediatrician, gynecologist, etc.).

2.3 The Content Analysis and Coding Process

We analysed the data using the content analysis method, which is one of the most robust methods for analysing political texts (15, 32). A quantitative content analysis method was used to identify the scope of the selected public policy segment in the parties’ program documents (33), and a qualitative approach was used to define the content-related differences in the political parties’ positions (34, 35).

We used qualitative or inductive content analysis (35) that included coding, creating categories, and abstraction—framing a general description of the research topic through generating categories. Two researchers independently coded political party program documents, and the third researcher supervised the process. For the study, we used a data-driven coding scheme (34) and formed codes sorted into 13 logical categories and 4 themes to identify patterns in analysed data and to explain political parties’ attitudes towards doctors and healthcare workers. During the coding process, the two researchers sought consensus. If they did not reach consensus, we tried to achieve intercoder agreement (36) about differently perceived parts of the analysed text to fit the created category (also known as “unitizing process”) (34, 36).

The analysis process and the results are described and presented in sufficient detail so that readers have a clear understanding of how the analysis was carried out and it strengths and limitations. The latter means the dissection of the coding process and the validity of results. Elements of validity in the content analysis are “universal to any qualitative research design; there are additional factors to take into consideration when reporting the process of analysis and the results” (35).

We used a multi-level coding method to combine the selected parts of the text into categories and themes that we could methodically describe. We named the categories according to the content of the programs analysed, following the inductive content analysis method (35). We then combined the categories into themes that were more abstract than the categories created, and suitable for presenting and interpreting the results obtained. The data were visualized using heat diagrams, which show the weighted[3] occurrence of individual categories and themes in the program group observed (e.g. programs in an individual period or programs for individual parties).

3 RESULTS

By analysing the coded programs, we combined the identified codes that appear in the programs into 13 categories, namely: the autonomy and rights of doctors and other health workers; providing or improving the working conditions of doctors and other health workers; the education of doctors and other health workers; the human resources planning and measures; penalties and sanctions; the supervision of doctors and other health workers; complaints about doctors and other health workers; private interests of doctors; the responsibility of politics; taking account of patients’ feedback in the evaluation of doctors and other health workers; measures for quality improvement; measures to improve efficiency; and the introduction of rewards depending on the quality of the work of doctors and other health workers. These categories were then further classified into four themes according to references to doctors and other health workers: 1) autonomy and working conditions; 2) human resources and education; 3) complaints; and 4) efficiency and quality.

3.1 The Main Party Program Themes over Time

The first theme identified refers *to human resources and the education of healthcare professionals*, and the second refers to *the autonomy and working conditions of doctors and other health workers*. The third theme has a negative connotation and refers to *complaints about doctors and other health workers*. It also includes the parties’ appeals for supervision of doctors and other health workers and incentives and proposals for penalizing errors in diagnostic procedures. The fourth theme includes *measures that will contribute to greater employee efficiency and improved service quality* in Slovenian healthcare. A diagram of the themes identified across the four periods studied is presented below.

	‘92-‘97	‘98-‘03	‘04-‘09	‘10-‘14
Autonomy and working conditions	0.56	0.36	1.08	0.19
Human resources and education	0.11	0.07	1.46	0.38
Complaints	0.33	0.71	1.31	0.42
Efficiency and quality	0.44	0.36	3.04	0.62

*Darker shades indicate higher frequencies and lighter shades indicate lower frequencies or an absence of references to a particular theme. White indicates the absence of the theme in the program, and black indicates that the theme occurs 3.04 times in a particular program.

Figure 1. Heat diagram of identified themes regarding doctors and other health workers in party programs*.

Figure 1 shows that the parties discussed all four themes in their programs to the largest extent in the period from 2004 to 2009, which corresponds to the beginning of Slovenia’s European Union (EU) membership. During that time, the political elites (the coalition and opposition) stopped focusing on adapting their standards to those of the EU and were no longer subject to the strict supervision of the European Commission, which was typical of the integration period (1997-2003). The diagram also shows that, in contrast to the two preceding periods, at that time doctors and other health workers became an important political topic. In their programs, political parties most often highlighted measures for greater employee efficiency and improved service quality in the healthcare system, which clearly reflects the frequently emphasized inefficiencies of the healthcare system. These inefficiencies were high on the public policy agenda during the introduction of “lean economy” reforms and promotion of the private-public

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[3] The result for each program group observed is the ratio between the frequency of occurrence of individual categories and themes and the number of programs within the group observed by individual period.

partnership concept. This is followed by human resources and education of healthcare professionals, as well as complaints, supervisory measures, and sanctions against doctors, which says a great deal about how political actors viewed healthcare. We will discuss this further in the next chapter.

In contrast, in the two periods before 2004, especially between 1992 and 1997, political parties primarily focused on the need for autonomy and suitable working conditions for doctors and other health workers in their programs. This was a period of stabilization after intense social changes that introduced liberal values such as individuals' rights and freedoms. The parties also mentioned doctors and other health workers within this context, claiming that they have "a right to continuous professional training and fair evaluation of their work" (SKD, 1992) and "a right to refuse to take part in procedures that violate international medical and ethical rules and are against the will of an individual health worker" (SKD, 1994).

During the last period (i.e., from 2010 onwards), parties mention doctors and other health workers somewhat less frequently in their programs. This suggests that this theme is less relevant in the normative operations of political parties, which the global financial and economic crisis has strongly influenced. The latter is the reason why economic issues predominate in the political agenda. However (especially from the cost-savings perspective), the measures for greater efficiency of healthcare professionals within the existing capacities and the improved quality of healthcare services continue to be relevant; ultimately, all of this belongs to the context of this period. The Slovenian People's Party (SLS) highlights the following: "We'll increase the importance of family doctors and enhance the role of specialist clinics outside the cities. This will reduce the pressure on hospitals, which will increasingly admit only those patients that cannot be treated in their local environment" (SLS, 2014). Currently, parties are also highlighting the need for supervision of health workers, which one can ascribe to ongoing discussions in the media that negatively affect the image of all healthcare professionals.[4]

3.2 Key Categories within the Themes Identified over Time

As mentioned above, the programs most often refer to the theme "efficiency and quality of health workers," followed by "complaints, supervisions, and sanctions against health workers" and then "autonomy and working conditions." This last theme was more pronounced in the early periods observed, but taking a closer look at individual categories within the themes identified reveals a somewhat different picture. The post–EU-entry period between 2004 and 2009 remains the most "fruitful" for doctors. Four main categories characterize this period. The most pronounced are "human resources planning and measures" and "measures to improve efficiency," which clearly point to the frequently highlighted tendencies of political actors towards neoliberal-agenda-induced processes of economizing healthcare and health workers (e.g., introducing the principles of new public management). The Social Democrats (SD) thus advocated "improving the operations of healthcare institutions by introducing managerial principles to management and economizing principles to the provision of healthcare services" (ZLSD/SD, 2004).

Within this context, the parties envisaged certain changes to the public healthcare system in order to shorten waiting periods and improve coordination between various healthcare levels; these changes sought to increase doctors' responsibilities, introduce public-private partnerships, and further privatize healthcare activities. The Slovenian Democratic Party (SDS) thus envisaged the following: "In order to shorten waiting periods, we will first define HR bottlenecks and make it possible for an individual doctor to engage in more than one programme" (SDS, 2004). On the other hand, the Liberal Democracy of Slovenia (LDS) emphasized this: "We will allow the specialist physicians at public healthcare institutions to also work for self-pay patients after they finish work at their public healthcare institutions. This will be made possible through the option of replacing collective agreements with an individual contract" (LDS, 2008). With regard to increasing private practice, the SDS similarly envisaged the following: "We will selectively shorten the waiting times to reasonable deadlines by introducing uniform organizational solutions at the national level and by defining priorities, reallocating funds, improving the network of GPs, increasing the number of hours performed as a part of private practice, and, if needed, increasing the number of programmes at specialist clinics" (SDS, 2004).

However, one must note that the following two categories, which are more pronounced, show the other side of the coin and focus on the working conditions of healthcare professionals ("providing or improving the working conditions of doctors and other health workers") and their motivation ("rewards based on the quality of work of doctors and other health workers"). In order to meet EU standards, the parties highlight in their programs the introduction of a system of rewards based on the quality of work, in which they emphasize equal working conditions for all doctors, which must be "EU comparable" (SLS, 2007). Within the context of rewards based on the quality of work, the LDS pointed out the following: "We will study the possibility of doctors' salaries being dependent on

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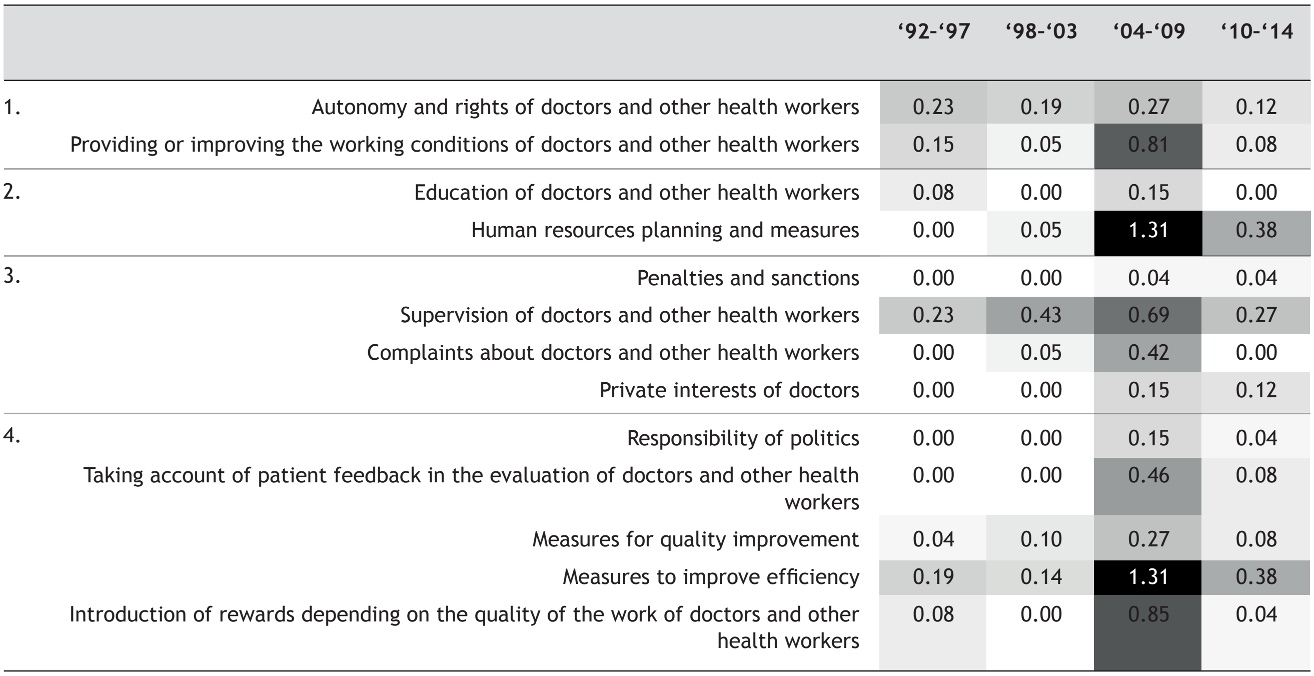
[4] Slovenian daily newspapers and magazines have published a series of articles on this topic in the last few years (e.g., 37, 38).

their productivity by defining a variable part of a doctor's salary: the part that will depend on his productivity, the quality of his work, and his efficiency" (LDS, 2008). Figure 2 shows the categories within individual themes by the four periods observed.



		'92-'97	'98-'03	'04-'09	'10-'14
1.	Autonomy and rights of doctors and other health workers	0.23	0.19	0.27	0.12
	Providing or improving the working conditions of doctors and other health workers	0.15	0.05	0.81	0.08
2.	Education of doctors and other health workers	0.08	0.00	0.15	0.00
	Human resources planning and measures	0.00	0.05	1.31	0.38
3.	Penalties and sanctions	0.00	0.00	0.04	0.04
	Supervision of doctors and other health workers	0.23	0.43	0.69	0.27
	Complaints about doctors and other health workers	0.00	0.05	0.42	0.00
	Private interests of doctors	0.00	0.00	0.15	0.12
4.	Responsibility of politics	0.00	0.00	0.15	0.04
	Taking account of patient feedback in the evaluation of doctors and other health workers	0.00	0.00	0.46	0.08
	Measures for quality improvement	0.04	0.10	0.27	0.08
	Measures to improve efficiency	0.19	0.14	1.31	0.38
	Introduction of rewards depending on the quality of the work of doctors and other health workers	0.08	0.00	0.85	0.04

*Darker shades indicate higher frequencies, and lighter shades indicate lower frequencies or the absence of references to a particular category. White indicates the absence of the theme in the program, and black indicates that the theme occurs 1.31 times per program.

Figure 2. Heat diagram of categories identified within the theme occurrences regarding doctors and other health workers in party programs*.

Nonetheless, among the categories of the post-EU-entry period that stand out the most, one can find the tendency to suggest "supervision of doctors and other health workers," which might imply that political actors do not trust the health workers, especially in terms of their professionalism. The Slovenian People's Party (SLS) proposes the following as a part of supervisory measures: "The scope of work of a specialist physician that works as a concessionaire should be defined in great detail and it should be ensured that everyone in the chain that treats an individual patient does his or her work, and does not only do the easier part and leave the rest to someone else" (SLS, 2008). Moreover, this is a category that persists across all of the periods observed and has been one of the most stable in terms of occurrence and intensity in party programs since Slovenia's independence (see Figure 2). However, one should note that supervision of doctors' work may also refer to the public-private relationship. For example, the SLS highlights the following: "Concession contracts should accurately define the scope of work of a specialist physician that works as a concessionaire" (SLS, 2004).

It is interesting that the supervision category, which occurs in the party programs as a category with markedly negative connotations, has been defined differently over time. Immediately after Slovenia's independence, the parties perceived supervision of healthcare professionals as a "national responsibility" (SKD, 1992), whereas later on they viewed it as keeping an eye on the professionalism and ethics of healthcare professionals. The right-oriented parties (i.e., the SLS and SKD, 2000) especially highlighted this.

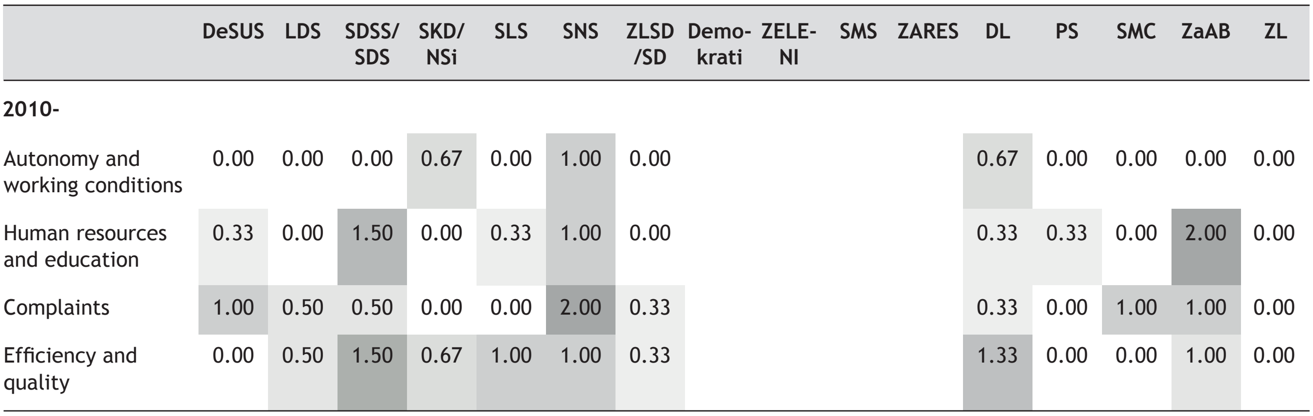
In addition to the supervision of healthcare professionals, only "autonomy and rights of doctors and other health workers" and "measures to improve efficiency" seem to be similar constants in the party programs over time, even though the first has become significantly less intense over time, and the second much more volatile over time.

3.3 Main Themes in Party Programs by Individual Political Parties over Time

The study showed that the programs of parties with the longest presence in Slovenian politics most frequently mention doctors and other health workers. These include LDS, SDS, SKD and its successor NSI, SLS, DeSUS, ZL, ZLSD and its successor SD, and SNS. In addition, parties that played an important political role in Slovenia for a short while, usually as parties in the governing coalition (e.g., ZARES; PS; DL; and ZaAB), also mentioned doctors and health workers.

In general, one can say that Slovenian political parties begin dealing with doctors and health workers when they gain important influence in the political environment or become a part of the government coalition. Thus one can see a considerable mention of doctors in the ZaAB, DL, and ZARES programs, even though the parties themselves were not necessarily among the largest in the National Assembly. In this regard, one should note that the capacities that the parties had in healthcare at the given moment also played an important role in this. Accordingly, parties with the longest traditions dealt with doctors and health workers to the largest extent in their programs, especially if they were part of the government coalition during the periods observed. The former SKD thus focused the most on doctors immediately after Slovenia's independence, when it was also the strongest party. The LDS did this from 1998 to 2009, the SDS also did this from 1998 onwards, and the SD did so primarily between 2004 and 2009, when it became the largest government coalition party after the 2008 parliamentary elections (the only time ever). Based on this, one can conclude that in their programs, parties dedicate attention to doctors following the pattern of "when you have power, then you deal with doctors." Smaller opposition parties do not mention doctors in their programs at all and frequently do not even mention healthcare in general (see Figure 3).

	DeSUS	LDS	SDSS/ SDS	SKD/ NSi	SLS	SNS	ZLSD /SD	Demokrati	ZELENI	SMS	ZARES	DL	PS	SMC	ZaAB	ZL
1992-1997																
Autonomy and working conditions	0.00	0.50	0.60	2.00	0.00	0.00	0.33	1.00	0.00							
Human resources and education	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00							
Complaints	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00							
Efficiency and quality	0.00	0.00	0.80	0.00	2.00	0.00	0.00	0.00	0.00							
1998-2003																
Autonomy and working conditions	0.50	0.00	0.50	0.33	1.00	0.00	0.00			0.00						
Human resources and education	0.00	0.00	0.00	0.00	0.00	0.50	0.00			0.00						
Complaints	0.00	5.00	1.00	0.00	1.50	0.00	0.00			0.00						
Efficiency and quality	0.50	3.00	0.50	0.00	0.00	0.00	0.00			0.00						
2004-2009																
Autonomy and working conditions	0.33	4.00	1.25	0.80	1.00	0.00	0.33			0.00	1.00					
Human resources and education	0.33	3.33	2.00	1.20	2.00	1.00	1.33			0.00	0.50					
Complaints	0.67	3.00	1.50	1.40	2.00	0.00	0.67			0.00	1.00					
Efficiency and quality	0.33	5.33	6.25	2.60	4.00	0.00	3.33			1.00	0.50					



	DeSUS	LDS	SDSS/ SDS	SKD/ NSi	SLS	SNS	ZLSD /SD	Demo- krati	ZELE- NI	SMS	ZARES	DL	PS	SMC	ZaAB	ZL
2010-																
Autonomy and working conditions	0.00	0.00	0.00	0.67	0.00	1.00	0.00					0.67	0.00	0.00	0.00	0.00
Human resources and education	0.33	0.00	1.50	0.00	0.33	1.00	0.00					0.33	0.33	0.00	2.00	0.00
Complaints	1.00	0.50	0.50	0.00	0.00	2.00	0.33					0.33	0.00	1.00	1.00	0.00
Efficiency and quality	0.00	0.50	1.50	0.67	1.00	1.00	0.33					1.33	0.00	0.00	1.00	0.00

*Darker shades indicate higher frequencies, and lighter shades indicate lower frequencies or the absence of references to a particular category. White indicates the absence of the theme in the program, and black indicates that the theme occurs 6.25 times per program.

Figure 3. Heat diagram of identified theme occurrences regarding doctors and other health workers in party programs by period*.

During the first period after Slovenia's independence, the SKD, which was then in the coalition, largely mentioned doctors and other health workers in terms of "complaints, supervision, and sanctions" and "autonomy and working conditions." From 1998 to 2003, the largest coalition party, the LDS, was also the party that most frequently took a position towards doctors in its programs, especially from the viewpoint of "complaints, supervision, and sanctions." In addition, it began heavily highlighting doctors' "efficiency and quality." Within the context of achieving higher quality, the LDS was first to begin mentioning the introduction of new technologies and telemedicine in doctors' work, which was also included in the SDS program later on.

The situation of doctors can most easily be gathered from the party programs that were drawn up between 2004 and 2009, when "efficiency and quality of doctors and health workers" was notably at the forefront. In terms of efficiency, the parties especially emphasized the reorganization of work and better cooperation between primary- and secondary-level doctors, including "fewer referrals from the primary to the secondary level, and establishing a connection between referral doctors and specialists" (SDS, 2008); moreover, "certain procedures should be transferred from the secondary to the primary level because doctors at the primary level are qualified to perform them" (SDS, 2004). In terms of quality, the inadequate personal relationships between doctors and patients began to be highlighted during this period. The LDS stated that "the quality of treatment is becoming increasingly poor. This is partly due to the poor organization of the healthcare system and the poor managerial skills of the public health institutes' executive staff, but primarily due to the deteriorating relationships between the users and providers" (LDS, 2008). The SD extended the issue of quality even more: "The things that bother the people that come in contact with the healthcare system the most include the staff's unfriendliness, poor work organization, poor quality of services, and inappropriate facilities" (SD, 2008).

During the general economic crisis that occurred in 2010 and lasted until 2014, all of the parties mentioned doctors and other health workers to a lesser degree in their programs. They mostly mentioned them in connection with "human resources" and promised doctors that they would provide "good employment prospects for them at home" (DL, 2014) and better conditions for "hiring young doctors" (ZaAB, 2014). Party programs from this period also include complaints about doctors' private interests and appeals for "changes in the practice of inefficient investigation of medical errors" (SD, 2014). Especially recently, the parties have ascribed the responsibility for failed attempts to sort things out in healthcare to "a wide range of medical, pharmaceutical, and other lobbies that successfully block this" (SDS, 2011), or have drawn attention to the ineffective operation of the public healthcare system due to the personal interests of "doctors and the pharmaceutical industry" (LDS, 2011).

There are generally no serious differences between the parties' programs despite their different ideological affiliations, but some differences do show up with regard to the proposed supervisory measures. Left-oriented parties (as ideological opponents of privatization) appeal to the need for supervising and prohibiting "practicing medicine simultaneously as part of a public service and private practice" (DeSUS, 2009), and right-oriented parties transform the ideological reproach into an ethical one by mentioning the uneconomical prescription of drugs (SDS, 2004) and advocating the introduction of clear criteria for supervising the quality of doctors' work. Among the supervisory mechanisms they suggest is "monitoring the number of surgeries and diagnostic procedures per doctor" (SLS, 2004) as an indicator of the quality of doctors' work, which corresponds to the ideas of new public management, which is closer to the ideas of right-oriented parties.

4 DISCUSSION

One could say that the problems related to healthcare policy in Slovenia do not merely have to do with its implementation. One can trace the origins of these problems back to the party programs themselves, in which parties shape their positions on doctors and other health workers based on the external environment rather than the healthcare situation itself. The analysis of party programs over time showed a shift from emphasizing "autonomy and working conditions" to emphasizing "efficiency of healthcare professionals and improving the quality of health services." The chronological comparison also showed a relative absence of addressing doctors and other health workers during the financial and economic crisis. When parties did focus on them, they did so only from the viewpoint of economizing.

Doctors and other health workers are an important political topic primarily during periods of economic growth and optimism, in which the larger and coalition parties dedicate their attention to policies outside economics and finances. Given that smaller and opposition parties do not include doctors in their programs, one can conclude that parties begin dealing with doctors when they cross the coalition threshold, and once the larger parties cross this threshold, they focus on the efficiency of doctors and the quality of their services.

In addition, the differences mentioned above in the political parties' approaches to doctors are stronger than the ideological differences, which barely show up in the programs within this context. One can observe the only ideological difference in the case of privatizing healthcare and its connection with supervising doctors' private practices. Within this context, left-oriented parties demand a definition of the obligations and responsibilities of private medical practitioners (e.g., DeSUS, 2002), whereas right-oriented parties advocate that concessions should continue to be granted and promote the idea of "free doctors" (e.g., NSi, 2004; SLS, 2004). It is important to note that the analysis of party positions on healthcare privatization is a special topic in Slovenia that demands an analysis of entire programs—which, however, was not the primary goal of this study.

5 CONCLUSION

In their programs, Slovenian political parties are often critical of doctors and other health workers. They mistrust them, reproach them with making errors, demand responsibility from them, and call for supervision over the professionalism and ethics of their work. These notably negative elements do not provide a good starting point for solving the problematic attitude towards doctors and other health workers. On the other hand, the appeals for a dialogue between politics and doctors are overlooked, as are the needs of healthcare professionals and the contribution of doctors and other health workers to reducing the gap between the desired and actual situation in this area. Hence, one can conclude that doctors and other health workers are being denied the role of agency and are defined as passive "recipients" of set-out policies. Without a doubt, all of this is a bad sign for the much-needed dialogue and political deliberation.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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ETHICAL APPROVAL

Not required.

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DETERMINANTS OF UNMET NEEDS AMONG SLOVENIAN OLD POPULATION

DETERMINANTE NEZADOVOLJENIH POTREB PO OSKRBI MED STAREJŠO SLOVENSKO POPULACIJO

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ABSTRACT

Keywords:
unmet needs, formal and informal care, multinomial regression analysis, surveys, SHARE, older people, Andersen's behavioural model

Background. Population ageing has significant effects on societies. The organization of care for dependent old people is one of the key issues for ageing societies. The majority of care for homebound dependent old people in Slovenia is still performed by informal carers, even though the use of formal services has been increasing over the last 20 years. The proportion and characteristics of people with unmet needs are important for the development of long term care social policy.

Method. The SHARE (Survey of Health, Ageing and Retirement in Europe) survey was used to assess the determinants of care arrangements and of unmet needs of the aging population in Slovenia. Multinomial regression analysis was used to evaluate individual and contextual determinants of care arrangements and unmet needs.

Results. The proportion of older people with unmet needs is 4%. As expected, "needs" (Functional impairment OR=4.89, P=0.000, Depression OR=2.59, P=0.001) were the most important determinant, followed by the predisposing factor "age" (age OR 1.15, P=0.000) and two enabling factors, namely:"community setting and "availability of informal care within household" (Urban areas OR=.47, P=0.021; Household size 3+ OR=2.11, P=0.030).

Conclusion. This study showed that there are a proportion of older people in Slovenia with severe needs for care, which are being unmet. As shown by the importance of enabling factors, social policy should encourage the development of formal services in rural areas and elaborate policy measures for informal carers.

IZVLEČEK

Ključne besede:
nezadovoljene potrebe po oskrbi, formalna in neformalna oskrba, multinominalna regresijska analiza, ankete, starejši, Andersenov behavioralni model

Izhodišče*. Staranje prebivalstva je še posebej pomembno v razvitih družbah. Organizacija oskrbe za stare in odvisne ljudi je ena od ključnih tem, s katerimi se te družbe ukvarjajo. Večino oskrbe starih ljudi v domačem okolju opravijo neformalni oskrbovalci, čeprav so se v zadnjih dvajsetih letih v Sloveniji razvile tudi formalne storitve. Delež in značilnosti ljudi z nezadovoljenimi potrebami po oskrbi sta pomembni informaciji za načrtovalce dolgotrajne oskrbe.*

Metoda*. Za oceno deleža starih ljudi z nezadovoljenimi potrebami po oskrbi smo uporabili podatke raziskave SHARE (Survey of Health, Ageing and Retirement in Europe). Za oceno vpliva individualnih in posredujočih dejavnikov na nezadovoljene potrebe po oskrbi smo uporabili multinominalno regresijsko analizo.*

Rezultati*. V Sloveniji 4% starih ljudi nima zadovoljenih potreb po oskrbi. Kot pričakovano, je najpomembnejša determinanta potreba po oskrbi (funkcionalne omejitve OR=4,89, P=0,000, depresije OR=2,59, P=0,001). Med individualnimi determinantami ima značilen vpliv starost (starost OR 1,15, P=0,000), med posredujočimi pa tip bivalnega okolja in razpoložljivost neformalnih oskrbovalcev (urbano okolje OR=,47, P=0,021; velikost gospodinjstva 3+ OR=2,11, P=0,030).*

Zaključek*. V Sloveniji obstajajo stari ljudje z nezadovoljenimi potrebami po oskrbi. Kot kaže multinominalna regresija, bi načrtovalci dolgotrajne oskrbe morali več pozornosti nameniti razvoju storitev v ruralnem okolju in bolj podpirati neformalne oskrbovalce.*

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1 INTRODUCTION

Slovenia is facing population ageing, similarly as other European countries. OECD data show that we can expect the rise of the share of the population aged 65 and over, from 17% in 2010 to 31% in 2050, and the rise of the population aged 80 and over, from 4% to 11%, respectively (1). According to EUROSTAT (EU-SILC survey), in 2011, 26.6% of the population aged 65-74 years and 35.4% of the population aged 75 years and over reported strong limitations in activities of daily living (1). About 6.7% of the population aged 65 and over are reported to receive long term care (1). Owing to the fragmentation of long term system in Slovenia and separate and incomparable statistics about its usage, this figure is probably strongly underestimated and may be even around 11.9%, including institutional care, community care in and cash benefits (2). Long term community care in recipients' homes was received by 4.7% of the population aged 65 and over in 2011, including community nursing (representing 55.6%), social home care (31.6%) and other services (such as personal assistance, family attendance) (2). All things being equal, we can expect a greater demand for health and social care services in long term social protection systems, owing to the increased share of old population (1).

A comparison of the shares of people reporting limitations in activities of daily living with the share of people receiving formal services or cash benefits indicates that not everyone that has limitations actually receives formal long term care (LTC). Recent data from SHARE (Survey of Health, Ageing and Retirement) indicate that about 15% of the population aged 65 and over receives informal care from informal carers (inside or outside the household of the care recipient) (3). Little, if anything, is known about people in Slovenia having strong limitations and not receiving any care. The purpose of this study is to estimate the share of people aged 65 and over that have unmet needs, these being the people that report having strong limitations and not receiving any care, and to evaluate the determinants of such conditions. Both the estimation of people with unmet needs and indication of factors that influence the probability of having unmet needs is important for LTC system now and for the future planning of social policy and development of LTC services. Conceptualizing and defining needs (and unmet needs) is far from simple (4). On one hand, there is a notion of objective and universal human needs, and on the other hand, there is a relative dimension of needs depending on history, life course and culture (4). Bradshaw (5) conceptualizes different needs on the basis of who defines them. Normative need is defined by experts, professionals, doctors using professional standards; felt need is a want or subjective view of need which may not become an expressed need, which is a demand or felt need turned into action (5). Comparative need is defined with regards to the level of resources and benefits available to similar others and differences in people's access to resources (5). Technical need occurs when new services are designed or existing ones are made more efficient (6). Health needs can also be categorized by function, such as basic, maintenance, supportive, rehabilitative, treatment, promotive and preventive (7). Review studies show that there is considerable variation not only in conceptual definitions (8, 9) but also in survey measures of unmet needs when needs are evaluated by individuals or proxy respondents (10). As a consequence, there are substantial differences in estimations of shares of people with unmet needs across studies (6, 10-15).

The Andersen behavioural model states that usage of services depends on the characteristics of individuals, families, communities, and societies (16, 18). On the individual level, use of services is mediated by predisposing demographic characteristics (age, gender, marital status, and past illnesses), social structure (education, race, occupation, family size, ethnicity, religion, and geographical mobility) and beliefs (attitudes and beliefs about health, illness and health system (16-19). Enabling resources are family (income, type of health insurance, regular source of care and its availability) and community (availability of health personnel and facilities, financial and geographical accessibility of services, waiting times and degree of urbanization) context, and they may either hinder or encourage the use of services (16-18). Services must be available in the area where people live and work, and people must know how to use them; for example, some services may be less accessible and less socially appropriate in rural areas (22-26). Needs are assessed with subjective evaluations (perceptions of health, reports of difficulties in managing everyday tasks) and diagnoses (16-19). These are the most important predictors of usage of health and social services (11-21, 25-26).

Among predisposing determinants, age, gender, and education level are among the most often used variables in explaining the differences in usage of formal and informal care (20-21, 26). Most often, formal services are used by people living alone (availability of informal care network), and middle class older people are most likely to obtain a disproportionate share of services (14, 20, 21, 26). The strongest enabling factors for social homecare in assessing community and society level are prices of services, temporal and geographical accessibility of services, and relative number of formal carers per users (22), and on individual level, total costs and temporal availability of services (26).

The Andersen model has already been used to assess the probability of having unmet needs in comparative context (14). A number of studies show that unmet needs are most often associated with:

- increasing age (12, 15),
- reduced availability of informal care network (having a spouse and a child living nearby would reduce the probability of having unmet needs 14, 15), living alone (13, 15),
- having difficulty making ends meet (11), or being in poor socioeconomic conditions (12),
- homebound status (12),
- smoking (12),
- having hearing limitations (14),
- depression (12),
- having an increasing number of functional limitations (12, 14, 15),
- low medical density (12).

Our main research question is what is the share of older people (aged 65 and over) in Slovenia that have unmet needs as subjectively perceived by them? Secondly, we want to examine which of the predisposing and enabling factors and needs, according to the Andersen's behavioural model, have a significant effect on the probability of having unmet needs. This information is not yet available in the Slovenian context, and SHARE data enables us to obtain nationally comparable subjective data on unmet needs.

2 METHODS

2.1 Subjects and Procedure

Data for this study were drawn from the fifth wave of SHARE – Survey of Health, Ageing and Retirement in Europe, which is a multidisciplinary and cross-national panel database of micro data on health, socio-economic status and social and family networks of more than 85,000 individuals (approximately 150,000 interviews) from 20 European countries and Israel aged 50 or over. The fifth wave of the survey was mainly done in 2013 on the final sample of 65,281 people aged 50 years or older from 14 European countries and Israel. In our analysis, we use only Slovenian respondents, which limit our initial sample to 2,948 respondents. The sampling design used is probability sampling. In our analysis, we also limit ourselves to respondents aged 65 or older, which limits our final sample to 1,458 respondents.

2.2 Instruments

In the present study, we investigated the role of individual predisposing and enabling factors as well as needs in the scope of unmet needs for long term care of older people in Slovenia. The model is somewhat limited due to small number of degrees of freedom in multinomial model. Nevertheless, the model that we use is novel and takes into account the heterogeneity of unmet needs for long term care of older people, which was not addressed sufficiently in previous studies.

2.2.1 Hypotheses

With regard to predisposing factors, we included age, gender, and level of education. Based on previous studies (12, 15), we hypothesize that only age would have a positive effect on the probability of having unmet needs (H1). Living with a spouse and living in a household with three or more members were used as the proxy variable for the availability of informal care as an enabling factor. As suggested in previous research (13-15), we hypothesize that the availability of informal care network would reduce the probability of having unmet needs (H2, H3). Among enabling factors, we also included household income. Similarly as in other studies (11-12), we hypothesize that lower income would increase the probability of having unmet needs (H4). Based on studies about the utilization of formal services in Slovenia (22-26) and the study on unmet needs and availability of medical services (12), we hypothesize that the respondents living in rural areas would have a higher probability of having unmet needs (H5). We also expect that having a larger number of functional limitations (H6) and being depressed (H7) would increase the probability of having unmet needs.

2.2.2 Dependent and Independent Variables

The dependent variable was categorical and encompassed different possibilities of satisfied or unsatisfied (met or unmet) needs for LTC. In the first stage we decided whether respondents have needs for LTC or not on the basis of selection criteria: they needed to score 2 or more regarding the limitations to either personal activities of daily living (PADL: Dressing, including putting on shoes and socks; Walking across a room; Bathing or showering; Eating, such as cutting up your food; Getting in or out of bed; Using the toilet, including getting up or down) or instrumental activities of daily living (IADL: Preparing a hot meal; Shopping for groceries; Making telephone calls; Taking medications; Doing work around the house or garden; Managing money, such as paying bills and keeping track of expenses). Scoring 2 or more means they are limited in either of the categories by 2 or more activities. In the second stage we categorized different respondents with needs for care into five different categories in terms of which type of care (formal; informal within household; informal outside household) they receive.

In order to evaluate functional limitations we used the Global Activity Limitation Indicator (GALI), which is defined by (27) survey questions: "For at least the last 6 months, have you been limited because of a health problem in activities people usually do?" 1) Yes, strongly limited; 2) Yes, limited; 3) No, not limited. The measurement of mental conditions on EURO-Depression (EURO-D) scale is realized by covering questions that indicate 12 items: the presence of, respectively, depression, pessimism, suicidality, guilt, sleep, interest, irritability, appetite, fatigue, concentration, enjoyment and tearfulness (28). The scale runs from 0-12, with the number of depressive symptoms denoting the score.

Our categories for the dependent variable are therefore the following:

- Category 0 (reference category – no needs) – respondents with no needs for LTC;
- Category 1 (formal care) – respondents with needs for LTC and receiving formal care (regardless of whether they also receive any form of informal care);
- Category 2 (informal care within household) – respondents with needs for LTC, not receiving formal care, but receiving informal care within household (regardless of whether they also receive informal care outside household);
- Category 3 (informal care outside household) – respondents with needs for LTC, receiving neither formal care nor informal care within household, but receiving informal care outside household;
- Category 4 (the unmet needs category) – respondents with needs for LTC, but receiving neither type of formal or informal care.

Model – multinomial logistic; predisposing, enabling and needs variables:

Predisposing variables

X1 – age
X2 – gender (0-male, 1-female)
X3 – education (0-primary, 1-secondary or tertiary)
Enabling variables
X4 – household size (0-1 or 2, 1-3 or more)
X5 – spouse (0-doesn't live with spouse, 1-lives with spouse)
X6 – logarithm of household income
X7 – settlement (0-rural, 1-urban)
Need
X8 – GALI limitations (0-not very limited, 1-very limited)
X9 – depression (0-scoring less than 4 on Euro-Depression scale; 1-scoring 4 or more)

2.2.3 Data Analysis

Multinomial logistic model was used in a model with five categories where the reference category was Category 0 (respondents with no need for LTC).

The model:

$$log \frac{Pr\ (Y_i = j)}{Pr\ (Y_i = 0)}$$

$$= a_j + b_{1,j}X_1 + b_{2,j}X_2 + b_{3,j}X_3 + b_{4,j}X_4 + b_{5,j}X_5$$

$$+ b_{6,j}X_6 + b_{7,j}X_7 + b_{8,j}X_8 + b_{9,j}X_9 + e_{i,j}$$

$$j = 1,2,3,4$$

Y_i – category of the dependent variable (unmet needs)
a – constant
b_i – regression coefficient
X_i – independent variables
e – error

3 RESULTS

Respondents were aged 74.5 years on average, average household income was 1078 EUR, there is of course a large standard deviation (954 EUR), indicating a very skewed distribution of household income with very high incomes inflating the mean value. More than half (58%) were women and the same share of respondents had secondary or tertiary education. About a half indicate their settlement as rural (52%). The vast majority of people aged 65 years or more are living in small households – 83% in households with 1 or two members; the majority are also living with a spouse – 66%. About one fifth (19%) are having severe functional limitations and about a third (33%) are having four or more points on Euro-depression scale.

Table 1. Distribution of dependent variable needs.

Needs	N	%	95% CI
No needs	1262	86.62	84.77-88.27%
Formal care	40	2.75	2.02-3.72%
Informal care within household	51	3.50	2.67-4.58%
Informal care outside household	41	2.81	2.08-3.80%
Unmet needs	63	4.32	3.39-5.50%

The majority – 87% of respondents do not report needs for LTC as defined in our study (Table 1). 14% of respondents report 2 or more limitations in terms of either personal activities of daily living or instrumental activities of daily living, or both. These respondents are defined as respondents with LTC needs and are further divided into four categories. Respondents that are receiving any kind of formal services (with or without informal care) represent about 2.8% of population with needs for LTC. These respondents are detected is supported by formal social protection system, either health or social care systems. 3.5% of respondents with LTC are receiving informal care within the household (but they may also receive care from outside the household), and 2.8% receive informal care only from outside the household (and not receiving any other type of care either formal or informal). About 4% of respondents aged 65 and over are reporting LTC and do not receive any kind of care (95% CI: 3.4%-5.5%). This group of respondents does not receive any care from informal care networks and is not included in public formal care.

Table 2. Results of Multinomial logistic model.

	Type of need (ref.cat: Category 0 - no needs)							
	Formal care		Informal care within household		Informal care outside household		Unmet needs	
Variables	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Age								
	1.14***	1.08-1.21	1.10***	1.04-1.16	1.12***	1.07-1.18	1.15***	1.10-1.20
Gender (ref.cat.: men)								
Women	0.86	0.35-2.10	0.40**	0.19-0.87	1.01	0.41-2.47	1.05	0.55-2.04
Education (ref.cat: primary or lower)								
Secondary or tertiary	0.90	0.40-2.04	0.52*	0.24-1.10	0.47*	0.20-1.12	0.67	0.35-1.30
Household size (ref.cat.: less than 3)								
3 or more	1.25	0.44-3.52	2.06*	0.94-4.51	0.66	0.22-1.98	2.11**	1.10-4.05
Spouse (ref.cat.: doesn't live with a spouse)								
Lives with a spouse	0.57	0.24-1.34	2.15*	0.88-5.21	0.25***	0.10-0.62	1.27	0.66-2.46
Income (winsorized, logarithm)								
	0.88	0.50-1.55	0.91	0.52-1.59	0.83	0.49-1.41	0.85	0.54-1.35
Settlement (ref.cat.: rural)								
Urban	2.19*	0.98-4.92	0.83	0.40-1.74	0.54	0.24-1.18	0.47**	0.24-0.91
GALI limitations (ref.cat.: less than very limited)								
Very limited	11.56***	5.44-24.58	14.46***	6.89-30.35	5.85***	2.90-11.82	4.89***	2.73-8.73
Depression (ref.cat.: less than 4)								
4 or more	2.74***	1.28-5.88	2.84***	1.38-5.82	1.37	0.68-2.76	2.59***	1.44-4.65
Observations	1372							
Log Likelihood	-577.88							
Pseudo R square (McFadden)	0.2458							

* ≤ 0.10; ** ≤ 0.05; *** ≤ 0.01;

We estimated a theoretically based multinomial logistic model. The quality and validity parameters for multinomial models are positive: Likelihood Ratio test and Wald test for independent variables are strongly significant; Hausman and Small-Hsiao test of IIA (independence of irrelevant alternatives) assumption are in almost all combinations of alternatives (categories of the dependent variable) strongly opting for their independence; Wald and Likelihood Ratio tests for combining alternatives show no apparent sign that any of the chosen alternatives can be combined or collapsed. Furthermore, the Likelihood Ratio Chi-Squared Statistics is strongly significant, indicating a reasonable fit of the model, which is confirmed by the Pseudo-R squared statistics, which equals 0.2458.

We were interested in the respondents that have long term care needs and do not receive any kind of care – i.e. they have unmet needs for LTC. Results of multinomial logistic model are presented in Table 2. Among predisposing determinants, age is a significant predictor of having unmet needs. With increasing age, the probability of having unmet needs would significantly increase. Among enabling determinants, income is not significant, yet living settlement is significant, and indicating that respondents living in rural settlements would have an increased probability of having unmet needs. The availability of informal care network has unexpected effects. While living with a spouse, which is the most prominent informal carer (if the caring spouse is being female and in good health), does not reduce the probability of having unmet needs, it does significantly affect the probability of receiving care from within the household and outside the household. Living in a household with three or more members unexpectedly increases the probability of having unmet needs and, at the same time, also significantly increases the probability of receiving informal care from within the household. As hypothesized, increased needs (more limitations and more points on Euro-depression scale) significantly increase the probability of unmet needs.

4 DISCUSSION

In this study we explored two main research questions. First, we wanted to establish what is the share of older people (aged 65 and over) in Slovenia that have unmet needs as subjectively perceived by them. Secondly, we wanted to examine which predisposing and enabling factors and needs, according to the Andersen behavioural model, have a significant effect on the probability of having unmet needs. In other words, we wanted to find out which of the enabling factors that are mostly amenable to the policy makers' influences are important in determining the probability of having unmet needs among older Slovenians.

The main finding is that among Slovenian older population aged 65 and over, living in a community, there is about 4% that have severe limitations (defined as 2 or more limitations in terms of either personal activities of daily living or instrumental activities of daily living, or both) and do not receive any care. This represents about 15,568 individuals aged 65 and over who live in their homes. This percentage is amongst the smallest shares of people with unmet needs as compared with the estimates obtained for other countries, which set their threshold differently and more mildly, or focus on specific needs (6, 10-12, 14, 15).

A predisposing factor that has a significant effect on the probability of having unmet needs is increasing age, similarly as in other studies (12, 15). As institutional care is very well developed in Slovenia, and a discrete model of care is still the predominant model of care, as opposed to the continuation model of care, it may be the case that there are people with advanced age with their needs not fully met by informal or/and formal care. It may be the case that older people would postpone the entry into institutional care as long as possible, even at the costs of having unmet needs in order to stay in their own homes. This is corroborated with the study of the quality of social home care in Slovenia, which showed that the most intensive users (the ones that reported a larger number of activities of daily living performed by a social home carer) of social home care are the least satisfied with the service (29).

Among enabling factors, the availability of informal care does not have a significant effect on having unmet needs. It is surprising that living in the household of size 3 and more increases the probability of having unmet needs. Other studies have concluded that living alone would increase the probability of having unmet needs (13, 15) and that the availability of a spouse or child living nearby would decrease the probability of having unmet needs (14, 15). Our study shows that, even though the availability of informal care network does not decrease the probability of having unmet needs, it significantly increases the probability of receiving informal care. There must be some underlying factors that would explain these findings, which were not included in our study, such as the gender of available informal carer.

For example, Diwan and Moriarty (7) suggest that there exist different barriers which prevent people to access the existing services. There may be different barriers, such as recognition or awareness of needs, knowledge about services, availability, accessibility, affordability and acceptability of services. Some studies suggest (30-32) that the identification of needs and seeking help are two interrelated but separate things. First, needs can be assessed differently by an individual, his/her informal carer and professionals (30). There is evidence that professionals may less frequently notice the need for information on condition and treatment, incontinence, eyesight/hearing needs, memory and psychological distress (30). Informal carers more frequently than patients identified the need for mobility and eyesight/hearing (30). Furthermore, people that have identified the need may not seek help from informal carers or formal services (31); the reasons for that may be withdrawal, resignation and low expectations. Individuals that have needs may have asked for services, but their needs were not recognized or delivered by service providers (31). Even informal carers may have difficulties in seeking and organizing services to older persons or even to themselves (32), due to the unawareness of the availability of services, or the rigidity of formal service providers. Further exploration of such barriers is needed to understand the underlying processes of care provision in Slovenian context, which is marked by fragmented LTC system and different entry points for its users. It may also be the case that social home care and community nursing is not sufficient to fulfil all needs of older people with very high needs, since the provision of social home care is limited (up to 20 hours per week). Another possible explanation would also be low awareness of formal services in rural areas as well as a relative novelty of this service.

Among other two enabling determinants, income does not have a significant effect on the probability of having unmet needs, contrary to other studies (11-12), while living setting has an expected and predicted effect (12, 22-26), confirming that in Slovenia rural setting would significantly increase the probability of having unmet needs. As the rural areas were shown to have lower availability of formal care provision (22), it may also be the case that, owing to the fragmentation of Slovenian LTC system, the formal services are less aware of people with unmet need needs, or that formal services are less acceptable for potential users and that informal care is preferred, but may be insufficient for people with very high needs. It is very encouraging that there do not exist significant differences across education or income. While more educated and richer older people may fulfil their needs on the private market of care services (not measured in our study), they may also have less needs because of healthier life styles. We may also consider that the institute of means testing for the reduction of payment of social home care has preventive effects and enables access to the services according to needs and not according to means of recipients. Not surprisingly, increasing needs strongly predict the probability of having unmet needs, similarly as in other studies (12, 14, 15).

The novelty of our study is the presentation of the first representative data about people having unmet needs in Slovenia, and the exploration of what determines the probability of having unmet needs. While this study proves that Slovenia is, in most characteristics, similar to other countries, especially in determining factors, it does not give a clear answer to the question whether or not the share of older population with unmet needs is comparable to other European countries. This question should be answered using comparative data sets, such as SHARE. Another limitation is a relatively small number of cases, which prevents us to include more factors in our model (such as the gender of informal carer, the purchase of care services on the private market, perceived barriers), which would probably reveal more about reasons for having unmet needs. It is also clear from studies using qualitative research methods (30-32) that having needs and seeking care are two very complex and interrelated phenomena, which probably cannot be fully explored in quantitative design.

5 CONCLUSION

The estimated number of people with severe unmet needs suggests that there are significant opportunities for social policy changes and development of new public and private services for older people in need, as well as for the integration of fragmented LTC system in Slovenia. Moreover, considering enabling factors which are most influenced by policy measures, residential settlement was the strongest predictor of unmet needs. More emphasis should be put on the development of services that are acceptable in rural areas, or services that are less developed or less available or acceptable in rural areas. Informal carers should be more supported by social policy with measures, such as paid leave of absence from work, flexible working hours or organization of respite care.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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NAVODILA AVTORJEM

Revija: **Zdravstveno varstvo (ZV)** ISSN 0351-0026 (tiskana izdaja) / **Slovenian Journal of Public Health (SJPH)** ISSN 1854-2476 (elektronska izdaja)

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- v grafih naj bo ozadje belo (tj. brez ozadja).

Črke, številke ali simboli na sliki morajo biti jasni, enotni in dovolj veliki, da so berljivi tudi na pomanjšani sliki. Ročno ali na pisalni stroj izpisano besedilo v sliki je nedopustno.

Vsaka slika mora biti navedena v besedilu. Besedilo k sliki naj vsebuje naslov slike in potrebno razlago vsebine. Slika naj bo razumljiva tudi brez branja ostalega besedila. Pojasniti morate vse okrajšave v sliki. Uporaba okrajšav v besedilu k sliki je nedopustna. Besedila k slikam naj bodo napisana na mestu pojavljanja v besedilu.

Fotografijam, na katerih se lahko prepozna identiteta bolnika, priložite pisno dovoljenje bolnika.

MERSKE ENOTE

Naj bodo v skladu z mednarodnim sistemom enot (SI).

KRATICE IN OKRAJŠAVE

Kraticam in okrajšavam se izogibajte, izjema so mednarodno veljavne oznake merskih enot. V naslovih in izvlečku naj ne bo kratic. Na mestu, kjer se kratica prvič pojavi v besedilu, naj bo izraz, ki ga nadomešča, polno izpisan, v nadaljnjem besedilu uporabljano kratico navajajte v oklepaju.

UREDNIŠKO DELO

Prispelo gradivo z javnozdravstveno tematiko posreduje uredništvo po tehnični brezhibnosti v strokovno recenzijo trem mednarodno priznanim strokovnjakom. Recenzijski postopek je dvojno slep. Po končanem uredniškem delu vrnemo prispevek korespondenčnemu avtorju, da popravke odobri in upošteva. Popravljen čistopis vrne v uredništvo po spletni aplikaciji Editorial Manager. Sledi jezikovna lektura, katere stroške krije založnik. Med redakcijskim postopkom je zagotovljena tajnost vsebine prispevka. Avtor dobi v pogled tudi prve, t. i. krtačne odtise, vendar na tej stopnji upoštevamo samo še popravke tiskarskih napak. Krtačne odtise je treba vrniti v treh dneh, sicer menimo, da avtor nima pripomb.

V uredništvu se trudimo za čim hitrejši uredniški postopek. Avtorji se morajo držati rokov, ki jih dobijo v dopisih, sicer se lahko zgodi, da bo članek odstranjen iz postopka.

Morebitne pritožbe avtorjev obravnava uredniški odbor revije.

Za objavo članka prenese avtor avtorske pravice na Nacionalni inštitut za javno zdravje kot založnika revije (podpiše Izjavo o avtorstvu in avtorskih pravicah). Kršenje avtorskih in drugih sorodnih pravic je kaznivo.

Prispevkov ne honoriramo in tudi ne zaračunavamo stroškov uredniškega postopka.

Avtor dobi izvod tiskane revije, v kateri je objavljen njegov članek.