Volume 2 / Number 2 / 2014

ISSN 2303-4092

Balkan Journal of Health Science

11



Volume 2 / Number 2 / 2014



Editorial board

Editor-in-chiefprof. dr Mensura KudumovicTechnical EditorB. Sc. Eldin Huremovic

Members

Prof. dr Zmago Turk (Slovenia),

Prof. dr Budimka Novakovic (Serbia),

Prof. dr Camil Sukic (Serbia),

Prof. dr Bekim Fetaji (Macedonia),

Prof. dr Aleksandar Dzakula (Croatia),

Prof. dr Dzenana Gaco (Bosnia and Herzegovina),

Prof. dr Gordana Manic (Bosnia and Herzegovina).

> Address: Sarajevo, Bolnicka bb, Bosnia and Herzegovina

E-mail: balkanjournal@yahoo.com *Web page:* http://www.drunpp.ba/bjhs.html

Published by D Volume 2 N ISSN 2

DRUNPP, Sarajevo Number 2, 2014 2303-4092



Sadržaj / Table of Contents

Parental experiences and coping skills of the parents of disabled children living

Parental experiences and coping skills of the parents of disabled children living in Kocaeli, Turkey

Ozlem Cigerli¹, Pinar Topsever², Tuncay Muge Filiz³, Suleyman Gorpelioglu⁴

- ¹ Department of Family Medicine, Baskent University Faculty of Medicine, Baskent University Istanbul Hospital, Istanbul, Turkey,
- ² Department of Family Medicine, Acibadem University Faculty of Medicine, Istanbul, Turkey,
- ³ Department of Family Medicine, Kocaeli University Faculty of Medicine, Kocaeli, Turkey,
- ³ Department of Family Medicine, Diskapi Yildirim Beyazıt Education and Research Hospital, Ankara, Turkey.

Abstract

Introduction: Having a disabled child has social, emotional and financial effects on families. The aim of this study was to evaluate the effects of having a disabled child on parental experiences, daily lives and marital relationships, as well as to analyze the psychological status of and the kinds of coping strategies used by parents of disabled children.

Methods: A total of 50 parents (37 mothers, mean age 34.9 ± 9.6 years, 13 fathers, mean age 38.3 ± 10.1 years) of physically or mentally disabled children (n=40) were included in this descriptive and cross-sectional study. A questionnaire including items on socio-demographic features, Beck Depression Inventory (BDI), State-Trait Anxiety Inventory (STAI), Symptom Check List (SCL-90 R) and Ways of Coping Questionnaire (WCQ) were applied.

Results: The primary care giver of the disabled children was identified to be mothers in 80.0% (n=40) of cases. The impact of having a disabled child on family relationship was confirmed by 60.0% (n=30) of participants as a negative impact (38.0%, n=19) associated with heartbreaking behaviors of partner. Compared to percentage of fathers (69.2%), more of mothers (92.0%) identified that were concerned about the future of their child. Problem solving-optimistic approach was found to be the most commonly used coping strategy by parents. Mothers were more prone to helplessness approach and their trait anxiety scores were higher than fathers. Parents whose BDI scores of 17 or higher (moderate or severe depression) were using avoidance and helplessness approaches more frequently than parents with lower BDI scores. Fatalistic approach was used by low educated parents more frequently than the higher educated parents. Total BDI score was correlated negatively with the problem solving-optimistic approach and positively correlated with the helplessness and avoidance approaches.

Discussion: Problem solving-optimistic approach was the most commonly used coping approach by mothers and fathers, while the use of helplessness approach and higher trait anxiety scores were more common among mothers. The parents who were more prone to avoidance and helplessness approaches are under the risk of depression and anxiety. Professional counseling should be provided to parents of disabled children for the implementation of positive and functional coping strategies from diagnosis onward.

Key words: Disabled children, parents, coping skills, depression, anxiety.

Introduction

Having a disabled child has social, emotional and financial effects on families. The impact of any disability is never restricted to individuals with disabilities but affects all members of the family in varying degrees (Schreiber 1984). It is obvious that parents have to cope with their own negative feelings and the prejudice that the community might have towards disabled children, which may lead to emotional burden, stressful experience and a stress factor that they need to cope with (Boling 2005; Deniz et al. 2009; Minnes 1988; McCubbin 1989).

Coping strategies are defined as the active processes and behaviours that the family actually tries to employ to help it to manage, adapt to or deal with a stressful situation (Taanila et al. 2002). Recent studies report that as parents develop better coping strategies, their depression scores tend to reduce, regardless of severity of disability (Churchill et al. 2010; Forde et al. 2004; Montes & Halterman 2007). The coping skills used by parents differ by the culture of the country inhabited. However, currently, only an insufficient number of studies have been made to assess the coping behaviors of parents in Eastern countries. Further studies from these countries might reveal different findings from the western and developed countries (Azar & Badr 2010; Dukmak 2009).

Therefore the present study was designed to evaluate parental experiences and coping strategies of the parents with disabled children in relation to depression, anxiety and perceived symptoms in Kocaeli, Turkey.

Methods

In this descriptive and cross sectional study, participants were parents of physical or mentally disabled children living in Kocaeli District. The study was conducted between July 2004 and May 2005. A total of 50 people (37 mothers and 13 fathers) were included in the study. They were recruited from Kocaeli University Medical School Pediatrics outpatient clinic, Kocaeli University Physical Therapy and Rehabilitation outpatient clinic, and three more private educational centers that are associated with Social Service Foundation.

Written informed consent was obtained from each subject following a detailed explanation of the objectives of the study which was approved by Kocaeli University Institutional Ethics Committee (Project No: 62-AEK 88/4, 20.04.2005).

Assessment

Thirty seven mothers and 13 fathers were interviewed face-to-face for 40 minutes to one hour. A semi-structured questionnaire and four standart scales were presented to the parents to be filled out.

1. *Ways of Coping Questionnaire (WCQ)*: Ways of Coping Questionnaire (WCQ), developed and later revised by Folkman & Lazarus, addresses a broad range of cognitive and behavioral strategies that individuals use when they encounter an internal and/or external stressful situation (Brand & Alexander 2003; Lazarus 1993; Folkman 1984; Folkman & Lazarus 1985, 1986, 1988). The Ways of Coping Questionnaire was translated and adapted into Turkish by Siva in 1988.

- 2. *The Beck Depression Inventory (BDI)*: BDI is a self-report measure containing 21 items designed to assess the affective, motivational, cognitive and somatic symptoms of depression (Beck & Steer 1984). Studies have demonstrated that BDI is reliable and valid for Turkish population samples.
- 3. *The State-Trait Anxiety Inventory (STAI)*: STAI contains 20 items and measures the subjective level of anxiety in general. The STAI was standardized for Turkish population by LeComte and Oner (LeCompte & Oner 1976).
- 4. Symptom Distress Check List (SCL-90): SCL-90 is a self-report scale which is widely used in normal and distressed population. Validity and reliability of SCL-90 were shown in the Turkish population (Aydemir et al. 2000). Ninety items were divided into 10 subscales that include somatization, obsessivecompulsive, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid thought and psychotism.

Statistical analysis

Statistical analysis was made using computer software (SPSS version 16.0, SPSS Inc. Chicago, IL, USA). Chi-square test (χ^2) was used for the comparison of categorical data and Student T test for the parametric variables. Correlation analysis was performed via Spearman correlation test and p<0.05 was considered statistically significant.

Results

Socio-demographic characteristics of the parents

A total of 50 parents (mean age: 35.7 ± 9.7 years) of 40 children composed of 37 mothers (74%; mean age: 34.9 ± 9.6 years) and 13 fathers (26%; mean age: 38.3 ± 10.1 years) were interviewed. The primary caregiver of the disabled children was identified to be mothers alone in 80% (n=40) of cases. Socio-demographic characteristics of the parents and distribution of disability related diagnostic groups of children are summarized in Table 1 and Table 2.

The impact of having a disabled child on family life

	Mother	Father	Total
	(n=37)	(n=13)	(n=50)
	Mean (SD)	Mean (SD)	Mean (SD)
	34.9 (9.6)	38.3 (10.1)	35.7 (9.7)
Age (year)	Median	Median	Median
	34	31	34
Health status	n (%)	n (%)	n (%)
Healthy	29 (78.4)	12 (92.3)	41 (82.0)
Chronic disease	8 (21.6)	1 (7.7)	9 (18.0)
Year of education			
<8years	23 (62.2)	7 (53.8)	30 (60.0)
≥8 years	14 (37.8)	6 (46.2)	20 (40.0)
Working status			
Employed	8 (21.6)	11 (84.6)	19 (38.0)
Unemployed/retired	29 (78.4)	2 (15.4)	31 (62.0)
Marital status			
Married	33 (89.2)	12 (92.3)	45 (90.0)
Divorced	2 (5.4)	0 (0.0)	2 (4.0)
Spouse deceased	2 (5.4)	1 (7.7)	3 (6.0)
Family type			
Nuclear family	27 (73.0)	9 (69.2)	36 (72.0)
Large family	8 (21.6)	4 (30.8)	12 (24.0)
Separated family	2 (5.4)	0 (0.0)	2 (4.0)
	Mean (SD)	Mean (SD)	Mean (SD)
# of family members	4.3 (1.1)	4.3 (1.5)	4.3 (1.2)
Number of children	2 (0.9)	1.9 (0.9)	2 (0.9)
	n (%)	n (%)	n (%)
≤2 children	28 (75.6)	10 (76.9)	38 (76.0)
≥3 children	9 (24.4)	3 (23.1)	12 (24)
Average monthly income of the family			
≤500 TL	17 (45.9)	6 (46.2)	23 (46.0)
500-1.500 TL	18 (48.7)	6 (46.2)	24 (48.0)
≥1.500 TL	2 (5.4)	1 (7.6)	3 (6.0)

Table 1. Socio-demographic characteristics of the parents of disabled children

The impact of having a disabled child on family relationship was confirmed by 38% (n=19) of participants as a negative impact associated with partner's negative mood and aggression. A smaller group of parents (22%, n=11) confirmed a positive impact associated with supporting each other.

The parents' experiences about the news of their child's disability during the diagnosing period

The parents' first feelings about child's disability identified usually include shock, hopelessness and sadness. Sixty two percent of parents (n=31) answered the question of "Have you been satisfied with initial information at time of diagnosis by healthcare providers?" as "No". Ninety eight percent of parents (n=49) expressed an expectation for a clear explanation about child's disability and a need for sensitive, empathetic and private communication with healthcare professionals.

Concerns about the disabled child

A total of 24 participants (48%) identified their concerns about the cost of the care, treatment and support of their child. Concerns about the future of the disabled child were identified by 43 (86%)

Table 2.	Type of disabilities and co-morbid
disorders	s among children

Disability status / diagnoses (n=40)	n
Mental retardation/learning disability	16
Neuromotor growth retardation	9
Cerebral palsy	4
Otism	4
Down syndrome	2
Hydrocephalus, meningomyelocele	1
Phenylketonuria	1
Other syndrome or anomalies	3
Co-morbid disorders (n=16)	
Congenital dislocation of the hip	1
Cleft lip or palate	1
Microcephaly	2
Epilepsy	4
Otism/Rett syndrome/ Psychosis	6
Attention deficiency-hyperactivity	2

participants based on the care and interest they need in the future, personal development and self-sufficiency. According to our research findings, mothers were more concerned about their child's future than fathers and this result was statistically significant (p=0.043) (Table 3).

Attitude of parents about planning to have a new baby

Seventeen participants (34%) had only one child. Allover, 26 parents (mother or father, 52%) conveyed that having a disabled child, affects the decision about having other children. Most of parents had worry about having once more a disabled child or/and had concerns about the care needs of a new baby. A smaller number of parents explained about planning to have a new child as a way of sharing responsibilities to care of disabled child with siblings, also as a guarantee for future life of disabled children. Eighty percent of the participants (n=40) answered the question of "Have you ever been counseled from healthcare providers about planning to have a new baby?" as "No"

Table 3. Causes and concerns of parents about having a disabled children

	Mother	Father	Total
	(n=37)	(n=13)	(n=50)
Concerns about cost of care, treatment and support	n	n	n(%)
No	14	7	21 (42)
Yes	23	6	29 (58)
p			0.247
Concerns about the need of other family members	n	n	n(%)
No	21	6	27 (54)
Yes	16	7	23 (46)
p			0.367
Concerns about the need of disabled child	n	n	
No	20	7	27 (54)
Yes	17	6	23 (46)
<i>p</i> value			0.620
Concerns about the future of the disabled child	n(%)	n(%)	
Yes	34	9	43 (86)
No	3	4	7 (14)
<i>p</i> value			0.043
Impact of having a disabled child on daily family life	n(%)	n(%)	n(%)
Yes	23	9	32 (64)
Negative impact	12	6	18 (56.3)
Positive impact	11	3	14 (43.7)
<i>p</i> value			0.368

	Mother (n=36)	Father (n=13)		Total (n=49)	
Ways of Coping Inventory	Mean (SD): min-max	Mean (SD): min-max	p value	Mean (SD): min-max	
Problem solving approach	2.5 (0.2); (2.1-2.9)	2.6 (0.2); (1.9-2.9)	0.450	2.5 (0.2); (1.9-2.9)	
Fatalism approach	2.3 (0.4); (1.4-2.9)	2.3(0.4); (1.3-2,.8)	0.740	2.3 (0.4); (1.3-2.9)	
Helplessness approach	2.2 (0.4); (1.6-3.4)	1.9 (0.3); (1.3-2.4)	0.008	2.1 (0.4); (1.3-3.4)	
Avoidance approach	2.0 (0.3); (1.3-2.5)	2.0 (0.2); (1.7-2.3)	0.830	2.0 (0.2); (1.3-2.5)	
Beck Depression Scale Scores	Mean (SD)	Mean (SD)		Mean (SD)	
Overall score	16.2(9.2)	12.7 (8.0)	0.260	15.5(8.9)	
Severity	n (%)	n (%)		n (%)	
<10 points	11 (29.7)	6 (46.2)		17 (34.0)	
11-16 points (mild)	8 (21.6)	2 (15.4)		13 (26.5)	
17-29 points (moderate)	14 (37.8)	4 (30.8)		14 (28.6)	
>30 points (severe)	4 (10.8)	1 (7.7)		5 (10.2)	
	Mean (SD); min-max	Mean (SD); min-max		Mean(SD); min-max	
State Anxiety Inventory	40.9 (10.4); (21-73)	39.2 (8.8); (21-53)	0.620	40.6 (9.9); (21-73)	
Trait Anxiety Inventory	47.4 (9.6); (31-71)	39.7 (8.4); (27-57)	39 .7 (8.4); (27-57) 0.015		
Symptom Checklist					
Positive Symptom Total(PST)	41.9 (20.9); (4-83)	30.9 (15.9); (2-55)	0.150	39.0 (20.1); (2-83)	
Global Severity Index (GSI)	0.8 (0.7); (0.04-3.1)	0.6 (0.4); (0.02-1.6)	0.410	0.7 (0.7); (0.02-3.1)	
Positive Symptom Distress Index (PSDI)	1.6 (0.7); (1-3.9)	1.5 (0.5); (1-2.7)	0.800	1.6 (0.6); (1-3.9)	
Symptom Check List Subscales	Mean (SD)	Mean (SD)		Mean (SD)	
Somatization	0.9 (0.9)	0.4 (0.3)	0.044	0.8 (0.9)	
Obsessive-compulsive	1.1 (0.9)	0.7 (0.6)	0.200	1.0 (0.9)	
Interpersonal sensitivity	0.9 (0.8)	0.7 (0.5)	0.910	0.9 (0.8)	
Depression	1.1 (0.8)	0.8 (0.7)	0.180	1.0 (0.8)	
Anxiety	0.7 (0.7)	0.5 (0.7)	0.310	0.6 (0.7)	
Anger-hostility	0.7 (0.7)	0.6 (0.5)	0.660	0.7 (0.7)	
Phobic anxiety	0.5 (0.6)	0.5 (0.6)	0.290	0.5 (0.6)	
Paranoid thought	0.9 (0.7)	0.6 (0.4)	0.100	0.8 (0.7)	
Psychotism	0.5 (0.6)	0.2 (0.3)	0.140	0.4 (0.6)	

Table 4. Distribution of ways of coping inventory, beck depression scale, state-trait anxiety inventory and symptom checklist scores among parents

Distribution of WCQ approaches in our study population

Problem solving-optimistic approach was the most commonly used coping approach for all parents. Mean score for helplessness factor was significantly higher in mothers compared to fathers (p=0.008). Use of helplessness approach was determined to be correlated negatively to income level (r=-0.319, p=0.024). Use of fatalistic approach was negatively correlated with educational status (r=-0.438, p=0.001) (Table 5).

BDI scores in relation to WCQ factors

Overall mean BDI score was 15.5 ± 8.9 in the study population with no gender influence on BDI scores (p=0.260) (Table 3). Overall BDI score was determined to be correlated negatively to problem solving-optimistic approach (r=-0.306, p=0.030) while positively with helplessness (r=0.027, p<0.000) and avoidance (r=0.517, p=0.000) approaches (Table 6).

STAI scores in relation to WCQ factors

In Trait anxiety inventory, mean score was significantly higher in mothers compared to fathers (p=0.015) (Table 3). There was a positive corre-

	WCQ factors						
Socio-demographic characteristics	Problem solving-optimistic	Fatalistic	Helplessness	Avoidance			
Gender of the parent	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)			
Mother	2.5(0.25)	2.3(0.4)	2.2(0.4)	2.0(0.3)			
Father	2.6(0.25)	2.3(0.5)	1.9(0.3)	2.0(0.2)			
	r=0.108	r=0.046	r=0.379	r=0.031			
	p=0.456	p=0.751	p=0.007	p=0.832			
Age							
\geq 35 years	2.5(0.3)	2.3(0.4)	2.1(0.4)	2.0(0.2)			
<35 years	2.5(0.2)	2.2(0.4)	2.2(0.4)	2.0(0.3)			
	r=0.063	r=0.071	r=0.127	r=0.133			
	p=0.666	p=0.624	p=0.380	p=0.355			
Education							
<8years	2.5(0.2)	2.4(0.3)	2.1(0.4)	2.0(0.2)			
≥ 8 years	2.5(0.2)	2.0(0.4)	2.0(0.4)	1.9(0.2)			
	r=-0.063	r=-0.438	r=-0.149	r=-0.194			
	p=0.907	p=0.001	p=0.301	p=0.177			
Income							
<1000 YTL	2.5(0.2)	2.3(0.4)	2.2(0.4)	2.0(0.2)			
≥1000 YTL	2.5(0.2)	2.1(0.4)	1.9(0.3)	1.9(0.2)			
	r=0.118	r=-0.132	r=-0.319	r=-0.209			
	p=0.416	p=0,361	p=0.024	p=0.146			
Negative impact on marital relation							
Yes (n=18, 69.2%)	2.5(0.2)	2.2(0.4)	2.1(0.3)	2.1(0.2)			
No (n=8, 30.8%)	2.5(0.2)	2.3(0.4)	2.0(0.4)	1.9(0.2)			
	r=-0.120	r=-0.110	r=0.176	r=0.430			
	p=0.408	p=0.446	p=0.223	p=0.002			

Table 5. Correlation between WCQ factors and sociodemographic characteristics of parents

Table 6.	Correlation .	between	WCQ factors	and psychometri	ic scales	(r and j	p value)
----------	---------------	---------	-------------	-----------------	-----------	----------	----------

	1	2	3	4	5	6	7	8
1 WCO multiple antiquistic	r	0.047	-0.245	-0.230	-0.306*	-0.188	-0.232	-0.031
1. WCQ problem solving-optimistic	p	0.746	0.086	0.107	0.030	0.191	0.105	0.833
2 WCO fatalistia	r		0.257	0.206	0.239	0.305*	0.221	0.120
2. WCQ fatalistic	p		0.071	0.151	0.094	0.031	0.123	0.405
2 WCO helploggnogg	r			0.327*	0.627**	0.547**	0.701**	0.406**
5. WCQ helplessness	p			0.021	0.000	0.000	0.000	0.003
4 WCO avoidance	r				0.517**	0.222	0.385**	0.227
4. WCQ avoidance	p				0.000	0.121	0.006	0.113
5 Deals Depression	r					0.602**	0.653**	0.296*
5. Beck Depression	p					0.000	0.000	0.037
6 State enviety	r						0.568**	0.269
6. State anxiety	p						0.000	0.059
7. Trait anxiety	r							0.369**
	p							0.008
8 SCBL 00 P comptization	r							
o. SCKL 90 K sonatization	p							

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed)

lation between Trait anxiety inventory score and helplessness (r=0.701, p<0.001) and avoidance (r=0.385, p=0.006) approaches, while the State anxiety inventory score showed a positive correlation with helplessness (r=0.547, p<0.001) and fatalistic approaches (r=0.305, p=0.031) (Table 6).

SCL 90-R scores in relation to WCQ factors

In SCL 90-R, mean score for somatization subscale was significantly higher in mothers compared to fathers (p=0.044) (Table 4). Helplessness approach correlated positively with all SCL-90 sub-scales while avoidance approach showed a positive correlation with SCL 90-R subscales excluding somatization and anger-hostility subscales and fatalistic approach correlated positively with fobic anxiety and depression sub-scales (Table 6).

Discussion

In Turkey, families with disabled children try to find their own solutions and cope by themselves without any institutional support because of the lack of institutions that would provide the necessary care and education (Gunayer 1995). Most of parents in our study group had concerns about their child's care and family relationship. They expressed a need for information and support from the beginning by healthcare providers. The decision about having further children seemed to be severely compromised by having a disabled child in our study group and counseling rate was very low. Low educated parents were more frequently using the "fatalistic" approach as coping. In accordance with the literature, our study findings showed that the parents should be informed about clinical diagnoses, therapies and support sources from the very beginning in this crucial period (Pillitteri 1992; Kirkham 1993; Cavallo 2008, Byrne & Cunningham 1985; Rose 1997; Emerson 2008; Taanila 2002).

Studies show that fathers are more likely to use "problem-focused" strategy whereas the mathers are inclined to using "emotion-oriented" strategy (Gray 2003). In our study we have shown that both mothers and fathers were more commonly using "problem solving" approach to cope. According to the results of our research, the reason for mothers to use "problem-focused" coping strategy more frequently differs from the literature may be because of the our research sample group from the rehabilitation, special education or treatment center. In our study 80% of parents with disabled children expressed that primarily the mother was responsible for care giving. These results indicate that although family structure has undergone a change as more women have taken part in work life in recent years, traditional gender roles are still strongly present in Turkey. Our results also demonstrated that mothers were more likely to use "helplessness" approach than fathers (p=0.007). Duygun et al. have found a correlation between "helplessness" approach in WCQ factors and emotional burn out in mothers of mentally disabled children (Duygun et al. 2003). In another study, 30% of the mothers of children with cerebral palsy were found to have depression regardless of the functional status and level of the disability of their children (Manual et al. 2003).

There are several limitations to our study. Our sample size was relatively small and we had heterogenous diagnostic groups. Information on parental coping was based on parents' self report, and we were not able to observe the parents if they actually used these coping styles. We didn't plan to give any therapy or intervention to our study group. The scope of our study was limited to parents who brought their disabled children to treatment or rehabilitation centers; because, due to reasons of avoidance of stigma or denial, parents who isolate or keep their children home are not easily accessible for research in Turkey.

As a conclusion, the parents of disabled children who are trying coping skills by means of "avoidance" and "helplessness" approach are under risk of depression and anxiety, in addition to other psychiatric symptoms. It is important that parents of children with disabilities should continuously be supported by healthcare providers so that they can find ways to adapt to the process, and lead positive and functional coping strategies.

Key Messages

Practice: This study contributes to the understanding of Turkish parents' ways of coping who have disabled children. Comprehensive assessments of parents' psychosocial needs are important to plan appropriate interventions to alleviate their stress and depression as well as to strengthen their coping skills.

Policy: The findings will serve as guidance for healthcare workers to understand parents' ways of coping skills and in case of depression and anxiety, refer them to professional counseling.

Research: Further studies are needed, to understand parents who does not take children to the rehabilitation center or keep their children at home or isolate them because of the mechanisms of denial of the disability. Factors causing this situation and the direction for psychological assistance may be suggested for investigation.

Acknowledgements

The authors wish to thank to Tamer Aker MD, Inci User PhD and Ceren Tanridagli PhD for contributing with their experience and to Ozlem Tanriverdi MD, Ilker Tugal PhD for their invaluable help with the revisation and translation of the manuscript.

References

- Aydemir O, Koroglu E. Symptom Checklist (SCL-90-R) In: Clinical Scales in Psychiatry (ed. Aydemir, O. & Koroglu, E.), pp 37-40. Association of Physicians Press, Ankara, Turkey, 2000.
- Azar M, Badr LK. Predictors of Coping in Parents of Children With an Intellectual Disability: Comparison Between Lebanese Mothers and Fathers. Journal of Pediatric Nursing, 2010; 25: 46–56.
- 3. Brand BL, Alexander PC. Coping with incest: The relationship between recollections of childhood coping and adult functioning in female survivors of incest. Journal of Traumatic Stress, 2003; 16: 285-238.
- 4. Beck AT, Steer RA. Internal consistencies of the original and revised beck depression inventory. J. Clin. Psychol., 1984; 40, 1365-1367.
- 5. Boling W. The health of chronically ill children: Lessons learned from assessing family caregiver quality of life. Fam Community Health, 2005; 28: 176-183.
- 6. Byrne EA, Cunningham CC. The effects of mentally handicapped children on families. A conceptual review. Journal of Child Psychology and Psychiatry, 1985; 26: 847-864.

- 7. Cavallo S, Feldman DE, Swaine B, Meshefedjian G. Is parental coping associated with the level of function in children with physical disabilities? Child: care health and development, 2009; 35: 33-40.
- 8. Churchill SS, Villareale NL, Monaghan TA, Sharp VL, Kieckhefer GM. Parents of Children with Special Health Care Needs Who have Better Coping Skills have Fewer Depressive Symptoms. Matern Child Health J, 2010; 14: 47–57
- 9. Deniz ME, Dilmaç B, Arıcak OT. An analysis of life satisfaction and state-trait anxiety of the parents with handicapped children. International Journal of Human Sciences, 2009; 6: 953-968.
- 10. Dukmak S. Parent adaptation to and parenting satisfaction with children with intellectual disability in the United Arab Emirates. J Intellect Dev Disabil., 2009; 34: 324-328
- 11. Duygun T, Sezgin N. The effects of stress symptoms, coping styles and perceived social support on burnout level of mentally handicapped and healthy children's mothers. Turkish J Psycol., 2003; 3: 37-52.
- 12. Emerson E, Llewellyn G. The mental health of Australian mothers and fathers of young children at risk of disability. Australian and New Zealand Journal of Public Health, 2008; 32: 53-59.
- 13. Folkman S. Personal Control and Stress and Coping Processes: A Theoretical Analysis. Journal of Personality and Social Psychology, 1984; 46: 839-852.
- 14. Folkman S, Lazarus RS. If it changes it must be process: Study of emotion and coping during three stages of a collage examination. Journal of Personality and Social Psychology, 1985; 48: 150-170
- 15. Folkman S, Lazarus RS, Gruen RJ, DeLongis A. Appraisal, Coping, Health Status, and Psychological Symptoms. Journal of Personality and Social Psychology, 1986; 50: 571-579.
- 16. Folkman S, Lazarus RS. Coping as a mediator of Emotion. Journal of Personality and Social Psychology, 1988; 54: 466-475.
- 17. Forde H, Lane H, McCloskey D, McManus V, Tirney E. Family support—an evaluation of an in-home support service. Journal of Psychiatric and Mental Health Nursing. 2004; 11: 698–704.
- 18. Gray DE. Gender and coping: The parents of children with high functioning autism. Social Science and Medicine, 2003; 56: 631-642.

- 19. Gunayer HG. A Comparison of the Stress Levels and Attitudes of Siblings of Handicapped and Normal Children Ankara University Faculty of Educational Sciences Journal of Special Education, 1995; 2: 33-39.
- 20. Kirkham MA. Two-year follow-up of skills training with mothers of children with disabilities. American Journal of Mental Retardation, 1993; 97: 509-520.
- 21. Lazarus RS. Coping Theory and research: Past, present and future. Psychosomatic Medicine, 1993; 55: 234-247.
- 22. Manuel JC, Balkrishnan R, Camacho F, Smith BP, Koman LA. Factors associated with self-esteem in pre-adolescents and adolescents with cerebral palsy. Journal Adolescent Health, 2003; 32: 456-458.
- 23. McCubbin MA. Family stress and family strengths: a comparison of single- and two-parent families with handicapped children. Research in Nursing & Health, 1989; 12: 101-110.
- 24. Minnes PM. Family Resources and Stress Associated with having a Mentally Retarded Child. American Journal on Mental Retardation, 1988; 93: 184-192.
- 25. Montes G, Halterman JS. Psychological functioning and coping among mothers of children with autism: A population-based study. Pediatrics., 2007; 119: 1040–1046.
- LeCompte WA, Oner N. Development of the Turkish edition of the State-Trait Anxiety Inventory. In C. D. Spielberger & R. Diaz-Guerrero (Eds.), Cross-cultural anxiety (pp. 51–68). Washington, DC: Hemisphere, 1976.
- 27. Pillitteri A, Seidl A, Smith C, Stanton M. Parent gender, victim gender, and family socioeconomic level influences on the potential reporting by nurses of physical child abuse. Issues in Comprehensive Pediatric Nursing, 1992; 15: 239-247.
- 28. Schreiber M. Normal Siblings of Retarded Persons. Social Casework: The Journal of Comtemporary Social Work, 1984; 65: 420-427.
- 29. Taanila A, Syrjala L, Kokkonen J, Järvelin MR. Coping of parents with physically and/or intellectually disabled children. Child: care health and development, 2002; 28: 73-86.
- 30. Taanila A. Well-presented first information supports parents' ability to cope with a chronically ill or disabled child. Acta Paediatr. 2002; 91: 1289-1291.

31. Taanila A. Factors supporting the coping process in parents with chronically ill or disabled children. Oulu University Pres. Oulu, Finland, 1997.

Corresponding Author Ozlem Cigerli, Department of Family Medicine, Baskent University Faculty of Medicine, Baskent University Istanbul Hospital, Istanbul, Turkey, E-mail: ozlemcigerli@gmail.com

The degree of correlation between drug groups that patient uses and the improvement of the depressed patients states

Almedina Numanovic

International University of Novi Pazar, Novi Pazar, Serbia.

Abstract

Introduction: Depression is a psychological disorder in which basic psychopathological changes are in mood, so it belongs to a mood disorders. That is the condition of the significant changes in mood under whose influence basic state of mind is changed, also observation, body condition, behavior and social function of the person itself.

Objective: The aim of the study was to determine the degree of correlation between group of drugs that patient uses and improvement of general state of depressed patients. Socio-demographics characzeristics were also compared.

Method: This research included 144 depressed patients. All data were obtained with the examination of H & S card of patinets that are cured from December 2013 until February 2014. at the Health centre in Novi Pazar.

Retrospective study has been used. After obtaining the data, they were processed using SPSS 18. For statistical analysis we used the methods of descriptive statistics, hi-square test and Spearman's correlation coefficient

Results: Visible improvement show 44 (30,56%) patients that use some drug from group SSRI, 14 (9,72%) patients that use tricyclic antidepressants and 30 (20,83%) patients with so-called combined group of drugs. There are no improvements with 21 patients (14,58%) that use some drug from group SSRI, 20 (13,89%) patients that use tricyclic antidepressants i 15 (10,42%) patients with so-called combined group of drugs. The data Chi-square test are given in the table 2. Based on the calculated Chi-square test (7,454) with the degrees of freedom df=2 na nivou 0,05 i p<0,05 which shows that there is statistically significant difference in improvement of the patients that drink different groups of drugs.

Conclusion: The results show that there is statistically significant difference between the improvement of the depressed patients state and drug groups that they use. Comparing gender with the depressed patients state did not show statistically significant difference. Results we got by comparing martial status and the improvement of the depressed patients states after drug usage showed statistically significant difference. Also, results show that there is a correlation between the age and the improvement of the depressed patients states.

Key words: depression, tricyclic antidepressants, SSRI.

Introduction

Depression is a psychological disorder in which basic psychopathological changes are in mood, so it belongs to a mood disorders. That is the condition of the significant changes in mood under whose influence basic state of mind is changed, also observation, body condition, behavior and social function of the person itself [1]. Depression belongs to a group of a mood disorders (unipolar disorder). Depressive mood characterize turning the patient into himself, despondency, collapse of the vital dynamism, sleeplessness, loss of the appetite, pessimism, slow process of thought, hopelessness and helplessness [2] [3] [4].

The main symptoms of depression are:

- Changes of the mood during day. It's often that the indisposition is the strongest in the morning, and during day is weaker, but it can be vice versa,
- Disturbed sleep, waking and getting up early, intermittent sleep, sleep for many thoughts that "goes through" mind,
- General slowdown of the mind, speech and vital functions,

- Feeling worried,
- Lack of energy,
- Inability to enjoy,
- Weak concentration,
- Obliviousness,
- Pessimism,
- Guilt,
- Self-blame and lack of confidence,
- Hopelessness,
- Preoccupation of diseases,
- Loss of the appetite and loss of weight,
- Weakened libido.

Approximately 7% to 12% of men and 20% to 25% of women suffer from depression during lifetime. Several scientific studies determined statistic correlations between depression and some agricultural pesticides [5].

Depression is a disorder of the brain. There are a variety of causes, including genetic, environmental, psychological, and biochemical factors. Depression usually starts between the ages of 15 and 30, and is much more common in women. Women can also get postpartum depression after the birth of a baby. Some people get seasonal affective disorder in the winter. Depression is one part of bipolar disorder [6].

Depression is one of the leading causes of disability in the world, and it is anticipated that in the future the problem would be bigger. Depression is much more than a passing feeling of sadness and fatigue; patient with depression often present complex and overlapping emotional and physical symptoms, including pain complaints. In everyday clinical practice we often see patients with comorbid depression and physical diseases where depression increases use of health care costs, leading to lower cooperation in the treatment and clinical outcome looks worse. Depression is still often unrecognized, and delaying the treatment increases the suffering of the patient and his environment, so complications very likely include suicidal outcome. The key is a holistic approach and determination of the mental status of a person, and diagnosis is made on the basis of agreed diagnostic criteria contained in CD-10 classification. [7]

Depressive disorder is a significant problem in the field of mental health in Europe. According to the World Health Organization, depression is fourth biggest global health problem, about the 2020th year it will be the second global health problem, also it is the largest cause of disability among adults [8].

One of the hypothesis that explains the pathophysiology of depression is the cytokine hypothesis; according to this comprehension, change in behavior in depressed patients are the result of changes in cytokines. Physiological and psychological effects of immune activation during infection, which are mediated primarily by a central action of the peripherally proinflammatory cytokines, by one name are called "sick feeling". Depression is related to the activation of inflammatory response. In connection with the immunological significance of depression it should be noted that depression is a heterogeneous disorder, which means that different types of depressions can be varied not only psychopathological, but with each, but one can be different from another even on the level of immune. Depression is marked by disturbances in noradrenergic and serotonergic neurotransmission. Proinflammatory cytokines are involved in the change of the noradrenergic and serotonergic neurotransmission in brain regions that are thought to be involved in the pathogenesis of depression. According to that model, it can be considered as a psychoneuroimmune disease in which peripheral immune activation is stimulated by secretion of mediators of the inflammation which is responsible for numerous behavioral, neuroendocrine and neurochemical changes which are related to psychiatric condition [9]. Depression, which occurs after a stroke is one of the most frequent complications and has a significant impact on the recovery of motor and cognitive impairment, and thus the mortality from stroke. The prevalence of depression which is developed after a stroke is variable with increased prevalence of 3-6 months after stroke, and striking regression after a year by about 50%. Major depressive episodes that occur after stroke spontaneously regress after a year or two, in severe cases depression may exceed the chronic form, which lasts for three years or more. The appearance of minor depressive episodes after the stroke varies and their prevention and treatment is individual. Early recognition of symptoms of depression that appears after a stroke, and the initiation of specific

pharmacological treatment is of great importance for reducing the complications and mortality of stroke and for the improvement of functional recovery [10]. Depression is often associated with suicidality, contemporary data in the world shows that suicide risk is the most common in depressed patients and shows an increasing trend. Number of suicide is higher in men then in women. In recent years we have intensive research of biology and depression and suicidality. Results of these studies indicate the equal importance of serotonin, norepinephrine and dopamine in the occurrence of depressive mood, and in that relation were synthesized new effective antidepressants [11]. Since 10-15% of elderly people are suffering from depression, depression is recognized as the most common mental health disorder of elders. Depression causes not only an increase in morbidity, but also in mortality. Suicide prevention is a major goal of treatment of the elderly. Despite the knowledge that antidepressants, psychological intervention and electroconvulsive therapy (ECT) are equally effective in older patients as well as in young adults, depression in the elderly is undertreated (mainly because it's undiagnostic). Research in elders has shown unequivocally benefit of long-term treatment in order to prevent disease recurrence. Treatment should be continued for at least 6-12 months, and recommendations of a geronto psychiatrist are as follows - continue with the treatment for minimum 12 months after the first episode, 24 months after second one, and at least three years after third episode or more. In psychotic depression it's common recommendation to continue with taking antipsychotics in six months, with a gradual elimination of the drug according to the improvement of the clinical status of the patient [12].

Low self-esteem is common with depression. It is also common to have sudden bursts of anger and a lack of pleasure from activities that normally make you happy, including sex.

The main types of depression include:

Major depression - to be diagnosed with major depression, you must have five or more of the symptoms listed above for at least 2 weeks. Major depression tends to continue for at least 6 months if not treated. (You are said to have minor depression if you have less than five depression symptoms for at least 2 weeks. Minor depression is similar to major depression except it only has two to four symptoms.)

- Atypical depression occurs in about a third of patients with depression. Symptoms include overeating and oversleeping. You may feel like you are weighed down and get very upset by rejection.
- Dysthymia a milder form of depression that can last for years, if not treated [13].

Other common forms of depression include:

- Postpartum depression -- many women feel somewhat down after having a baby, but true postpartum depression is more severe and includes the symptoms of major depression.
- Premenstrual dysphoric disorder (PMDD)
 symptoms of depression occur 1 week before your menstrual period and disappear after you menstruate.
- Seasonal affective disorder (SAD) occurs most often during the fall-winter season and disappears during the spring-summer season. It is most likely due to a lack of sunlight.

Depression may also alternate with mania (known as manic depression or bipolar disorder). Depression may be more common in women than men. This may be because women tend to seek help for it more. Depression is also more common during the teenage years. Depression often runs in families. This may be due to your genes (inherited), behaviors you learn at home, or both. Even if your genes make you more likely to develop depression, a stressful or unhappy life event usually triggers the depression [14].

Major depressive disorder (MDD) is a widespread, severe, debilitating disorder that markedly diminishes quality of life. Medication is commonly effective, but 20-30 % of patients are refractory to medical therapy. The surgical treatment of psychiatric disorders has a negative stigma associated with it owing to historical abuses. Various ablative surgeries for MDD have been attempted with marginal success, but these studies lacked standardized outcome measures [15]. Depression is commonly treated with antidepressant medications. Antidepressants work to balance some of the natural chemicals in our brains. These chemicals are called neurotransmitters, and they affect our mood and emotional responses. Antidepressants work on neurotransmitters such as serotonin, norepinephrine, and dopamine.

The most popular types of antidepressants are called selective serotonin reuptake inhibitors (SSRIs). These include:

- Fluoxetine (Prozac)
- Citalopram (Celexa)
- Sertraline (Zoloft)
- Paroxetine (Paxil)
- Escitalopram (Lexapro).

Other types of antidepressants are serotonin and norepinephrine reuptake inhibitors (SNRIs). SNRIs are similar to SSRIs and include venlafaxine (Effexor) and duloxetine (Cymbalta). Another antidepressant that is commonly used is bupropion (Wellbutrin). Bupropion, which works on the neurotransmitter dopamine, is unique in that it does not fit into any specific drug type.

SSRIs and SNRIs are popular because they do not cause as many side effects as older classes of antidepressants. Older antidepressant medications include tricyclics, tetracyclics, and monoamine oxidase inhibitors (MAOIs). For some people, tricyclics, tetracyclics, or MAOIs may be the best medications. Nacional institute of mental healt

Trade Name Antidepressant Medications (also used for anxiety disorders)	Generic Name	FDA Approved Age
Anafranil (tricyclic)	clomipramine	10 and older (for OCD only)
Asendin	amoxapine	18 and older
Aventyl (tricyclic)	nortriptyline	18 and older
Celexa (SSRI)	citalopram	18 and older
Cymbalta (SNRI)	duloxetine	18 and older
Desyrel	trazodone	18 and older
Effexor (SNRI)	venlafaxine	18 and older
Elavil (tricyclic)	amitriptyline	18 and older
Emsam	selegiline	18 and older
Lexapro (SSRI)	escitalopram	18 and older; 12 - 17 (for major depressive disorder)
Ludiomil (tricyclic)	maprotiline	18 and older
Luvox (SSRI)	fluvoxamine	8 and older (for OCD only)
Marplan (MAOI)	isocarboxazid	18 and older
Nardil (MAOI)	phenelzine	18 and older
Norpramin (tricyclic)	desipramine	18 and older
Pamelor (tricyclic)	nortriptyline	18 and older
Parnate (MAOI)	tranylcypromine	18 and older
Paxil (SSRI)	paroxetine	18 and older
Pexeva (SSRI)	paroxetine-mesylate	18 and older
Pristiq	desvenlafaxine (SNRI)	18 and older
Prozac (SSRI)	fluoxetine	8 and older
Remeron	mirtazapine	18 and older
Sarafem (SSRI)	fluoxetine	18 and older for premenstrual dysphoric disorder (PMDD)
Sinequan (tricyclic)	doxepin	12 and older
Surmontil (tricyclic)	trimipramine	18 and older
Tofranil (tricyclic)	imipramine	6 and older (for bedwetting)
Tofranil-PM (tricyclic)	imipramine pamoate	18 and older
Vivactil (tricyclic)	protriptyline	18 and older
Wellbutrin	bupropion	18 and older
Zoloft (SSRI)	sertraline	6 and older (for OCD only)

Antidepressants were developed to treat depression, but they also help people with anxiety disorders. SSRIs such as fluoxetine (Prozac), sertraline (Zoloft), escitalopram (Lexapro), paroxetine (Paxil), and citalopram (Celexa) are commonly prescribed for panic disorder, OCD, PTSD, and social phobia. The SNRI venlafaxine (Effexor) is commonly used to treat GAD. The antidepressant bupropion (Wellbutrin) is also sometimes used. When treating anxiety disorders, antidepressants generally are started at low doses and increased over time.

The aim of the work

The aim of the study was to determine the degree of correlation between group of drugs that patient uses and improvement of general state of depressed patients. Socio-demographics characteristics were also compared.

Methods

Retrospective study has been used. The research included 144 respondents, depressed patients with H & C card at the Health centre in Novi Pazar, 65 men (45,14%) and 79 (54,86) women. According to the age, respondents are categorized into two groups: 20-30 years old (12 respondents, or 8,33%), 30-40 years old (19 respondents, 13,19%), 40-50 years old (45 respondents, 31,25%), 50-60 years old (39 respondents, or 27,08%), 60-70 years old (29 respondents, 20,15%). According to the martial status, patients are divided into two groups married, (111 respondents, 77,08%), single (14 respondents, 9,73%), divorced (19 respondents, 13,19%).

All data were obtained with the examination of H & S card of patients that are cured from December 2013. until February 2014. at the Health cen-

tre in Novi Pazar. For statistical analysis we used the methods of descriptive statistics, hi-square test and Spearman's correlation coefficient. Data processing was performed using SPSS 18.

Results

In table 1 there are connected variables of drug gropus that patient uses and it is showen if there are improvement depressed patients states. Visible improvement show 44 patients that use some of the drugs from group SSRI, 14 patients that use tricyclic antidepressants and 30 patients with so-called combined group of drugs. There are no improvements with 21 patients, where the state is the same or worse. There are no improvement with the patients that use tricyclic antidepressants and15 patients with so-called combined group of drugs.

The data Chi-square test are given in the table 2. Based on the calculated Chi-square test (7,454) with the degrees of freedom df=2 and p<0,05 which shows that there is statistically significant difference in improvement of the patients that drink different groups of drugs.

Tabela 2.	Chi-Square	Tests
-----------	------------	-------

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.454ª	2	.024
Likelihood Ratio	7.308	2	.026
Linear-by-Linear Association	.123	1	.726
N of Valid Cases	144		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.22.

The data are displayed graphically in chart 1. With the improvement of the patients states we compared gender, in order to find out if there were

Table 1. Was there an improvement? * drug groups that a patient uses Crosstabulation

Count						
		Drug groups				
	SSRI	Tricyclic antidepressants	Combined group of drugs		Total	
Was there an	Visible improvement	44	14	30	88	
improvement?	No improvement	21	20	15	56	
Total		65	34	45	144	

difference in the improvement of the depressed patients states between male and female. 45 men and 43 women showed improvement after the drug usage, but 20 men, and 36 women did not. The data are displayed in Table 3.

Based on the calculated Chi-square test (3,282), with the degrees of freedom df=1 and importance p>0,05 we can conclude that there is no statistically significant difference in improvement depressed patients and gender.

Table 5 displays the results of Spearman's correlation coefficient (r=0,151) that means that correlation between the gender and the improvement of depressed patients states is unimportant.



Chart 1. The improvement of the depressed patients states and drug groups

lable 3.	Was there an improve	ement? * gender Crossta	abulation	
	Count		gen	der
	Count	,	male	female
		Visible improvement	45	43

Table 3.	Was there	an impro	ovement?	* gen	ıder	Crossta	bulation
100000.		ciri inipi o	renicente.	500		01000000	500000000

	•		male	female				
Was there an improvement?	Visible improvement		45	43	88			
was there an improvement?	No improvement		20	36	56			
Total			65	79	144			
Table 4. Chi-Square Tests								
		10	Asymp. Sig.	Exact Sig.	Exact Sig.			

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.287ª	1	.070		
Continuity Correction ^b	2.694	1	.101		
Likelihood Ratio	3.318	1	.069		
Fisher's Exact Test				.086	.050
Linear-by-Linear Association	3.264	1	.071		
N of Valid Cases	144				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.28.

b. Computed only for a 2x2 table

Table 5. 3	Symmetric	Measures
------------	-----------	----------

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by	Phi	.151			.070
Nominal	Cramer's V	.151			.070
Interval by Interval	Pearson's R	.151	.082	1.821	.071°
Ordinal by Ordinal	Spearman Correlation	.151	.082	1.821	.071°
N of Valid Cases		144			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Total



Chart 2. Graphical display of an improvement of depressed patients states and gender

By comparing depressed patients states and age we got results that 8 from 20-30 patients show visible improvement, 4 patients from the same group do not show change of the state. From 30-40 years old patients even 15 patients improved their state, but 4 patients from the same group maintained the same state or it became worse. In the age group from 40-50 years 25 patients improved their state after drug usage, but state of 20 patients remained the same. It is a bit different state with the patients that are from 50-60 years old where 21 patients did not show improvement, but 18 patients did.

At the end 22 patients from 60-70 years old had a good reaction to therapy, respectively, state has been improved after therapy, and state of 7 patients remained the same. The results are displayed in table 6.

Based on the calculated Chi-square test (9,630) with the degrees of freedom df=4 i p<0,05 we may conclude that there is statistically significant difference in improvement of depressed patients after therapy and age. The results are displayed in Table 6, Table 7 and in Chart 3

By comparing the data about marital status and the improvement of the depressed states patients we got the following results that are displayed in Table 9. 74 married patients showed visible improvement

Count				Age			Total
		20-30	30-40	40-50	50-60	60-70	10(a)
Was there an	Visible improvement	8	15	25	18	22	88
improvement?	No improvement	4	4	20	21	7	56
Total		12	19	45	39	29	144

Table 6. Was there an improvment? * age Crosstabulation

Table 7.	Chi-Squar	e Tests
----------	-----------	---------

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.610ª	4	.048
Likelihood Ratio	9.907	4	.042
Linear-by-Linear Association	.083	1	.773
N of Valid Cases	144		

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 4.67.

Table 8. Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by	Phi	.258			.048
Nominal	Cramer's V	.258			.048
Interval by Interval	Pearson's R	.024	.080	.287	.775°
Ordinal by Ordinal	Spearman Correlation	.021	.081	.253	.801°
N of Valid Cases		144			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

after drug usage, none of the examinee who is single did not show the improvement of the state, the improvement of the state showed 14 divorced patients. 37 married patients did not show improvement, 14 patients that are single and 5 divorced patients.



Chart 3. Graphical display of an improvement of depressed patients states and age

Based on comparison of calculated Chi-Square Test (24,705) for the degree of freedom df=2 i p<0,05 we may conclude that there is statistically significant difference between the change of the state of depressed patients and marital status.



Chart 4. Graphical display of frequency changes in the state of depressed patients and marital status

Discussion

Studies on this topic are scarce ad there are not enough information, therefore this work can be used as a starter work. Visible improvement show 44 (30,56%) patients that use some drug from group SSRI, 14 (9,72%) patients that use tricyclic antidepressants and 30 (20,83%) patients with so-called combined group of drugs. There are no improvements with 21 patients (14,58%) that use some drug from group SSRI, 20 (13,89%) patients that use tricyclic antidepressants i 15 (10,42%) patients with so-called combined group of drugs. The data Chi-square test are given in the table 2.

	Count	Mar	Total		
	Count	married	single	divorced	Total
Was there an	Visible improvement	74	0	14	88
improvement?	No improvement	37	14	5	56
Total		111	14	19	144

Tabela 10. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.705ª	2	.000
Likelihood Ratio	29.249	2	.000
Linear-by-Linear Association	.837	1	.360
N of Valid Cases	144		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.44.

Based on the calculated Chi-square test (7,454) with the degrees of freedom df=2 na nivou 0,05 i p<0,05 which shows that there is statistically significant difference in improvement of the patients that drink different groups of drugs.

45 (31,25%)men and 43 (29,86%) women showed improvement after drug usage, but 20 (13,89) men and 36 (25%) women did not show improvement. Based on the calculated Chi-square test (3,282), with the degrees of freedom df=1 and importance p>0,05 we can conclude that there is no statistically significant difference in improvement depressed patients and gender.

By comparing depressed patients states and age we got results that 8 from 20-30 patients show visible improvement, 4 patients from the same group do not show change of the state. From 30-40 years old patients even 15 patients improved their state, but 4 patients from the same group maintained the same state or it became worse. In the age group from 40-50 years 25 patients improved their state after drug usage, but state of 20 patients remained the same.

It is a bit different state with the patients that are from 50-60 years old where 21 patients did not show improvement, but 18 patients did.

At the end 22 patients from 60-70 years old had a good reaction to therapy, respectively, state has been improved after therapy, and state of 7 patients remained the same. Based on the calculated Chi-square test (9,630) with the degrees of freedom df=4 i p<0,05 we may conclude that there is statistically significant difference in improvement of depressed patients after therapy and age.

74 married patients showed visible improvement after drug usage, none of the examinee who is single did not show the improvement of the state, the improvement of the state showed 14 divorced patients. 37 married patients did not show improvement, 14 patients that are single and 5 divorced patients . Based on comparison of calculated Chi-Square Test (24,705) for the degree of freedom df=2 i p<0,05 we may conclude that there is statistically significant difference between the change of the state of depressed patients and marital status.

Conclusions

The results show that there is statistically significant difference between the improvement of the depressed patients state and drug groups that they use. Comparing gender with the depressed patients state did not show statistically significant difference. Results we got by comparing martial status and the improvement of the depressed patients states after drug usage showed statistically significant difference. Also, results show that there is a correlation between the age and the improvement of the depressed patients states.

References

- Leurs R, Church MK, Taglialatela M. H₁-antihistamines: inverse agonism, anti-inflammatory actions and cardiac effects. Clin Exp Allergy. 2002 Apr; 32(4): 489-98.
- 2. Lovretić V, Mihaljević-Peleš A. Je li poremećaj kognitivnih funkcija put u depresiju? Zagreb: Soc. Psihijat., 2013.
- 3. American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-IV. Washington, DC: American Psychiatric Association. 2000.
- 4. Bech P, Rasmussen NA, Olsen LR, Noerholm V, Abildgaard W. The sensitivity and specificity of the Major Depression Inventory, using the Present State Examination as the index of diagnostic validity. Journal of affective disorders.2001; 66(2-3): 159–64.
- Olsen LR, Jensen DV, Noerholm V, Martiny K, Bech P. The internal and external validity of the Major Depression Inventory in measuring severity of depressive states. Psychological medicine. 2003; 33(2): 351–6.
- 6. Di Parrón T, Hernández AF, Villanueva E. Increased risk of suicide with exposure to pesticides in an intensive agricultural area. A 12-year retrospective study. In Forensic Sci Int. 1996 May 17; 79(1): 53-63.
- 7. Wilson RS, Hoganson GM, Rajan KB i sur. Temporal course of depressive symptoms during the development of Alzheimer disease. Neurology 2010; 75: 21-6.
- 8. Ivanušić J, Degmečić D. Klinička slika, dijagnoza i diferencijalna dijagnoza depresivnih poremećaja. MEDIX 2013; 19: 106.
- Urlić I. Depresija u 21. stoljeću u povodu obilježavanja Europskog dana borbe protiv depresije MEDIZ 2013; Vol 19 No 106.
- 10. Vidrih B, Karlović D, Bošnjak Pašić M, Uremović M, Kovak Mufić A, Matošić A. Pregled psihoneuroimu-noloških spoznaja o etiologiji depresivnih poreme-ćaja Zagreb acta Clinica Croatica 2012; vol. 51.

- 11. Zavoreo I, Bašić-Kes V, Bosnar-Puretić M, Demarin V. Depresija nakon moždanog udaraActa Clinica Croatica 2009; Vol. 48 No 3.
- 12. Folnegović Šmalc V. Depresija i suicidalnost ME-DIX 2010; Vol 16 NO 87/88.
- 13. Mimica N, Kušan Jukić M. Depresija u osoba starije životne dobi: specifičnosti kliničke slike i smjernice za liječenje MEDIX 2013; Vol 19 No 106.
- 14. Fava M, Cassano P. Mood disorders: Major depressive disorder and dysthymic disorder. In: Stern TA, Rosenbaum JF, Fava M, Biederman J, Rauch SL, eds. Massachusetts General Hospital Comprehensive Clinical Psychiatry. Ist ed. Philadelphia, Pa: Mosby Elsevier; 2008:chap 29.
- 15. American Psychiatric Association. Practice guidelines for the treatment of patients with major depressive disorder. 2nd ed. September 2007.
- Morishita T, Fayad SM, Hiquschi MA, Nestor KA, Foote KD. Deep Brain Stimulation for Treatmentresistant Depression: Systematic Review of Clinical Outcomes. Neurotherapeutics. 2014 PMID:24867326 [PubMed - as supplied by publisher]

Corresponding Author Almedina Numanovic, International University of Novi Pazar, Novi Pazar, Serbia, E-mails: almedinaasotic@yahoo.com, almedina.asotic.2010.17sa@gmail.com

Level of knowledge about sexually transmitted infections and sexual behavior in the population of female students at the University of Sarajevo

Marklena Carovac¹, Aladin Carovac², Sabina Mahmutovic Vranic³, Edina Beslagic³

¹ Department for Clinical Chemistry and Biochemistry, Clinical Centre of University of Sarajevo, Sarajevo, Bosnia and Herzegovina,

² Clinic of Radiology, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina,

³ Department of Microbiology, School of Medicine, University of Sarajevo, Bosnia and Herzegovina.

Abstract

Objectives. The aim of this study was to examine sexual knowledge levels and sexual behaviour among high-risk population of female students at University of Sarajevo.

Methods. Cross-sectional study was performed on self-administered questionnaires obtained from 125 randomly selected female students, divided in 2 groups: medical (MD) and non-medical discipline of study (NMD).

Results. 41 of 125 students (32.8%) had sufficient level of knowledge; 23 (76.7%) of MD and 18 (18.9%) of NMD students. The odds of MD students having better knowledge scores were 14.05 times as much as those of NMD students (odds ratio (OR) [95% confidence interval (CI)], 14.1 [5.2 - 37.8]). Mean knowledge score of MD students was 3.23 (SD = 1.05), significantly higher (p < 0.01) compared to NMD students score value of 1.79 (SD = 1.04). 108 (86.4%) of 125 students had high risk sexual behavior; 25 of 30 (83.3%) MD students and 83 of 95 NMD (87.4%) students. Logistic regression analysis showed that higher level of knowledge had not changed sexual behavior in female students. Previous screening on STIs was statistically associated with knowledge levels (p < 0.05).

Conclusion. Results obtained in this study showed insufficient level of sexual knowledge and significant level of high-risk sexual behaviour amongst female students attending higher education. More comprehensive research is required in order to effectively implement sexual education and prevention campaigns and to fill the knowledge gap at higher education institutions.

Key words: sexual knowledge; sexual behaviour; female students.

Introduction

Sexually transmitted infections (STIs) are serious public health problem throughout the world. New cases of curable STIs (i.e. syphilis, gonorrhoea, chlamydia, and trichomoniasis) numbered an estimated 499 million in 2008 (1). STIs have a profound impact on sexual and reproductive health worldwide, and rank among the top 5 disease categories for which adults seek health care. Majority of STIs are present without symptoms and when these infections go untreated, complications can include pelvic inflammatory disease (PID), infertility, ectopic pregnancy, congenital infections and cervical cancer (2). Estimates suggest that young people aged 15 - 24 years acquire nearly half of all new STIs and that 1 in 4 sexually active adolescent females have an STI, such as chlamydia or human papilloma virus (HPV). Young sexually active women under the age of 25 years are highly vulnerable population for acquiring STIs. Compared with older adults, sexually active adolescents aged 15-19 years and young adults aged 20-24 years are at higher risk of acquiring STDs for a combination of behavioral, biological, and cultural reasons (3,4). Risk factors for STIs among young sexually active females are lower socioeconomic status, inconsistent condom use, early age of sexual debut, multiple lifetime sexual partners, two or more partners in the past year, having new or casual sexual contacts, cervical ectopy and associated other STIs (5). STIs knowledge can be defined as general knowledge about the infections and potential sequelae, and knowledge regarding transmission routes and methods of protection. Knowledge is an important prevention factor for STIs. It has been suggested that knowledge about STI transmission might influence sexual behavior (6). Good primary preventive interventions are the very base for STI control, with high-risk population targeted education aiming sexual behavioral changes. WHO has recently released updated guidance on STIs surveillance. This guidance emphasizes practical, routine approaches to conducting STIs surveillance and making the best use of national STI screening protocols, laboratory capacity, and sexual behavioral surveillance systems (7).

The purpose of this study is to examine the knowledge levels regarding STIs and sexual behaviour among female students at University of Sarajevo, in order to better target preventive measures.

Methods

This study was performed on specimens and questionnaires obtained from 125 randomly selected female students from University of Sarajevo participating in a cross-sectional study carried out from March to September 2013. Students who attended the gynecology unit at Insitute of Health Protection of Students at University of Sarajevo in this period of time were approached. Verbal consent was obtained from the students and instructions were given to fill the questionnaires. Students were asked to fold the questionnaire after filling, to maintain the privacy. All questionnaires were anonymous. Data protection was assured. Unique identification number was given to each questionnaire, and it was used in all data analyses. The study protocol received ethical approval from the Ethical Committee of Faculty of Medicine, University of Sarajevo.

All participants completed a self-administered questionnaire on sexual knowledge, attitudes and behaviors. It was designed on the model of similar questionnaries found during literature research and on the *AIDS program knowledge, attitudes, beliefs and practices survey* developed in 1988. by WHO. The questionnaire consisted of 20 mostly dichotomous yes/no option and the forced choice questions, and divided into 4 groups. First group of questions included socio-demographic details (age, year of higher education, socio-economic status compaired to others). Second group of questions estimated level of knowledge about STIs, symptoms, consequences of such infections and methods of protection. Third group of questions was about sexual beha-

viour and attitudes, including age of sexual debut, number of partners in past year and lifetime partners, and condom use during intercourses in previous 12 months. Fourth group of questions was about history of STIs, previous screenings and suggestive symptoms at the time of testing (discharge, endocervical bleeding, pelvic pain, bleeding and/or pain during intercourse, itching, dysuria).

Students were divided into 2 groups. Students at Faculty of Medicine, Faculty of Dental Medicine, Faculty of Pharmacy and other health-related higher education institutions are included in group 1 (medical – MD). Group 2 included students from other faculties (non-medical – NMD).

Knowledge questions and sexual behavior questions were point rated. Each correct or desirable response under a question equaled one score. Maximum knowledge score that could be obtained was 4. Participants were evaluated according to the points they received from knowledge questions. Students who scored 0-2 points were considered as having insufficient level of knowledge, and 3 or 4 points as sufficient level of knowledge. Maximum risk score that could be obtained was 4, and the participants were evaluated as having no risk (score 0) or at risk (scores 1-4) of aquiring STIs. Responders were asked about age of sexual debut (1 = age < 18)years, $0 = age \ge 18$ years), number of partners in previous 12 months (1 = two or more partners, 0 = one partner or no partners), number of lifetime partners (1 = 3 or more partners, 0 = less than 3 partners)and frequency of condom use during intercourses in previous year (1 = never, rarely, sometimes, often; 0= always). Any response option for the condom use question different than "always" were collapsed into one option, thought as inconsistent condom use.

All data analyses were performed using SPSS software, version 16. Descriptive statistics (percentages, mean and standard deviation [SD]) were used to summarize demographic data. The independent t - test was used in order to compare the knowledge of MD and NMD students. The chisquared test was also used to evaluate the differences between nominal variables. Differences were considered significant when p values were < 0.05. Finally, multiple logistic regression analysis was performed to identify corellation between independent risk behavior variables and discipline of study, as well as the knowledge level of students.

Results

Socio-demographic characteristics

The questionnaire was completed by 125 female students. 104 students (83.2%) were under the age of 25. MD group consisted of 30 students (24%), and NMD group of 95 students (76%). Only 4.0% of participants reported their socioeconomic status to be inferior compaired to others in their surroundings. Socio-demographic characteristics of participants are presented in Table 1.

Levels of STIs knowledge

The majority of students in both groups have heard of STIs. Knowledge about routes of transmission, methods of protection and potential consequences of STIs was significantly higher among MD students at p < 0.01 level. Distribution of responses to STIs knowledge related questions among MD and NMD groups of students are showed in Table 2.

Overall, 41 of 125 students (32.8%) had sufficient level of knowledge. MD students had signi-

Table 1. Socio-demographic characteristics of female students aged 19 - 30 years studying at University of Sarajevo

Variables	Frequency (n=125)	Percentage (%)
Age of students		
< 25 years	104	83.2
\geq 25 years	21	16.8
Faculty		
MD	30	24
NMD	95	76
Year in higher education		
1st Year	12	9.6
2nd Year	28	22.4
3rd Year	23	18.4
4th Year	34	27.2
5th Year	28	22.4
Socio-economic status		
Inferior to others	4	3.2
Equal to others	112	89.6
Better than others	9	7.2

MD – students from health-related faculties; NMD – students from not health-related faculties

Table 2. Distribution of responses to STIs knowledge related questions among MD and NMD groups of students

Variables		ID .	NMD		n sualuua	
variables	n	%	n	%	p value	
Knowledge about definition of STIs						
Yes	29	96.7	91	95.8	p > 0.05	
No	1	3.3	4	4.2		
Knowledge about routes of transmission						
Yes	19	63.3	17	17.9	p < 0.01	
No	11	36.7	78	82.1		
Awareness of potential consequences of STIs						
Yes	24	80.0	15	15.8	p < 0.01	
No	6	20.0	80	84.2		
Knowledge about methods of protection						
Yes	25	83.3	45	47.4	p < 0.01	
No	5	16.6	50	52.6		

MD - students from health-related faculties; NMD - students from not health-related faculties

ficantly higher level of knowledge; 23 (76.7%) of them had knowledge score 3 or 4. NMD students were less knowledgeable, and only 18 (18.9%) of them had sufficient level of knowledge. Binary logistic regression analysis showed that the odds of MD students having better knowledge scores were 14.05 times as much as those of NMD students (odds ratio (OR) [95% confidence interval (CI)], 14.1 [5.2 - 37.8]). Mean knowledge score of MD students was found to be 3.23 (SD = 1.05), and was significantly higher (p < 0.01) compared to NMD students score value of 1.79 (SD = 1.04).

Sexual behavior and other risk factors

The mean age of MD students was 23.67 (SD = 1.92, range 19 - 27, median 24), and NMD stu-

Table 3. Crude and adjusted odds ratios of knowledge levels, sexual behavior and other risk factors in MD and NMD students

¥7 • 11		NMD		D	OD (059/ CD	
Variables	n	%	n	%	OR (95% CI)	AUR (95% CI)
Age of students						
< 25 years	84	88.4	20	66.7	3.8 (1.4 – 10.2)‡	1.4 (1.1 – 1.7)‡
\geq 25 years	11	11.6	10	33.3	1.0	1.0
Knowledge score value						
0,1,2	77	81.05	7	23.3	14.1 (5.2–37.8)‡	1.9 (1.5 – 2.4)‡
3,4	18		23	76.6	1.0	1.0
Sexually active						
Yes	94	98.9	29	96.7	3.2(0.2-53.5)	1.3(0.7-2.5)
No	1	1.1	1	3.3	1.0	1.0
Age of sexual debut						
< 18 years	10	10.5	1	3.3	3.4 (0.4 – 27.8)	1.3(0.8-2.2)
\geq 18 years	85	89.5	29	96.6	1.0	1.0
The number of partners in the past year						
≥ 2	15	15.8	3	10.0	1.7(0.4-6.3)	1.1 (0.8 – 1.5)
0-1	80	84.2	27	90.0	1.0	1.0
The number of lifetime partners						
\geq 3	25	26.3	5	16.7	1.8 (0.6 – 5.2)	1.1 (0.9 – 1.5)
< 3	70	73.7	25	83.3	1.0	1.0
Condom use during intercourse in the past year						
Inconsistent	77	81.1	23	76.7	1.3 (0.5 – 3.5)	1.1 (0.8 – 1.3)
Always	18	18.9	7	23.3	1.0	1.0
Risk score						
1-4	83	87.4	25	83.3	1.4(0.4 - 4.3)	1.1 (0.8 – 1.4)
0	12	12.6	5	16.6	1.0	1.0
Current steady relationship						
No	16	16.8	2	6.7	2.8 (0.6 – 13.1)	1.3 (0.9 – 1.8)
Yes	79	83.2	28	93.3	1.0	1.0
Previous STIs						
Yes	11	11.6	4	13.3	0.8 (0.2 – 2.9)	1.0(0.7-1.3)
No	84	88.4	26	86.7	1.0	1.0
Previous screening						
No	72	75.8	8	26.7	8.6 (3.4 – 22.0)‡	1.7 (1.3 – 2.1)‡
Yes	23	24.2	22	73.3	1.0	1.0
Have suggestive symptoms						
Yes	62	65.3	19	63.3	1.1 (0.5 – 2.6)	1.0 (0.8 – 1.2)
No	33	34.7	11	36.7	1.0	1.0

 $\ddagger p < 0.01$

MD - students from health-related faculties; NMD - students from not health-related faculties

dents was 22.7 (SD = 2.14, range 19 - 30, median 23) years, which was statistically significant at p < 0.05 level. 96.7% of MD students and 98.9% of NMD students reported ever having had sexual intercourse. The mean age of sexual debut in NMD students was 19.47 years (SD = 1.89, range 16 - 24, median 19) and 20.34 years (SD = 2.04, range 16 - 26, median 20) in MD students; difference was statistically significant at p < 0.05 level. The mean number of sexual partners in previous year in MD and NMD students was 1.10 (SD = 0.47) and 1.17(SD = 0.61), respectively. The mean number of lifetime sexual partners was 1.97 (SD = 2.01) in MD students and 2.15 (SD = 2.08) in NMD students. Only 23.3% of MD students, and 18.9% of NMD students indicated that partner always used condom in past 12 months. The majority of students in both groups answered this question with often, sometimes, rarely and never, which is all considered as inconsistent condom use. Previous STI was reported by 13.3% of MD and 11.6% of NMD students. Significantly higher rate of MD students (73.3%) had previous STIs screening, when compared to NMD students (24.2%). Similar rates of students in both groups had suggestive STIs symptoms at time of questioning. Risky sexual behavior and other risk variables among MD and NMD students are presented in Table 3.

Overall, 108 (86.4%) of 125 students had high risk sexual behavior; 25 of 30 (83.3%) MD students and 83 of 95 NMD (87.4%) students. Binary logistic regression analysis showed that NMD students were more likely to take sexual risks than MD students (OR [95% CI], 1.4 [0.4 – 4.3]). Mean risk factors score of MD students was found to be 1.03 (SD = 0.67), and 1.14 (SD = 0.78) in NMD students, and difference had no statistical significance.

Effect of discipline of study on knowledge, sexual behavior and other risk predictor variables

To examine the relationship between discipline of study and sex-related knowledge, attitudes and behavior, a multiple logistic regression analyses were performed with discipline of study as independent variables (X), and with 12 knowledge, sexual behavior and other risk variables as dependent variables (Y). NMD students were more likely under the age of 25 years (OR [95% CI] = 3.8 [1.4 - 10.2]), sexualy active (OR [95% CI] = 3.2[0.2 - 53.5]), to have sexual debut in younger age (OR [95% CI] = 3.4 [0.4 - 27.8]) and not to have steady relationship (OR [95% CI] = 2.8 [0.6 -13.1]). MD students were 14.1 times more likely to achieve sufficient knowledge scores (OR [95% CI = 14.1[5.2 - 37.8]), and 8.6 times more likely to have screening on STIs (OR [95% CI] = 8.6[3.4]-22.0]) and it was statistically significant at p < 0.01 level. When adjusted, odds ratios of MD students having better knowlegde scores and screening were much lower, but still statisticaly significant at p < 0.01 level. Adjusted odds ratios showed that sexual behavior and other risk variables were similar among MD and NMD students. Crude and adjusted odds ratios of knowledge levels, sexual behavior and other risk factors in MD and NMD students are presented in Table 3.

Discussion

The aim of this study was to examine sexual knowledge, attitude and behaviors among high-risk population of female students at University of Sarajevo. We also examined possible effect of discipline of study on knowledge levels and consequential high-risk behaviour. The mean age of MD students was 23.67 (SD = 1.92, range 19 – 27, median 24), and NMD students was 22.7 (SD = 2.14, range 19 – 30, median 23) years, which was statistically significant at p < 0.05 level. 96.7% of MD students and 98.9% of NMD students reported ever having had sexual intercourse. The mean age under 25 years classifed those sexually active female students in high-risk population of acquiring STIs.

Overall, 41 of 125 students (32.8%) had sufficient level of knowledge, which is a devastating fact considering that it was population of higher educated, sexually active young females of good socio-economic background. Students in MD group demonstrated significantely higher level of knowledge regarding all aspects of STIs. A high percentage of participants in both groups have heard of STIs. However, the rate fell rapidly to unsatisfactory levels for routes of transmission; only 17.9% of NMD students knew that STIs were spread predominantly by sexual contact (vaginal, anal and oral sex). Although MD students had significantly higher knowledge about routes of transmission (p < 0.01), 36.7% of them haven't answered to this question correctly. STIs can cause serious consequences and profound impact on sexual and reproductive health, but still, 84.2% of NMD and 20% of MD students reported lack of awareness regarding such important health aspect; difference was statistically significant at p < 0.05level. According to WHO, when used correctly and consistently, condoms offer one of the most effective methods of protection against STIs (2), but 52.6% of NMD students, and 16.6% of MD students wasn't aware of that fact (p < 0.01). Findings of this study have showed that higher education students were not sufficiently informed about symptoms, measures to avoid getting infected, complications and transmission routes of STIs. Similar results were found in study that estimated knowledge about sexually transmitted infections in the population of female students at the University of Novi Sad; medical students showed significantly better knowledge than students from other faculties (8). The similarity with our findings may be explained by the fact that neighboring countries might have a similar, STIs stigmatizing socio-cultural profile, but number of international studies have also concluded that students have moderate level of knowledge about STIs although they are sexually active (6,9-14). It seems that talking about sex and sexuality continues to remain a social and cultural taboo, and that there are no quality educational programmes regarding STIs for young people in Bosnia and Herzegovina.

The most reliable ways to avoid transmission of sexually transmitted infections are to abstain from sexual activity or to be in a long-term mutually monogamous relationship with an uninfected partner (15). Our study showed high-risk behaviour among university students; 87.4% of NMD and 83.3% of MD students were at risk of acquiring STIs. The mean age of sexual debut in NMD students was 19.47 years (SD = 1.89, range 16 - 24, median 19) and significantly lower (p < 0.05) than MD students (20.34 years, SD = 2.04, range 16 -26, median 20). The mean age of sexual debut in Irish students was lower 15.8% of NMD and 10.0% of MD students had two or more partners in previous 12 months; 26.3% of NMD and 16.7% of MD students had three or more lifetime partners. Number of partners in previous 12 months and lifetime partners was higher in NMD students, but with no statistically significant difference. Consistent and correct use of condoms can reduce the risk of STI transmission. Inconsistent use can lead to STI acquisition because transmission can occur with a single act of intercourse with an infected partner (15). High percentage of students reported inconsistent use of condoms in past 12 months, 81.1% of NMD and 76.7% of MD students. In a study on sexual behaviour among youth in Croatia, authors found similar gap between knowledge of condom use and the actual use of condoms as a high proportion of sexual contact remain unprotected (16). Inconsistent condom use among university students, as presented in international studies, is similar to results of this study (17-20).

The general assumption is that students, who have a high level of education, should be well informed concerning STIs and should therefore have positive attitudes and responsible sexual behavior. This study demonstrates that the assumption bears no resemblance to reality. NMD students showed insufficient level of STIs related knowledge as well as high-risk behavior. The majority of MD students were aware of the way in which STIs are transmitted and of what construes risky behavior, but there was nonetheless a high frequency of high-risk behavior. The sexual behavior of the MD students was not significantly different from NMD students, and there was no correlation between higher level of knowledge and responsible sexual behavior. Despite their sexual awareness, MD students were highly ignorant of the facts of life. MD students were more likely to have STIs screenings than NMD students (p < 0.05), probably because they were aware of their sexual risks. The assumption is that MD student's knowledge is related to their discipline of study. Other studies suggested that although accurate knowledge alone is insufficient to result in changes in attitude and behavior, it is a necessary component towards developing the motivation to change one's behaviour (21). Therefore, targeted education, as important component in STIs control in young people, should focus on both the prevention of STIs and on facing up to these diseases. The goal of education is to increase adolescent self-efficiency in practicing STI prevention and risk-reduction.

There are some limitations in our survey. The main limitation is that the sample size was re-

stricted to 125 female students. Higher education students are not representative of the general population. Students attending the Insitute of Health Protection of Students at University of Sarajevo may not be representative of all students as some students may not seek any medical care and others may seek care at their family doctor or in private clinics. Voluntary recruitment may also have favoured participation by students already concerned regarding STIs. The potential self-reporting bias should also be taken into consideration.

Conclusion

Results obtained in this study had showed insufficient level of knowledge regarding STIs, as well as significant level of high-risk sexual behaviour amongst female students attending higher education. This can be explained by the fact that STIs are a current issue in Bosnia and Herzegovina, but it continue to remain a social and cultural taboo, along with sex and sexuality. Our study indicates the need for implementation of educational activities about sexually transmitted infections, which would enable the preservation and promotion of reproductive health of young people. Prevention strategies should include the promotion of risk avoidance through delayed sexual debut and partner reduction, as well as the provision of factual information about risk reduction through barrier protection. Further, more comprehensive research is required in order to effectively implement sexual education and to fill the knowledge gap.

Acknowledgments

We convey our special thanks to Faculty of Medicine University of Sarajevo, Insitute of Health Protection of Students at University of Sarajevo and study participants.

References

 World Health Organization. Baseline report on global sexually transmitted infection surveillance 2012. [Online] Geneva, World Health Organization; 2013. Available from: http: //apps.who.int/iris/bitstre am/10665/85376/1/9789241505895_eng.pdf [Accessed 18th February 2014].

- World Health Organization. Sexually transmitted infections (STIs), Fact sheet N°110. [Online] Geneva: World Health Organization; 2013. Available from: http: //www.who.int/mediacentre/factsheets/fs110/en/ [Accessed 17th February 2014].
- 3. Centers for Disease Control and Prevention. Sexually transmitted disease surveillance, 2012. [Online] Atlanta, GA: US Department of Health and Human Services, CDC; 2014. Available from: http://www. cdc.gov/STD/stats12/Surv2012.pdf [Accessed 3rd March 2014].
- European Centre for Disease Prevention and Control (ECDC). Annual epidemiological report on communicable diseases in Europe 2010. [Online] Stockholm: ECDC; 2010. Available from: http: //www.ecdc.europa.eu/en/publications/publications/1011_sur_annual_epidemiological_report_on_communicable_diseases_in_europe.pdf [Accessed 27th February 2014].
- Navarro C, Jolly A, Nair R, Chen Y. Risk factors for genital chlamydial infection. Can J Infect Dis 2002; 13(3): 195-207.
- Anwar M, Sulaiman SA, Ahmadi K, Khan TM. Awareness of school students on sexually transmitted infections (STIs) and their sexual behavior: a cross-sectional study conducted in Pulau Pinang, Malaysia. BMC Public Health 2010; 10: 47.
- World Health Organization. Strategies and laboratory methods for strengthening surveillance of sexually transmitted infections – 2012. [Online] Geneva: World Health Organization; 2012. Available from: http: //apps.who.int/iris/bitstre am/10665/75729/1/9789241504478_eng.pdf [Accessed 18th February 2014].
- Nikolić S, Kapamadžija A. Stepen informisanosti o seksualno prenosivim infekcijama u populaciji studentkinja Novosadskog Univerziteta. Medicinski Pregled 2011; 64(1-2): 84-88.
- 9. Aggarwal O, Sharma AK, Chhabra P. Study in sexuality of medical college students in India. J Adolesc Health 2000; 26(3): 226-9.
- 10. McManus A, Dhar L. Study of knowledge, perception and attitude of adolescent girls towards STIs/HIV, safer sex and sex education: (a cross sectional survey of urban adolescent school girls in South Delhi, India). BMC Womens Health 2008; 8: 12.
- 11. Zhang D, Bi Y, Maddock JE, Li S. Sexual and reproductive health knowledge among female college students in Wuhan, China. Asia Pac J Public Health 2010; 22(1): 118-26.

- Mosavi SA, Babazadeh R, Najmabadi KM, Shariati M. Assessing Iranian Adolescent Girls' Needs for Sexual and Reproductive Health Information. J Adolesc Health 2014. pii: S1054-139X(13)00794-5. Available from: http: //www.ncbi.nlm.nih.gov/ pubmed/24560307 [Accessed 4th March 2014].
- 13. Ajmal F, Agha A, Zareen N, Karim MS. Knowledge, attitudes and practices (KAP) regarding sexuality, sexual behaviors and contraceptives among college/university students in Karachi, Pakistan. J Coll Physicians Surg Pak 2011; 21(3): 164-8.
- 14. Mengistu TS, Melku AT, Bedada ND, Eticha BT. Risks for STIs/HIV infection among Madawalabu university students, Southeast Ethiopia: a cross sectional study. Reprod Health 2013; 10: 38.
- Centers for Disease Control and Prevention. Condoms and STDs: Fact Sheet for Public Health Personnel. [Online] Atlanta, GA: US Department of Health and Human Services, CDC; 2013. Available from: http: //www.cdc.gov/condomeffectiveness/latex.htm [Accessed 3rd March 2014].
- 16. Bozicević I, Stulhofer A, Ajduković D, Kufrin K. Patterns of sexual behaviour and reported symptoms of STI/RTIs among young people in Croatia--implications for interventions' planning. Coll Antropol 2006; 30 Suppl 2: 63-70.
- 17. O'Connell E, Brennan W, Cormican M, Glacken M, O'Donovan D, et al. Chlamydia trachomatis infection and sexual behaviour among female students attending higher education in the Republic of Ireland. BMC Public Health 2009; 9: 397.
- Jensen AJ, Kleveland CR, Moghaddam A, Haaheim H, Hjelmevoll SO, Skogen V. Chlamydia trachomatis, Mycoplasma genitalium and Ureaplasma urealyticum among students in northern Norway. J Eur Acad Dermatol Venereol 2013; 27(1): e91-6.
- 19. Abebe M, Tsion A, Netsanet F. Living with parents and risky sexual behaviors among preparatory school students in Jimma zone, South west Ethiopia. Afr Health Sci. 2013; 13(2): 498-506.
- 20. Fentahun N, Mamo A. Risky sexual behaviors and associated factors among male and female students in Jimma zone preparatory schools, South west Ethiopia: comparative study. Ethiop J Health Sci. 2014; 24(1): 59-68.
- Crosby RA, Newman D, Kamb ML, Zenilman J, Douglas JMJr, Iatesta M. Misconceptions about STDprotective behavior. Project RESPECT Study Group. Am J Prev Med 2000; 19(3): 167-73.

Corresponding Author Marklena Carovac, Department for Clinical Chemistry and Biochemistry, Clinical Centre of University of Sarajevo, Sarajevo, Bosnia and Herzegovina, E-mail: marklenacharovatz@gmail.com

Satisfaction of respodents with staff and organization of family and general medicine

Marijan Marjanovic¹, Vedran Djido², Gordana Manic², Ivan Vasilj³, Sabina Zukic⁴, Marinka Kascel Fisic⁵

- ¹ Faculty of Health Care, University "Vitez" in Vitez, Bosnia and Herzegovina,
- ² Faculty of Health Studies ,University of Sarajevo, Bosnia and Herzegovina,
- ³ Faculty of Medicine, University of Mostar, Bosnia and Herzegovina,
- ⁴ Faculty of Medicine, University of Sarajevo, Bosnia and Herzegovina,
- ⁵ Health Centre Novi Travnik, Bosnia and Herzegovina.

Abstract

Introduction: Approach to health care in many developing countries got worse and the result of that was introducing the reforms in health care. The research from neighbour countries as well as research from Bosnia and Herzegovina tell us that patients are more statisfied with reformed system in primary health care than with "the old" way of it.

Objective: On the sample of two infirmaries which are very similar as far as number of their medical file-cards and staff are concerned, but they are positioned in different towns and they do things differently, to establish and compare patinets' satisfaction according to: accessibility of infirmary and nurses, privacy respect and religious beliefs.

Material and methods: The research lasted for a month, every weekday, continuously for five days. Nurse offered a questionnaire to every patient who previously had medical examination but meets criterias of inclusion. For needs of research, the questionnaire was created that consisted of 30 questions on the base of questionnaire of A.G. Gasim author. In the research nominal and ordinal variables were analyzed by x 2 test.

Results: It turned out that respodents from infirmary in Mostar are more satisfied with cleanliness and tidiness of infirmary as well as its distance. It's also noticed that respodents from infirmary of family practice in Mostar are more satisfied with communication of doctors and nurses to patients than the respodents from infirmary of family practice in Novi Travnik. Significantly, more respodents in Mostar consider that staff of infirmacy respect their privacy and religious beliefs.

Conclusion: On the base of every examined parametres responents from Mostar were much more satisfied than responents in Novi Travnik.

Key words: Satisfaction of patinets, family practice, general practice.

Introduction

Approach to medical care in many developing countries got worse and the result of it was introducing reforms in health care. In Bosnia and Herzegovina the reform of primary health care started in 1997. and it isn't over yet. By the end of 2008 year more than 900 doctors finished registrarship or went through additional one-year training in family practice, and it's educated more than 1200 nurses (1). However, the problem is that this number is not equal in every community, respectively, in every county. So that is why all employees in infirmary in Mostar went through additional educational program in family practice, but in Novi Travnik it's still going on, and in infirmary in Novi Travnik none family practice specalist is working.

Most previous researches showed that there's greater satisfaction of responents in infirmaries of family practice than in genaral practice (2,3,4).

One research showed that from 600 respodents even 70% of them have certain problems in communication with health-care workers(3).

Researches from neighbour countries as well as from Bosnia and Herzegovina also tell us about greater satisfaction of respodents with reformated system of primary health care than with ,,the old" one. Patients are more satisfied with better acces to infirmary, time of waiting for medical examination, infirmary staff communication and cleanliness of infirmary(1,5,6).

The research provided in Egypt gives us information about greater patient's satisfaction in infirmary of family practice than in infirmaries where staff didn't go through programme for family practice. Patient's satisfaction refers to cleanliness of infirmacy, work of doctors and nurses and time provided on waiting for medical examination. (7)

The research provided in Afghanistan in 2008 year tells that patients are much more satisfied with services of medical workers who spent more time on medical examinations of patients, took detailed information about history of illness and try to communicate in better way with patients, so it's the way of work that family practice supports. But patients were less satisfied with infrastructure, cleanliness of infirmary, stock of medicaments and medical supplies. (8)

Therefore, past researches reveal that education of medical workers gives greater satisfaction of patients, and better communication gives also better results in relationship between doctors, nurses and patients. There are not many reserches like this one in Bosnia and Herzegovina, so that is why this study should contribute to better understanding and acceptance of reforms in health care, respectively in introducing the family practice.

Material and methods

The research was provided at the end of January in 2012 year in two towns of Bosnia and Herzegovina, precisely in two infirmaries of two health institutions in The Federation of Bosnia and Herzegovina. One infirmary is placed in Novi Travnik and it works on the principles based on general practice, while the other one is placed in Mostar and it works on the principles based on family practice.

The amount in both of infirmaries of medical file-cards is about 12000, which means that there are 6000 of them in each infirmary. 2800 of patients went through these infirmaries during the reserch. Questionnaire was offered to every patient, but 810 of them accepted to fill it up. 80 respodents from these 810 respodents didn't fullfiled at all or they didn't do it properly, so they were not included in further statistics' analysis (Table presentation 1).

The research lasted for a month, every weekday,continuously for five days, and it provided every patient that was 18 years old and more, and in mentioned period he or she asked for medical service and they voluntarily accepted this research. The patients who were there in emergancy were not included in this research as well as patients who refused take part in this survey.

Nurse offered to every patients to fill survey after that patient finished with medical examination. Patients were asked to fill up this survey without any obligations and to give their opinions about the work of the institution. The box, which was sealed, was also shown to patients because they needed to put the survey into it after they finished with filling it up.

Table 1. Presentation of respondents who were classified by age, sex, financial status and degree in infir-maries of family practice in Mostar and general practice in Novi Travnik

	Variable	N (%) patient	χ² test	Р
Sau	Men	361 (49,5)	0.000	0.767
Sex	Women	369 (50,5)	0,088	0,707
	18-25	122 (16,7)		
	26 - 35	176 (24,1)		
Variable N (70) part Sex Men $361 (49, 5)$ Women $369 (50, 5)$ $369 (50, 5)$ Age $18 - 25$ $122 (16, 7)$ $26 - 35$ $176 (24, 7)$ $239 (32, 7)$ $51 - 65$ $134 (18, 4)$ 65 and more $59 (8, 1)$ very bad $28 (3, 8)$ bad $130 (17, 5)$ good $548 (75, 7)$ $very good$ $24 (3, 3)$ Degry no education or Elementary education $58 (7, 9)$ High school graduate and two year college $535 (73, 2)$ University, Master's or Doctorate $137 (18, 5)$ Infirmary of general practice (NL Travnik) $383 (52, 4)$	239 (32,7)	122,178	<0,001	
	134 (18,4)			
	65 and more	N (%) patient χ^2 test361 (49,5)0,0880,369 (50,5)0,0880,122 (16,7)122 (16,7)176 (24,1)122,178239 (32,7)122,178134 (18,4)122,17859 (8,1)122,17828 (3,8)130 (17,8)130 (17,8)1015,55624 (3,3)1015,556vear college535 (73,3)9 year college535 (73,3)N. Travnik)383 (52,5)N. Travnik)347 (47,5%)		
	very bad	28 (3,8)		
 Financial status	bad	130 (17,8)	1015 556	<0.001
r manciai status	VariableIN (70en361omen369-25122-35176-50239-65134and more59ry bad28d130od548ry good24education or Elementary education58igh school graduate and two year college535niversity, Master's or Doctorate137firmary of general practice (N. Travnik)383firmary of family Practice (Mostar)347	548 (75,1)	1015,550	<0,001
	very good	N (%) patient χ^2 361 (49,5)0,9369 (50,5)0,9122 (16,7)122 (16,7)176 (24,1)1239 (32,7)134 (18,4)12259 (8,1)122134 (18,4)59 (8,1)28 (3,8)130 (17,8)130 (17,8)101:548 (75,1)101:24 (3,3)24 (3,3)eation58 (7,9)eat college535 (73,3)537537e137 (18,8). Travnik)383 (52,5)0star)347 (47,5%)		
	no education or Elementary education	58 (7,9)		
Sex Men 361 (c) Women 369 (c) $18 - 25$ 122 (c) $26 - 35$ 176 (c) $36 - 50$ 239 (c) $51 - 65$ 134 (c) 65 and more 59 (c) $very$ bad 28 (c) bad 130 (c) good 548 (c) very good 24 (c) no education or Elementary education 58 (c) University, Master's or Doctorate 137 (c) Infirmary of general practice (N. Travnik) 383 (c) Infirmary of family Practice (Mostar) 347 (4)	535 (73,3)	537,225	<0,001	
	Women 369 (50, 18 - 25 122 (16, 26 - 35 176 (24, 36 - 50 239 (32, 51 - 65 134 (18, 65 and more 59 (8,1) very bad 28 (3,8) bad 130 (17, good 548 (75, very good 24 (3,3) no education or Elementary education 58 (7,9) High school graduate and two year college 535 (73, University, Master's or Doctorate 137 (18, Infirmary of general practice (Mostar) 347 (47,5)	137 (18,8)		
Town	Infirmary of general practice (N. Travnik)	383 (52,5)	1 775	0.102
	Infirmary of family Practice (Mostar)	347 (47,5%)	1,//3	0,185

The questionnaire, which was created for needs of this research, cosisted of 30 questions on the base of questionnaire of A.G.Gasim author (9).

Agreement of ethics commission of Faculty of Medicine in Mostar preceded to this study.

Nominal and ordinal variables in the research were analyzed by χ^2 test. Software system called SPSS for Windows was used for statistics analysis of obtained datas (version 13.0,SPSS Inc, Chicago, Illinois, SAD) and Microsoft Excell was also used in this research (variable 11. Microsoft Corporation, Redmond, WA, SAD).

By analyzing sociodemographic features of responents in table presentation 1 it can be noticed

that respondents differ in age, financial status and degree. The most common financial status was good (548 or 75,1%), the most common degree was high school graduate or two year college (535 or 73,3%), and as far as age is concerned, in this research, the most common respondents are from 36 years old to 50 years old (239 or 32,7%).

Results

By analyzing replies in Table presentation 2. it is proved that responents from infirmary in Mostar are more satisfied with cleanliness and tidiness in the infirmary as well as its distance.

Table 2. Accessibility and cleanliness of infirmary - comparison of responents of infirmary of general practice in Novio Travnilk and infirmary of family practice in Mostar

Variable		N(%) of patients	w ² tost	D	
variable		N. Travnik Mostar		χ- test	r
Distance of	I don't agree completely	41 (10,7)	28 (8,1)		<0,001
Distance of infirmary is acceptable	I don't agree partiarlly	45 (11,7)	12 (3,5)	20.006	
	I agree partiarlly	105 (27,4)	59 (17,0)	39,900	
	I agree completely	192 (50,1)	248 (71,5)		
Infirmary is always clean and tidy	I don't agree completely	37 (9,7)	9 (2,6)		
	I don't agree partiarlly	41 (10,7)	6 (1,7)	65 5 17	<0,001
	I agree partiarlly	116 (30,3)	69 (19,9)	05,547	
	I agree completely	189 (49,3)	263 (75,8)		

Table 3. Communication of doctors and nurses, privacy respecting and religious respecting - comparison of responents of general practice infirmary in N. Travnik and family practice infirmary in Mostar

Variable		N (%) of patients	-2 40 54	р	
	variable	N. Travnik	Mostar	χ ² test	P
	I don't agree completely	31 (8,1)	11 (3,2)		
Doctor gives	I don't agree partiarlly	42 (11,0)	8 (2,3)	70.604	<0.001
my questions	I agree partiarlly	134 (35,0)	59 (17,0)	/9,094	<0,001
my questions	I agree completely	176 (46,0)	269 (77,5)		
. т	I don't agree completely	34 (8,9)	22 (6,3)		<0,001
Nurses give me a good	I don't agree partiarlly	44 (11,5)	14 (4,0)	24 204	
	I agree partiarlly	106 (27,7)	76 (21,9)	24,304	
auvice	I agree completely	199 (51,9)	235 (67,7)		
	I don't agree completely	25 (6,5)	18 (5,2)		
Staff respects	I don't agree partiarlly	50 (13,1)	9 (2,6)	49 001	<0,001
my privacy	I agree partiarlly	106 (27,7)	60 (17,3)	48,001	
	I agree completely	202 (52,7)	260 (74,9)		
	I don't agree completely	23 (6,0)	14 (4,4)		
Statt respects	I don't agree partiarlly	22 (5,8)	1 (0,3)	24 702	<0,001
heliefs	I agree partiarlly	72 (18,8)	49 (14,1)	24,703	
	I agree completely	265 (69,4)	283 (81,6)		

In Table presentation 3 it is noticed that respodents from infirmary of family practice in Mostar are more satisfied with communication of doctors and nurses to patients in regard to respodents of infirmary of general practice in N. Travnik. Significantly more respodents in Mostar consider that staff in Mostar respects their privacy and religious beliefs.

Discussion

Amount of responents in the two towns was 730 and it didn't differ statistically between these towns. The most common respodents were in age of 36-50 (239 or 32,7%). We have this result because patients older than 50 refused to fill up this questionnaire because of their poor vision or they took it with them, but never took it back. In similar reserches the same population was represented (8,9). More than 70% of responents were in good financial status and they were High school graduated or two year college. This number is little higher in regard to many other similar researches where the number of respodents with good financial status and with high school graduated or two year college was about 50% (10,11). The results are surprising and they give us information about perception of respodents what the good financial status is, there are 75% of them who are in good financial status. The fact that more than 70% of them are high school graduated or two year college matches with the result that 73,5% of respodents are younger than 50 years old. Assumption is that younger people are mainly high school graduated which brought us to these results.

The distance of infirmary to patients in Mostar was acceptable, which is logical because they walk to infirmary, so it means that they don't live far away from infirmary in regard to patients in Novi Travnik. This is very important information if we consider that accessibility is one of the terms of declaration "Health for everyone" from Alma Ata (1978) (12), but also as one of principles of family practice (1,6,8). The research in Egypt also indicate that more than 50% of respodents can come to their infirmary in less than 10 minutes (7). Similar results are achieved in Trinidad and Tobago (13).

With the all things mentioned above, respodents in infirmary of general practice were less statisfied with cleanliness and tidiness of infirmary. It could be possible that the control for maids is not organized well, so they don't do their job properly like maids in Mostar.

However, more likely reasion is age of the building in Novi Travnik which needs reconstruction so it could look cleaner.

By analyzing particles in questionnaire we came up to cognition that respodents in infirmary of general practice are less satisfied with communication of doctors and nurses in regard to infirmary of family practice in Mostar. One of the principles in family practice is comprehensive approach (14,15) which include the communication with patient. Therefore, communication of medical staff is one of the indicators of team work in family practice. We have that result because medical staff in Mostar went through education of family practice, but Medical staff in Novi Travnik didn't.

Also, particles which are used to evaluate the respect of privacy (staff respects my privacy) and religious beliefs (staff respects my religious beliefs) are much better evaluated in Mostar. The respect of privacy is connected with education of medical staff in infirmary of family practice, as well as with making appointments, where it's avoided great number of patients that wait, and that is also one of the way of protecting privacy of patients.

Previous thesis could explain bigger respecting of religious beliefs in infirmary of family practice, but the fact that respodents in infirmary of general practice are less satisfied with relation of doctors and nurses to them could also explain the same thing. As far as this is about subjectively satisfaction, it could be possible that medical staff in Novi Travnik influenced to this result with their bad communiction with patients.

Conclusion

In every examined parameters respodents of family practice infirmary were more satisfied than respodents in general practice infirmary.

Communication of doctors and nurses is better evaluated in family practice infirmary.

Staff in family practice infirmary respects more privacy and religious beliefs of responents than the staff of general practice infirmary.

References

- Strategija za razvoj primarne zdravstvene zaštite. Federacija Bosne i Hercegovine, Federalno ministarstvo zdravstva; Sarajevo; 2005. Dostupno na: http:// www.fmoh.gov.ba/feed.php?id=216&rootid=99.
- 2. Palmer N, Mueller DH, Gilson L, Mills A, Haines A. Health financing to promote access in low income settings- how much do we know? Lancet 2004; 364: 1365-70
- 3. Steine S, Finset A, Laerum E. A new, brief questionnarie (PEQ) developed in primary health care for measuring patients experience of interaction, emotion and concultation outcome. Fam Prac. 2001; 18: 410-8.
- Iloh GU, Ofoedu JN, Njoku PU, Odu FU, Ifedigbo CV, Iwuamanam KD. Evoluation of patients satisfactions with quality of care provided at the National Health Insurance Scheme clinic of a tertiary hospital in South – Eastern Nigeria. Niger J Clin Pract. 2012; 15: 469-74.
- 5. Zdravstveno stanje stanovništva i zdravstvena zaštita u Federaciji Bosne i Hercegovine. 2008. Sarajevo: Zavod za javno zdravstvo FBIH, 2009; 27-31.
- Ljaljević A, Matijević S, Terzić N, Anđelić J, Mugoša B. Zadovoljstvo korisnika uslugama u reformiranom sustavu primarne zdravstvene zaštite u Crnoj Gori. Hrvatski časopis za javno zdravstvo. 2009; 5: 56-9.
- 7. Gadallah M, Zaki B, Rady M, Anwer W, Sallam I. Patient satisfaction with primary health care services in two districts in Lower and Upper Egypt. East Mediterranean Health J. 2003; 9: 422-30.
- 8. Peter Meredith H, David H. P, Kavitha V, Krishna Dipankar R, Ashraf M, Gilbert B. Client perceptions of the quality of primary care services in Afghanistan. Int J Qual Health Care. 2008; 20: 384-91
- 9. Margolis SA, AL-Marzouq S, Revel T, Reed RL. Patient satisfaction with primary health care services in the United Arab Emirates. Int J Qual Health Care. 2003; 3: 241-9
- 10. Carr-Hill R. The measurement of patient satisfaction. J Public Health Med. 1992: 14: 236-49.
- 11. Babić Banaszak A, Kovačić L, Mistilica M, Babić S, Ivanković D, Budak A. Patient's satisfaction with medical servise in primary health care in Croatia. Croatian Anthropological Society. 2001; 3: 449-58.
- 12. Primary Health Care: Report of the International Conference on Primary Health Care. Alma-Ata USSR. 6–12 September, 1978; Geneva, WHO World Health Organization and UNICEF; 1978.

- 13. Singh H, Haqq ED, Mustapha N. Patients perceptions and satisfactions with health care proffesionals at primary health care facilities in Trinidad and Tobago. Bulletin of the World Health Organization. 1999; 77: 356-60.
- 14. Masic I, Novo A. Health systems and its subsystems in Bosnia and Herzegovina. Mat Soc Med. 2006; 18: 13-21.
- 15. Mašić I. Porodična/obiteljska medicina principi i praksa. Sarajevo: Avicena, 2007; 42-5.

Corresponding Author Marijan Marjanovic, Faculty of Health Care, University ,, Vitez", Vitez, Bosnia and Herzegovina, E-mail: mmarjanovic24@gmail.com

Internet informiranost o bolesti i zdravlju i kvalitet zdravstvenih usluga u primarnoj zdravstvenoj zastiti

Advija Custovic¹, Mensura Kudumovic²

¹ Faculty of Health, University of Sarajevo, Bosnia and Herzegovina,

² University of Sarajevo, Faculty of Medicine, Bosnia and Herzegovina.

Abstract

In today's world medicine is one of the most intensive users of all kinds of information and telecommunication technology. Information communication technology (ICT) and electronic health care as a new segment of a health care system organization are providing huge, various and almost immeasurable possibilities for work in the field of health and medicine. As a transparent, personalized and secure access to the medical and administrative data of patients, ICT is providing high quality medical data management, productive medical data collection for planning and optimizing business processes in the health care, cash flow control, expenditure control, improvement of health care prevention efficiency and experience exchange based on scientific research and knowledge acquired through the work.

The research has retrospective-prospective character, based on the survey that is a data carrier. Retrospective-prospective research has been done in the year of 2013 in the ambulances of general family medicine in the health center "Centar Sarajevo". The research is based on the survey designed for that purpose and 190 participants voluntarily and independently filled out the survey. 62 health workers filled out the survey as users of health care services.

The goals of the work are to test knowledge level of using internet and relevant health information from the internet, as well as to research the impact of using the internet by users of health care services.

The results are showing that by gender structure 61% of surveyed are female, 39% are male. Out of 52% patients who are searching information about health and diseases on the internet, only 45% thinks that the information was helpful to get more knowledge about health and diseases. Among surveyed health workers there are similar results: out of 63% surveyed that are using health and disease information from the web, only 55% of them thinks that the information was useful to expand the knowledge about the health, disease and to improve the quality of health care services.

Key words: internet, health care protection, patients, health care workers.

Sažetak

Medicina je danas jedan od najintenzivnijih korisnika svih vrsta informacijskih i telekomunikacijskih tehnologija.

Informaciono komunikacione tehnologije (ICT) i elektronsko zdravstvo kao novi segmet organizovanja zdravstvenih sistema pruža velike, različite i skoro nesagledive mogućnosti za rad u oblasti zdravstva i medicine, kao i transparentan, personaliziran i siguran pristup medicinskim i administrativnim podacima pacijenta, vsokokvalitetno upravljanje medicinskim podacima pacijenta, Učinkovito prikupljanje medicinskih informacija za planiranje i optimizaciju poslovnih procesa u zdravstvu, Kontrola novčanog toka i potrošnje te poboljšanje učinkovitosti provođenja zdravstvene zaštite, razmjena iskustava na temelju naučnih saznanja i znanja stečenih kroz rad.

Istraživanje je retrospektivno-prospektivnog karaktera, bazirano na anketnom upitniku kao no-saču podataka.

Retrospektivno-prospektivno istraživanje rađeno 2013 godine u ambulantama porodične medicine doma zdravlja Centar, Sarajevo.

Bazirano na anketnom upitniku dizajniranom za te namjene 190 ispitanika koji su dobrovoljno i samostalno popunili anketni upitnik, među ispitanicima 62 zdravstvena radnika u svojstvu korisnika zdravstvenih usluga. Ciljevi rada su Ispitati stepen poznavanja i upotrebe interneta i relevantnih informacija sa interneta za zdravlje, kao i spitati uticaj upotrebe interneta od strane korisnika zdravstvene zaštite na kvalitet zdravstvenih usluga.

Rezultati pokazuju da je po spolnoj strukturi 61% bilo ispitanika ženskog spola, dok je 39% bilo muškog spola.

Od 52% pacijenta koji pronalaze informacije o zdravlju i bolesti na web-u, njih 45% smatra da su im te informacije poslužile da prošire saznanja o zdravlju i bolesti.

U skupini zdravstvenih radnika, približno isti rezultati: od 63% ispitanika koji pronalaze informacije o zdravlju i bolesti na web-u, njih 55% smatra da su im te informacije poslužile da prošire saznanja o zdravlju i bolesti, te unaprijede kvalitet zdravstvenih usluga.

Ključne riječi: internet, zdravstvena zaštita, pacijenti, zdravstveni radnici.

Uvod

Medicina je danas jedan od najintenzivnijih korisnika svih vrsta informacijskih i telekomunikacijskih tehnologija.

Informaciono komunikacione tehnologije (ICT) i elektronsko zdravstvo kao novi segmet organizovanja zdravstvenih sistema pruža velike, različite i skoro nesagledive mogućnosti za rad u oblasti zdravstva i medicine, kao i Transparentan, personaliziran i siguran pristup medicinskim i administrativnim podacima pacijenta, vsokokvalitetno upravljanje medicinskim podacima pacijenta, Učinkovito prikupljanje medicinskih informacija za planiranje i optimizaciju poslovnih procesa u zdravstvu, Kontrola novčanog toka i potrošnje te poboljšanje učinkovitosti provođenja zdravstvene zaštite, Razmjena iskustava na temelju naučnih saznanja i znanja stečenih kroz rad (1.2.3)

Primjena računara u medicini omogućuje:

- trajno čuvanje
- prijenos
- pretraživanje
- obradu
- dostupnost podataka u svakom trenutku
- preglednije praćenje stanja bolesnika tokom vremena što značajno unaprijeđuje medicinsku struku

Ciljevi

Ciljevi rada su Ispitati stepen poznavanja i upotrebe interneta i relevantnih informacija sa interneta za zdravlje i uticaj upotrebe interneta od strane korisnika zdravstvene zaštite na kvalitet zdravstvenih usluga.

Ispitanici i metode

Prikupljanje podataka vršeno je metodom ankete i anketnog upitnika.

Retrospektivno-prospektivno istraživanje rađeno 2013godine u ambulantama porodicne medicine doma zdravlja Centar, Sarajevo.

Bazirano na anketnom upitniku dizajniranom za te namjene 190 ispitanika koji su dobrovoljno i samostalno popunili anketni upitnik.

Među ispitanicima 62 zdravstvena radnika u svojstvu korisnika zdravstvenih usluga.

Podaci su nakon sređivanja, kontrole i grupisanja transportovani u statistički softverski paket SPSS 16.0. (verzija 16.0, SPSS Inc, Chicago, Illinois, SAD). gdje je nakon definisanja varijabli izvršena statistička obrada podataka.

Kontinuirane varijable koje su normalno distribuirane, opisane su pomoću aritmetičke sredine (standardna devijacija), a one koje nisu normalno distribuirane opisane su pomoću medijane (interkvartilni raspon). Određen je nivo signifikantnosti α =0,05.

Rezultati

Rezultati pokazuju da je po spolnoj strukturi 61% bilo ispitanika ženskog spola, dok je 39% bilo muškog spola prikazani su u narednim pregledima: *Tabela 1. Spolna struktura ispitanika*

Spol	Broj ispitanika	%
М	75	39
Ž	115	61
Ukupno	190	100

Od ukupnog broja ispitanika (190) koji su obuhvaćeni ovim istraživanjem, po spolnoj strukturi 61% je bilo ispitanika ženskog spola, dok je 39% bilo muškog spola

Dob (god.)	Broj ispitanika	%
10-19	2	1
20-29	24	13
30-39	42	22
40-49	49	26
50-59	44	23
60-69	33	12
70-79	5	3
80-90	2	1
Ukupno	190	100

Tabela 2. Dobna struktura ispitanika

Prema dobnoj strukturi najdominantnija skupina je bila dobi između 30-59 godina (71%) ispitanika. U intervalu 20-29 godina bilo je 13% ispitanika, dok je 60-69 godina bilo 12% ispitanika. Najmlađi ispitanik je imao 13 godina, dok je najstariji imao 86 godina.

	Pri	stup ko	Ukupno			
Dob (god)	D	Da		le	D	0/
(gou.)	Br.	%	Br.	%	Dr.	/0
(10-19)	2	1	0	0	2	1
20-29	23	12	1	1	24	13
30-39	37	20	5	3	42	22
40-49	35	18	14	7	49	26
50-59	29	15	15	8	44	23
60-69	12	6	10	5	22	12
70-79	1	1	4	2	5	3
80-90	1	1	1	1	2	1
Ukupno	140	73	50	27	190	100

Tabela 3. Dobni pristup kompjuteru

S obzirom na dobnu strukturu, pristup kompjuteru ima 73% ispitanika, a od njih najveći procenat je bilo u dobi između 30-39 godina (20%).Od onih koji nisu imali pristup kompjuteru je bilo 27%, a najveći procenat (8%) zauzima dob između 50-59 godina.

Od 190 ispitanika, njih 63% ima pristup internetu, a najviše ih je bilo u dobi između 30-39 godina (19%), a preostalih 37% nema pristup internetu od kojih je najveći procenat bilo onih između 50-59 godina (13%)

Od ukupno 52% ispitanika koji pronalaze informacije o zdravlju i bolesti na web-u, njih 45% smatra da su im te informacije poslužile da prošire saznanja o zdravlju i bolesti, dok 7% ispitanika smatra da im te informacije nisu poslužile. 48% ispitanika ne pronalaze informacije o zdravlju na web-u i smatraju da im te informacije ne služe u proširivanju saznanja o zdravlju i bolesti.

Tabela 4. Dobni pristup internetu

D.I.	P	ristup l	Ukupno			
Dob (god)	D	a	N	le	Der	0/
(gou.)	Br.	%	Br.	%	DI.	70
(10-19)	1	1	1	1	2	2
20-29	23	12	1	1	24	13
30-39	36	19	6	3	42	22
40-49	30	16	19	10	49	26
50-59	20	10	24	13	44	23
60-69	9	5	13	7	22	12
70-79	0	0	5	3	5	3
80-90	0	0	2	1	2	1
Ukupno	119	63	71	37	190	100

Tabela 5. Saznanja o zdravlju na web-u

Prošireno	Pronalaze informacije o zdravlju na web-u				Uk	upno
saznanje	Da		Da Ne		Dw	0/
	Br.	%	Br.	%	Br.	70
Da	85	45	1	1	86	45
Ne	16	7	90	47	104	55
Ukupno	99	52	71	48	190	100

Tabela 6. Spolna struktura ispitanika (zdravstveni radnici)

Spol	Broj ispitanika	(%)
М	13	21
Ž	49	79
Ukupno	62	100

Od ukupnog broja ispitanika (190), među njima su i bili zdravstveni radnici 62.

Od zdravstvenih radnika u najvećem procentu su bili ispitanici ženskog spola 79%. *Tabela 7. Dobna struktura ispitanika (zdravstveni radnici)*

Dob (god.)	Broj ispitanika	(%)
20-29	3	5
30-39	17	27
40-49	20	32
50-59	15	24
60-70	7	11
Ukupno	62	100

Prema dobnoj strukturi zdravstvenih radnika dominantnoj skupini pripadaju osobe od 30-59 godina (83%), a najveći procenat zauzimaju osobe od 40-49 godina (32%), dok se najmanji procenat (5%) odnosi na osobe u dobi od 20-29 godina.

Tabela 8. Dobni pristup kompjuteru (zdravstveni radnici)

Pristup kompjuteru					Ukupno	
Dob (god)	Da		Ne		D.	0/
(gou.)	Br.	%	Br.	%	Br.	70
20-29	2	3	1	2	3	5
30-39	16	25	1	2	17	28
40-49	14	23	6	10	20	32
50-59	13	21	2	3	15	24
60-70	6	10	1	2	7	11
Ukupno	51	82	11	18	62	100

Od ukupnog broja zdravstvenih radnika 82% ima pristup kompjuteru, a među njima dominantna skupina je dobi od 30-59 godina (69%).ima pristup kompjuteru. Od 18% ispitanika koji nemaju pristup kompjuteru, najveći procenat ima dob od 40-49 godina (10%).

Tabela 9. Dobni pristup internetu (zdravstveni radnici)

	Р	ristup i	Ukupno			
Dob (god)	Da		Ne		D.,	0/
(gou.)	Br.	%	Br.	%	Br.	70
20-29	2	3	1	2	3	5
30-39	14	23	3	4	17	28
40-49	11	18	9	14	20	32
50-59	10	16	5	8	15	24
60-70	6	10	1	2	7	11
Ukupno	43	70	19	30	62	100

Od zdravstvenih radnika koji imaju pristup internetu (70%), najveći procenat je onih u dobi od 30-39 godina (23%), a od onih koji nisu imali pristup internetu (30%), dominantna skupina je u dobi od 40-49 godina (14%)

Od ukupno 63% ispitanika koji pronalaze informacije o zdravlju i bolesti na web-u, njih 55% smatra da su im te informacije poslužile da prošire saznanja o zdravlju i bolesti.

37 % zdravstvenih radnika ne pronalaze te informacije, i svi oni smatraju da im te informacije ne mogu poslužiti.

Tabela	10.	Saznanja	0	zdravlju	na	web-u
(zdravst	tveni i	radnici)				

Prošireno	Prona zdi	alaze in ravlju	Ukupno			
saznanje	Da		Ne		D 0/	
	Br.	%	Br.	%	Br.	70
Da	34	55	0	0	34	55
Ne	5	8	23	37	28	45
Ukupno	39	63	23	37	62	100

Zaključci

Rezultati ovog istrazivanja pokazuju da od 52% pacijenta koji pronalaze informacije o zdravlju i bolesti na web-u, njih 45% smatra da su im te informacije poslužile da prošire saznanja o zdravlju i bolesti.

U skupini zdravstvenih radnika, približno isti rezultati: od 63% ispitanika koji pronalaze informacije o zdravlju i bolesti na web-u, njih 55% smatra da su im te informacije poslužile da prošire saznanja o zdravlju i bolesti, te unaprijede kvalitet zdravstvenih usluga.

Literatura

- 1. Sukic, C.; Kudumovic, M. Telemedicine and development of multimedia database management system, HealthMed. Dec 2009, Vol. 3 Issue 4, 392-398.
- 2. Kajevic A. IKT I upotreba interneta u primarnoj zdravstvenoj zastiti, diplomski rad, Sarajevo, 2012,
- 3. Suhken D, Kudumovic M. International Information Technology in Medical Error Control: A Global Issue On-line Medical Conference – 2010.
- 4. Kudumovic M; Kudumovic Dz, Mesanovic N, Huremovic E. Modern Information Communication Technologies and educational technologies applied to education of medicine, HealthMed, Mar 2010; Vol. 4 Issue 1.

Koresponding Autor Mensura Kudumovic, University of Sarajevo, Faculty of Medicine, Sarajevo, Bosnia and Herzegovina. E-mail: mensurak@yahoo.com

Instructions for the authors

All papers need to be sent to e-mail: balkanjournal@yahoo.com

Preparing the camera ready paper for Balkan Journal of Health Science

First Author¹, Second Author², Third Author³

- ¹ First affiliation, City, Country,
- ² Second affiliation, City, Country,
- ³ Third affiliation, City, Country.

Abstract

In this paper the instructions for preparing camera ready paper for the Journal are given. The recommended, but not limited text processor is Microsoft Word. Insert an abstract of 50-100 words, giving a brief account of the most relevant aspects of the paper. It is recommended to use up to 5 keywords.

Key words: Camera ready paper, Journal.

Introduction

In order to effect high quality of Papers, the authors are requested to follow instructions given in this sample paper. Regular length of the papers is 5 to 12 pages. Articles must be proofread by an expert native speaker of English language. Can't be accepted articles with grammatical and spelling errors.

Instructions for the authors

Times New Roman 12 points font should be used for normal text. Manuscript have to be prepared in a two column separated by 5 mm. The margins for A4 (210×297 mm2) paper are given in Table 1. *Table 1. Page layout description*

Paper size	A4
Top and Bottom margin	20 mm
Left margin	20 mm
Right margin	18 mm
Column Spacing	5 mm

Regular paper may be divided in a number of sections. Section titles (including references and acknowledge-ment) should be typed using 12 pt fonts with **bold** option.

For numbering use Times New Roman number. Sections can be split in subsection, which should be typed 12 pt *Italic* option. Figures should be one column wide. If it is impossible to place figure in one column, two column wide figures is allowed. Each figure must have a caption under the figure. For the figure captions 12 pt *Italic* font should be used. (1)



Figure 1. Text here

Conclusion

Be brief and give most important conclusion from your paper. Do not use equations and figures here.

Acknowledgements (If any)

These and the Reference headings are in bold but have no numbers.

References

- 1. Sakane T, Takeno M, Suzuki N, Inaba G. Behcet's disease. N Engl J Med 1999; 341: 1284–1291.
- 2. Stewart SM, Lam TH, Beston CL, et al. A Prospective Analysis of Stress and Academic Performance in the first two years of Medical School. Med Educ 1999; 33(4): 243- 50.

Corresponding Author Name Surname, Institution, City, Country, E-mail