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Smokers' primary health care physicians can counsel for smoking cessation, a difficult question to be answered

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Abstract

Background & objectives: Physicians are respected community in all countries and considered role models so far, however if they don't follow what they preach then difficult to convince their clients for follow up for good deeds. This study sought to find out why primary health care physicians do address cessation smoking seriously.

Method: This is a qualitative study based on a semi-structured interview of general practitioners. It was conducted in 2011 from January to September during a process of training of general practitioners for consultation and communication skills. The purposive sample of 20-25 primary health care physicians has been selected from six different urban and rural areas of Saudi Arabia. They all were working under the umbrella of the Ministry of Health and participated in a semi-structured interview.

Results: The mean age of participants was 37.94 ± 6.03 while experience in number of years was 7.81 ± 4.96. Majority (70%) were males and 91% were mainly general practitioners. Non-Saudis were predominant (87%) as compared to Saudis. The results depicted that 54% were labeled as "Ever" smokers while out of this, 45.2% were current smokers and majority (56.16%) started smoking at medical schools. According to these physicians, 38.5% were regularly advice their clients however 25.2% never advice their clients. Majority (52%) confessed that they don't know exactly how to counsel for cessation of smoking while 28% were feeling guilty while advising their patients. Interestingly 20% even don't believe that there is any benefit for counseling (p=0.0001).

Conclusion: The physicians who are smokers were not very confident to advice their clients / patients therefore it is compulsory that we should start urgently some anti-smoking campaign among physicians. And should do some intervention to stop it from grass root level.

Key words: Smoking habits; Counseling; Primary Health Care Physicians

Introduction

Despite the motivation and awareness of consequences, the health staffs smoke too [1, 2]. Among physicians the situation is also not different; for instance the prevalence of smoking in Greek physicians [3] is 39%, whereas in Japan[4] is around 28% , however in Saudi Arabia[5] it is exceedingly high i.e., 48%. Another interesting point noted in literature [6, 7] that smoking among physicians found as equal as among adult other population in Saudi Arabia.

Physicians are considered one of respected communities in whole world and it is expected from them to be act like role model in all issues related to health, and people believe whatever they say they also apply on themselves [8-12]. As a matter of fact, Saeed AA [5] showed in Saudi Arabia that more than 60% of the physicians agreed that smoking is a major contributing factor in the causation of coronary artery disease, lung cancer and chronic bronchitis etc. Therefore their role in counseling about cessation of smoking is very important. However, importantly physicians often do not seriously address this issue in their practice [13]. Indeed being smokers, it makes even more difficult to discuss this problem with their patients or clients. So far no such study present in Saudi Arabia to address this issue.

Currently the data [5, 7] available shows prevalence among primary health care physicians in Saudi Arabia is around 10 years old and mainly from central part of the Saudi Arabia therefore this

study sought to provide current information from different areas of Saudi Arabia.

In addition, it was attempted to try to highlight how primary health care physicians' personal habit being a smoker affects their counseling for their smokers clients.

Method

Setting & data collection

This is a qualitative study based on semi-structured interview of primary health care physicians. It was conducted during a professional development-training program conducted in different urban and rural areas of Saudi Arabia in 2010-11. Almost from each region 60 – 80 general practitioners have participated in training program. The purposive sample, ranged from 20-25 primary health care physicians from six regions making a total of 135 primary health care physicians participated in study. All these primary health care physicians are dealing with, on average, 60-70 patients per day. It was a part of a compulsory training program for primary health care physicians for their professional development who were working in Ministry of Health. It was attempted to get information about their smoking status and views why they don't take this issue seriously in their practice.

Definition of Smoking

"Ever smokers" were defined as persons who smoked 100 or more cigarettes in their lifetime. Ever smokers who reported smoking now were considered "current smokers," whereas ever smokers who reported that they did not smoke now were considered "former smokers." Respondents, whose ever or current smoking status was unknown were excluded from all analyses. "Quit ratios" (the number of former smokers divided by the number of ever smokers) were calculated to determine the percentage of ever smokers who had quit smoking[14].

Statistical analysis

All data analysis was done using SPSS for Mac (version 20.0, IBM). Mean and standard deviation for continuous variables and percentages for categorical variables were computed. Differences between groups were analyzed using Chi-square tests with a p-value of less than 0.05 as a significant level for all tests.

Results

The mean age of primary health care physicians was 37.94 ± 6.03 years and male to female ratio was around 2: 1. A 67.5& practitioners responded during course. The mean experience was 07.81 ± 4.96 years. Around 91% were general practitioners whereas only 9% were qualified as family physician. The sample showed both Non-Saudi (86.7%) and Saudi (13.3%). Regarding smoking status, 54% were labeled as "Ever" smokers while out of this, 45.2% were current smokers. Majority (56.16%) had started smoking in medical schools and out those who were current smokers, only 26.22% were motivated to quit. According to these physicians, 38.5% were regularly advice their clients however 25.2% never advice their clients. Majority (52%) confessed that they don't know exactly how to counsel for cessation of smoking while 28% were feeling guilty while advising their patients. Interestingly 20% even don't believe that there is any benefit for counseling. Except nationality (p>0.05) all comparisons with smoking status and basic characteristics like gender, physicians' status, advices given and reasons for not giving advices etc., showed significant differences (p<0.05).

Discussion

This study shows that majority was young and males were double in number. Certainly majority were Non-Saudis as it shows the true picture of health services in Saudi Arabia, the major contribution in especially primary health care services from Non-Saudis [15]. The larger number of participants were general practitioners and need training to become qualified family physicians therefore Ministry of Health took a lead to developed a continuous professional development program for all physicians [16].

Around fifty percent physicians were labeled as ever smokers according to smoking definition[14] which is off course exceedingly higher as compared to other countries[3] [4, 10], however similar to previously published study in Saudi Arabia[5]. This similarity raised a question aga-

Table 1. Basic characteristics and primary health care physicians responses

Basic Characteristics	Population & Responses
Demographic features	
Age, years (mean ± SD)	(37.94 ± 6.03)
Experience (mean ± SD)	(07.81 ± 4.96)
Sex, M/F	94 / 41 (69.6% / 30.4%)
Physicians, GP/FP	123 / 12 (91.1% /8.9%)
Nationality, Non-Saudi/Saudi	117 / 18 (86.7% / 13.3%)
Smoking status	
Smokers, Ever / Never	73 / 62 (54.1% / 45.9%)
Smokers, Current / Former	61 / 12 (45.2% / 54.8%)
Smoking started at *(Ever smokers)*	
Medical college	41 (56.16%)
Before medical college	22 (30.13%)
After medical college	10 (13.69%)
Advice to clients / patients	
Regularly	52 (38.5%)
Often	09 (6.7%)
Occasionally	07 (5.2%)
Rarely	33 (24.4%)
Never	34 (25.2%)
Reasons for reluctant to advice	
Don't know how to advice	70 (51.9%)
Feeling guilty as smoker	38 (28.1%)
Believe that no benefit for advice	27 (20.0%)
Motivated to quit *(from current smokers)*	
Yes	16 (26.22%)
No	45 (73.77%)

Table 2. Comparison of different characteristics of Primary Health Care Physicians with smoking status

Characteristics	Current	Former	Never	P-value
Sex				
Males	61 (64.9%)	11 (11.7%)	22 (23.4%)	0.0001
Females	00	01 (2.4%)	40 (97.6%)	
Physicians				
GPs	56 (45.5%)	07 (5.7%)	60 (48.8%)	0.0001
Family Physicians	05 (41.7%)	05 (41.7%)	02 (16.7%)	
Nationality				
Saudi	09 (50.0%)	00	09 (50.0%)	0.363
Non- Saudi	52 (44.4%)	12 (10.35)	53 (45.3%)	
Advice to clients / patients				
Regularly	09 (17.35)	07 (13.5%)	36 (69.2%)	
Often	02 (22.2%)	01 (11.1%)	06 (66.7%)	
Occasionally	07 (100%)	00	00	0.0001
Rarely	30 (90.9%)	03 (9.1%)	00	
Never	13 (38.2%)	01 (2.9%)	20 (58.8%)	
Smoking started at				
Medical college	33 (80.5%)	08 (19.5%)		
Before medical college	18 (81.8%)	04 (18.2%)		0.0001
After medical college	10 (100%)	00		
Reasons for reluctant to advice				
Don't know how to advice	03 (4.3%)	06 (8.6%)	61 (87.1%)	
Feeling guilty as smoker	35 (92.1%)	02 (5.3%)	01 (2.6%)	
Believe that no benefit for advice	23 (85.2%)	04 (14.8%)	00	

inst policy makers of Saudi Arabia that during last almost two decades despite a lot of campaign for anti-smoking the prevalence still remains same in our study even illustrated in literature that it is increasing[17].

In order to intervene at correct stage, it is important to know that when and where physicians usually start smoking. In our study group more than fifty percent had started smoking in medical school. The previous studies[18, 19] supported our result as showing that medical schools have higher rate for smoking. There were several strategies adopted so far to get rid of smoking in medical school for instance, in Japan when it was declared that medical school should be smoke-free, the smoking rate dropped from 41% to 20%[20]. Indeed the literature illustrated that peer pressure and stress in medical schools are main reasons for starting smoking[17]. Furthermore the study showed that only a quarter was motivated to quit. Therefore difficult to convince them for stopping smoking that could directly affect their ability for counseling. Though almost forty percent reported that they regularly advice their clients however, on the contrary a handful number never advice their clients. The participants reported different reasons for not being a good counselor and majority admit that they don't know how to do counseling and a quarter of them even feeling guilty being a smoker to counsel about smoking. These reasons sound reasonable while a handsome number don't believe that the counseling have any impact on smokers' behavior that is alarming sign for educators and policy makers.

Off course, we cannot claim that this study could be use for abstraction however we feel that our sample was representing of major areas of Saudi Arabia though sample was not so big but response rate was fairly enough to quote results as a warning sign. It may provide an initial step to the policy makers.

References

1. Richardson C, Day K. Perceptions of senior nursing staff about current action, barriers and solutions to working on active and passive smoking in the Liverpool Health Sector. Australian College of Midwives Incorporated journal 1998; 11(4): 19-24.

2. Hurst K, Jones R, Pulleybank P, Hickling D. Attitudes to smoking among health-care staff. Nursing times 1990; 86(20): 52.

3. Sotiropoulos A, Gikas A, Spanou E, Dimitrelos D, Karakostas F, et.al. Smoking habits and associated factors among Greek physicians. Public Health 2007; 121(5): 333-340.

4. Kaneita Y, Uchida T, Ohida T. Epidemiological study of smoking among Japanese physicians. Prev Med 2010; 51(2): 164-167.

5. Saeed AAW. Attitudes and Behavior of Physicians Towards Smoking in Riyadh City, Saudi-Arabia. Trop Geogr Med 1991; 43(1-2): 76-79.

6. Bakhotmah MAO. The epidemic of smoking in Saudi Arabia. Saudi Medical Journal 1996; 17(3): 416-417.

7. Bassiony MM. Smoking in Saudi Arabia. Saudi Medical Journal 2009; 30(7): 876-881.

8. Al-Shahri MZ, Al-Almaie SM. Promotion of non-smoking: The role of primary health care physicians. Ann Saudi Med 1997; 17(5): 515-517.

9. Cornuz J. [Smoking cessation--a central role for physicians]. Therapeutische Umschau Revue therapeutique 2005; 62(9): 655-660.

10. Sly RM. The role of physicians in smoking cessation. Annals of allergy 1989; 63(3): 163-164.

11. Zielinski J. The role of physicians in the anti-smoking campaign. European journal of respiratory diseases 1987; 70(4): 252.

12. Amiya RM, Poudel KC, Poudel-Tandukar K, Kobayashi J, Pandey BD, Jimba M. Physicians are a key to encouraging cessation of smoking among people living with HIV/AIDS: a cross-sectional study in the Kathmandu Valley, Nepal. BMC public health 2011; 11.

13. Underner M, Ingrand P, Allouch A, Laforgue AV, Migeot V, et. al. Influence of smoking among family physicians on their practice of giving minimal smoking cessation advice. Rev Mal Respir 2006; 23(5): 426-429.

14. *Nelson DE, Giovino GA, Emont SL, Brackbill R, Cameron LL, et. al. Trends in Cigarette Smoking Among US Physicians and Nurses. JAMA : the journal of the American Medical Association 1994; 271(16): 1273-1275.*

15. *Human Resouces [http: //www.moh.gov.sa/statistics/ s2008/2008.html]*

16. *Khan AS, Khudair BA, Rayees ZA. Expert patients of chronic diseases; is it still a stigma in Saudi Arabia? World Family Medicine Journal 2012; 11(2): 1666.*

17. *Alturki K. The Effectiveness of the Smoking Cessation Programme in Saudi Arabia: An Assessment of the Views of Smokers and Health Care Professionals in the Riyadh Region. International Journal of Interdisciplinary Social Sciences 2009; 6(1): 73-80.*

18. *Karlikaya C, Ozdemir L. Did unprogrammed tobacco control efforts over seven years decrease smoking prevalence in the medical school? Tuberk Toraks 2011; 59(1): 18-26.*

19. *Takeuchi Y, Morita E, Naito M, Hamajima N. Smoking rates and attitudes to smoking among medical students: a 2009 survey at the Nagoya University School of Medicine. Nagoya journal of medical science 2010; 72(3-4): 151-159.*

20. *Nakashima M, Miura K, Morikawa Y, Nishijo M, Nakanishi Y, et. al. [Effect of smoke-free medical school on smoking behavior of medical students]. Nihon Koshu Eisei Zasshi 2008; 55(9): 647-654.*

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Evaluation of cases of nursing and midwifery malpractice discussed between 2003 and 2008 in high health council

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Abstract

Purpose: The purpose of this study is to draw attention to the legal issues faced by nurses and midwives during provision of health care, to compile nurse and midwife malpractice cases based on the records of the High Health Council and to contribute to provision of quality service with regard to patient safety.

Material and Method: This is a cross-sectional descriptive research and 961 cases in total assessed in HHC in a period of five years from 2003 to 2008 were reviewed retrospectively. The information in nurse and midwife malpractice files was recorded by the review date, position and institution worked, status and reason of fault. Legal permission was obtained from the Turkish Ministry of Health to conduct the study.

Results: 10.2% (n=105) of 961 cases of alleged malpractice involved nurse and midwife malpractice cases. 77.2% of these cases worked as nurse and 22.8% of these cases worked as midwife. The increase in nurse and midwife malpractice cases particularly in 2007 is noteworthy. 10 (9.5%) of these cases were deemed faulty by the High Health Council. 3 of faulty cases (30%) worked as midwife and 7 of them (70%) worked as nurse.

Conclusion: Accordingly, it is required to ensure standardization in nursing education and to develop standards of care and treatment protocol in our country.

Key words: Nursing, midwifery, malpractice, high health council

Introduction

The act caused by failure of healthcare professionals in providing standard professional practice by fault or negligence, administration of wrong or insufficient treatment due to lack of information and skill or failure of treatment administration and resulted in damage is defined as "medical error" or "medical malpractice" (1, 2, 3).

While the frequency of medical errors has not been known well enough until recent past, it is now known that there are many patients who suffered harm or even died because of medical malpractice. Based on the results of Harvard Medical Practice Study (2004), 98,000 medical malpractice suits are brought annually in the United States. The same report emphasizes that medical errors are the fifth most common cause of death following the heart diseases, cancer, cerebrovascular diseases and chronic pulmonary diseases (4). In our country, there has been a significant increase in criminal suits and suits for damages in connection with medical malpractice in recent years (5). However, medical malpractice studies were conducted only on a regional level and there is no study reflecting our country.

The World Medical Association invited the countries to be sensitive in this regard with its statement on "Medical Malpractice" in 1992. Accordingly, legal arrangements have been made in many countries regarding the medical malpractice. In 2002, the Ministry of Health prepared "Draft Law on Responsibility Emerged from Medical Malpractice" by considering the requirements in our country in this regard (6). Enactment of the law still continues and there is no specific legislation on medical malpractice in our country.

Medical malpractice suits in our country are considered with regard to different definitions and practices for legal and criminal liabilities of the Turkish Penal Code (TPC) and Code of Criminal Procedure (6). While reviewing these suits, the conditions of imprudence, carelessness, inexperience in profession and art and noncompliance to regulati-

ons, orders and instructions are sought. Fault is in question if one or all of these conditions are failed to be complied. Death cases resulting from these reasons are subject to imprisonment from 2 years to 5 years or heavy fine pursuant to the TPC (7, 8).

In medical malpractice suits, the courts render a verdict by seeking medical expert opinion from institutions such as the High Health Council (HHC), Forensic Medicine Institution and Medical Chambers. The HHC is an official expertise institution of the Ministry of Health having fifteen members to express opinion to the courts in connection with legal issues that arise while healthcare professionals do their jobs and to determine expert list for administrative investigators and conciliation committees (9).

Decisions of the HHC generally determine "whether harm has occurred as a result of medical practices, whether there is a causality relationship between the harm occurred and the act of healthcare professional and whether such harm results from the act of healthcare professional". Testimonies of the persons who are discussed regarding the administrative incident, records of healthcare institution, examinations of patient documentation, x-rays and laboratory tests, opinions of other experts and autopsy reports, if any, are evaluated. The opinion of the HHC constitutes expert opinion and is not binding for criminal courts (10).

In this study, nurse and midwife malpractice cases reviewed by the HHC from 2003 to 2008 were assessed. The purpose of the study is to draw attention to the legal issues faced by nurses and midwives during provision of healthcare, to compile nurse and midwife malpractice cases based on the records of the HHC and to contribute to provision of quality service with regard to patient safety. It is believed that knowing the inclination level of nurses for malpractice is important for taking measures to prevent medical errors, for preventing nurses from facing legal issues and reducing its number. As the number of studies conducted in our country in this field is very insufficient, the study results are expected to contribute to the literature.

Material and method

This is a cross-sectional descriptive research and 961 cases in total assessed in the HHC in a period of five years from 2003 to 2008 were re-

viewed retrospectively. 105 of these cases were determined to involve malpractice allegation about nurses and midwives.

The information in nurse and midwife malpractice files was recorded by the review date at the HHC, position and institution worked, status and reason of fault. Fault status of cases with alleged malpractice is classified by the HHC under four groups, namely causing death due to imprudence, carelessness and inexperience, causing injury due to imprudence, negligence and inexperience, causing death due to negligence and causing injury due to negligence. Same classification was also used in this study. As education status, alma mater and working periods of the cases are not defined in the HHC files, the limitation of the study is to have no such variables.

Written permission was obtained from the Ministry of Health to conduct the study. Data was analyzed in SPSS 15.0 software and expressed by using figures, percentage tables and graphs.

Results

961 cases involving alleged malpractice were reviewed by the HHC from 2003 to 2008 in this study. 10.2% (n=105) of these cases were related to nurse and midwife malpractice cases. When distribution of nurse and midwife malpractice cases by years is examined, percentage of reviewed cases was increased from 5.8% in 2003 to 38% in 2007. A fall in cases to 26.7% in 2008 is a noteworthy finding (Graph 1).
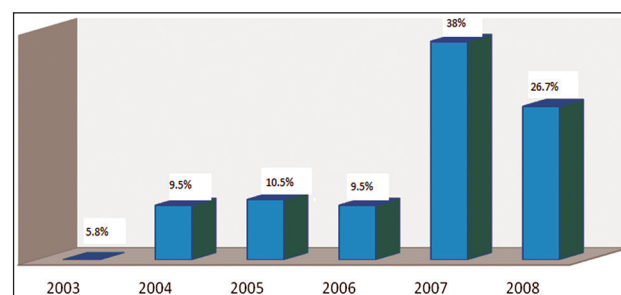
Graph 1. Nurse and Midwife Cases Involving Alleged Malpractice by Years (n=105)

Out of 105 cases reviewed at the HHC, 77.2% worked as nurse and 22.8% worked as midwife. While vast majority of cases (67.7%) work at public hospitals of the Ministry of Health, 15% work

at community health centers, 3.8% at private hospitals and 1% at university hospitals. 91.5% of the cases working at hospitals of the Ministry of Health serve at public hospitals and 8.5% serve at training and research hospitals. Only 1% of the cases work at university hospitals (Table 1).

Table 1. Working Characteristics of Cases

Characteristics (n=105)	Number	Percentage
Title		
Nurse	81	77.2
Midwife	24	22.8
Institution		
Ministry of Health Hospital*	71	67.7
University Hospital	1	1
Private Hospital	4	3.8
Community Health Center	16	15
Other**	13	12.5

Public hospitals constitute 91.5% and training and research hospitals constitute 8.5%.
**It includes health cabinets, medical centers and physician offices.*

10 of nurse and midwife medical malpractice cases were determined to be faulty by the HHC in our study. Distribution of fault reasons for the cases that were determined to be faulty is provided in Table 2. When faulty cases are examined, 3 cases were determined to be faulty in causing death due to imprudence, carelessness and inexperience as a result of causing development of anaphylactic shock in a patient due to administration of a drug not ordered, insufficient follow-up of patient in the postpartum period with regard to bleeding and failure to referral to second-line healthcare institution in a timely manner, and participation in and assistance to a surgery that should not be performed in a physician office.

When other cases are examined, 3 cases were determined to be faulty in causing injury due to imprudence, carelessness and inexperience as a result of failure to conduct phenylketonuria test on a newborn, development of foot drop in a patient as a nursing student was allowed to administer intramuscular injection and causing development of gangrene in the arm due to tight bandage in intravenous administration because of insufficiency in patient follow-up.

Additionally, while one case was determined to be faulty in causing death due to negligence as a result of administration of a vaccine that was not stored by maintaining cold chain, two cases were determined to be faulty in causing injury due to negligence as a result of forgetting surgery instruments in the abdomen as surgery instruments were not counted.

Table 2. Distribution of fault reasons for the cases (n=10)

Case	Fault Reason	Alleged Fault Number/n
Midwife	Development of anaphylactic shock due to administration of a drug not ordered	1*
Midwife	Failure to conduct phenylketonuria test on a newborn	1**
Midwife	Insufficient follow-up of patient in the postpartum period with regard to bleeding and failure to referral to second-line healthcare institution in a timely manner	1*
Nurse	Forgetting surgery instruments in the abdomen as surgery instruments were not counted	2****
Nurse	Development of foot drop in a patient as a trainee was allowed to administer intramuscular injection	1**
Nurse	Participation in and assistance to a surgery that should not be performed in a physician office	1*
Nurse	Administration of a vaccine that was not stored by maintaining cold chain	1***
Nurse	Development of gangrene in the arm due to tight bandage in intravenous administration because of insufficiency in patient follow-up	2**

Causing death due to imprudence, carelessness and inexperience
**Causing injury due to imprudence, carelessness and inexperience*
***Causing death due to negligence*
****Causing injury due to negligence*

Discussion

In our day, while patient rights are regarded as consumer rights, healthcare industry is considered service industry. Medical malpractice allegations have become a current issue in recent years as patient rights are popular in the media based on assessment of healthcare system with regard to relationship of customer and service provider (11). 961 malpractice cases reviewed by the HHC from 2003 to 2008 were evaluated in our study, the increase in nurse and midwife malpractice cases particularly in 2007 is noteworthy (Graph 1). Ozkaya study determined that most (37.7%) of 1459 pediatric malpractice cases reviewed by the Forensic Medicine Institution over the years 2002-2006 occurred in 2006 (12). Ertem et al. examined the malpractice news covered in the national Turkish media over the years 2000-2007 and determined an increase in such news particularly in 2007 (13). While these results indicate an increase in malpractice suits in our country recently, they also show that malpractice news raise awareness among people to seek their rights and encourage them to challenge when they suffer from an error. A fall in malpractice suits once again in 2008 is a noteworthy finding of our study. This situation is believed to result from the approach of hospitals and healthcare professionals to take more measures despite of the increase in malpractice cases.

In our study, vast majority (77.2%) of 105 nurse and midwife cases reviewed by the HHC worked as a nurse (Table 1). This result indicates an increase in malpractice suits brought against the nurses compared to midwives. The number of nurses per 1000 people in our country is considerably low in comparison with the Organization for Economic Co-operation and Development (OECD) countries. While the number of nurses per 1000 people is 24 in Denmark, 15.2 in Switzerland, 10.8 in the United States and 9.5 in Japan, this rate is 1.5 in our country. For this reason, based on 2023 vision of our country, number of nurses is aimed to be increased to 400 thousand and activities were initiated to raise the number of nursing schools and students graduated from these schools (14). The nurses in our country may work with heavy workload and irregular working hours because of insufficiency in work force. It is believed that this situation may increase the rate of errors.

A noteworthy result of our study is that majority (67.7%) of cases work at public hospitals of the Ministry of Health (Table 1). Gundogmus et al. examined nurse and midwife malpractice cases and determined a vast majority of cases worked at public hospitals of the Ministry of Health (15). This result is in line with our study. Public hospitals of the Ministry of Health constitute a significant portion of inpatient treatment institutions in Turkey. Based on 2012 Turkey report of the Turkish Society of Public Health Specialists, the number of Ministry of Health hospitals was 843, number of university hospitals was 62 and number of private hospitals was 489 in 2010, and public hospitals constitute a significant portion in healthcare industry (16). Patients primarily apply to public hospitals as they are affordable and easily accessible. However, as public hospitals constitute a significant portion of healthcare system and there is high patient density, these factors also increase the rate of medical error (1). Accordingly, it is believed that private hospitals should be affordable and easily accessible in our country and government aid to such hospitals should be improved. It is also important to raise awareness in the public for using first-line healthcare services, particularly family medicine services, in line with the patient referral chain.

10 (9.59%) out of 105 nurse and midwife cases evaluated in our study were determined to be faulty by the HHC. 3 of faulty cases (30%) worked as midwife and 7 of them (70%) worked as nurse. Reasons of nurse and midwife faults in our study involved causing anaphylactic shock in a patient due to misadministration of a drug without the request of physician, failure to conduct phenylketonuria test on a newborn, administration of a vaccine that was not stored by maintaining cold chain, participation in a surgery that should not be performed in a physician office, development of bleeding due to insufficient follow-up of patient in postpartum period and failure to referral to second-line healthcare institution in a timely manner, development of foot drop in a patient as a trainee was allowed to administer intramuscular injection, insufficiency in patient follow-up and development of gangrene due to tight bandage (Table 2). The studies indicate that major faults confronting nurses with legal issues involved insufficient follow-up and assessment of changes in patients'

condition, drug misadministration, inappropriate follow-up of drug reactions, inappropriate control of conditions and insufficiencies that may harm patients, forgetting foreign body during surgery, failure of noticing changes in patient's condition and informing the physician in an early level, misinterpretation of physician requests, use of inappropriate and incorrect material, failure to comply with current protocols, hospital infections, miscommunication, patient falls, bedsores and blood transfusion (17, 18). Gundogmus et al. examined nurse and midwife malpractice cases in Turkey and reported that the cases were determined to be faulty particularly due to drug misadministration and wrong injection site (15). Tang et al. reported that the most common medical error was wrong dose (36.1%) and drug misadministration (26.4%) (19). Hillin and Hick indicated that interruption during drug administrations, lack of information and skill, violations, heavy work load, lack of continuity in care and insufficient communication between team members are effective factors in errors (20). Similarly, two of the cases were determined to be faulty due to drug misadministration and drug administration to wrong site as a nursing student was allowed to administer drug.

As professions having a high stress level, nursing and midwifery involve stressors affecting business environment such as heavy work load, irregular working hours, insufficiency of manager support, communication problems with healthcare team, working with patients in terminal period and critical condition and physical environmental conditions. Furthermore, the studies indicate that nurses suffer from stressors such as low salary, institution worked, shifts, demanding business requests, health problems such as infection risk, weakness, fatigue, lack of sleep, back and waist pains, verbal abuse, verbal intimidation, physical assault and verbal sexual harassment (6). A study reported by the Joint Commission on Accred*itation of Healthcare Organizations* (JCAHO) indicated that about more than half of medical administration errors resulted from communication problems in healthcare institutions, 47% from unqualified personnel, 34% from insufficient follow-up and 11% from inability to access information (20). For this reason, it is believed that employee safety should be ensured in healthcare institutions, communication effectivene-

ss among health team should be improved, working hours of nurses and midwives should be arranged according to their needs, motivation should be increased through improvements in personal rights such as promotion, reward etc. and organizational culture should be created. These arrangements are believed to improve quality of healthcare services and patient safety and to reduce medical errors.

Nursing and midwifery services have an important role in provision of healthcare services in our country. In this regard, nurses and midwives should have sufficient accumulation of knowledge, adopt procedural approaches in practice that will reduce error possibility to minimum, make practices based on scientific facts and act responsibly with regard to their ethical and legal obligations (2). Nurses should execute these roles and responsibilities by adapting their personal philosophy to nursing philosophy and perform scientific knowledge and skills obtained from professional education by protecting ethical rules and patient rights (15). However, nursing education is provided at different education levels such as high school, undergraduate and post graduate programs in our country. Despite of different education levels, graduated nurses work at the same positions with the same powers and responsibilities. Even the nurses who completed post graduate programs and specialized in a field cannot work in the relevant clinics due to lack of or surplus of work force. Accordingly, standardization in nursing education and working opportunity in specialized fields for nurses who completed post graduate programs in nursing are believed to be important in improving healthcare quality and therefore patient safety.

Conclusions

In conclusion, 10.2% (n=105) of 961 cases of alleged malpractice involved nurse and midwife malpractice cases in our study. 77.2% of these cases worked as nurse and 22.8% of these cases worked as midwife. A vast majority (67.7%) of cases work at public hospitals of the Ministry of Health. The increase in nurse and midwife malpractice cases particularly in 2007 is noteworthy. 10 of these cases were deemed faulty by the High Health Council. 3 of faulty cases (30%) worked as midwife and 7 of them (70%) worked as nurse.

Based on the results of the study, it is recommended to achieve sufficient work force in our country, to ensure that private hospitals are affordable and easily accessible in service industry, to have standardization in nursing education, to allow specialization in nursing profession, to develop registration system, to improve standards of care and treatment protocols. Adoption of team work and effective communication in working environment is also recommended.

References

1. *Birgen N. An Approach to Medical Malpractice with regard to Forensic Medicine, Istanbul University Cerrahpaşa Faculty of Medicine Continuous Medical Education Activities, Series of Symposiums on Practical Approaches to Public-Acquired Infections, 2008; No.61, Istanbul, 235-254.*

2. *Hancı H. Malpractice - The Penalty and Indemnity Responsibilities of Physicians in Medical Interventions, 2nd Edition, Seçkin Yayınevi, Ankara, 2005; 30.*

3. *Altun G, Yorulmaz C. Physician Responsibility and Medical Malpractice After the Legal Regulations, Trakya University Faculty of Medicine Journal, 2010; 1: 7-12.*

4. *Brennan TA, Leope LL, Loird NM, Hebert L, Locolio AR, et.al. Incidence of adverse events and negligence in hospitalized patient: results of the Harvard Medical Practice Study I, Qual Saf Health Care, 2004; 13: 145-15.*

5. *Yorulmaz C, Çetin G. Arrangement of Legal and Criminal Responsibility of Physicians, Medical Malpractice and Judicial Report in the Scope of New Laws, Istanbul Üniversitesi Yayınları, Istanbul. 2006.*

6. *Kuğuoğlu S, Çövener Ç, Kürtüncü T, Aktaş E. Professional and Legal Responsibilities of Nurses in Drug Administration, Maltepe University Nursing Profession and Art Journal, 2009; 2(2): 87-93.*

7. *Mızrak B, Celbiş O. Pathology and Malpractice, İnönü University Faculty of Medicine Journal, 2007; 14(3): 213-217.*

8. *Türkan H, Tuğcu H. Malpractice Cases Related With Emergency Medicine, Evaluated By Supreme Council of Health Between 2000-2004, Gulhane Medical Journal, 2004; 46(3): 226-231.*

9. *Decree Law on Organization and Duties of the Turkish Ministry of Health and Affiliates Institutions, Access address: http://www.resmigazete.gov.tr/eskiler/2011/11/20111102m1-3.htm, Date Accessed: 12.02.2013.*

10. *Özkara E, Nader S, Gündoğmuş ÜN, Arda N. Evaluation of Cases of Spine Surgery Malpractice Discussed Between 1994-1998 In High Health Council, Türk Nöroşirurji Dergisi, 2004; 14(3): 151-157.*

11. *Baydar ÇL. Assessment of Cases Referred to the FMI and HHC in Orthopedics with Alleged Malpractice on 1990-2000, Dissertation, ATK, Istanbul, 2002.*

12. *Özkaya N, Yılmaz R, Özkaya H, Can M, Pakiş I. Evaluation of Cases Aged 0-18 Years referred to the Council of Forensic Medicine with the Claim of Medical Malpractice, Turkish Archives of Pediatrics, 2011; 6(46): 18-24.*

13. *Ertem G, Oksel E, Akbıyık A. A Retrospective Examination on Medical Malpractice, Dirim Medical Journal, 2009; 84(1): 1-10.*

14. *Health at a Glance 2011: OECD Indicators. (2011), OECD Publishing. Access address: http://www.oecd.org/els/health-systems/49105858.pdf, Date accessed: 11.11.2013.*

15. *Gündoğmuş NÜ, Özkara E, Mete S. Nursing And Midwifery Malpractice In Turkey Based On The Higher Health Council Records. Nursing Ethics, 2004; 11(5): 489-99.*

16. *Hasuder Turkey Report 2012. Access address: http://halksagligiokulu.org/anasayfa/components/com_booklibrary/ebooks/Turkiye_Saglik_Raporu_2012.pdf, Date accessed 01.10.2013.*

17. *Giordano K. Examining Nursing Malpractice: A Defense Attorney's Perspective. Critical Care Nurse, 2003; 23(2): 104-7.*

18. *Larson K, Elliott R. Understanding Malpractice: A Guide for Nephrology Nurses. Nephrology Nursing Journal, 2009; 36(4): 375-7.*

19. *Tang FI, Sheu SJ, Yu S, Wei IL, Chen CH. Nurses relate the contributing factors involved in medication errors, Journal of Clinical Nursıng, 2007; 16(3): 447-57.*

20. *Hillin E, Hick RW. Medication errors from an emergency room setting: safety solution for nurses, Critical Care Nursing Clinics of North America, 2010; 22(2): 91-6.*

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Analysis of the mental status of the nursing students regardıng some variables

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Abstract

This research was conducted to investigate some of the variables affecting the mental status of the nursing students studying at a university. The sample of this descriptive study consisted of 270 1st to 4th year students from the Pamukkale University Denizli Healthcare College who accepted to participate.

The data were collected with a questionnaire and the Brief Symptom Inventory (BSI). Percentages, the T-Test and One-way Analysis of Variance were used to evaluate the data.

There was statistically significant difference between the nursing students' BSI subscale scores according to the students' grades, his/her father's job, his communication with the student's family, according to the student members of the family communication to each other, according to assessments of physical and mental health status ($p<0.05$). The Disorder Severity Index (DSI) scores 0.35 and above those with high psychiatric morbidity in evaluating the grades in this study DSI scores were quite high. As a result of this study grades, his/her father's job, communication with the student's family, according to the student members of the family communication to each other, according to assessments of physical and mental health status were found to affect students' mental health.

Key words: Brief symptom inventory, nursing students, mental status.

Introduction

Youth is the remaining part of human life between childhood and adulthood. Beginning and the ending of this period varies according to each individual and significant physical, psychological and social changes occur. It is important that the features of of this era should be addressed in terms of creating a common understanding of the reactions and attitudes of the youth (Compatibility İssues in the Period of Youth 2013). In this period, also called the transition process, the youth is under risk and largely receptive against negative outside effects. Young people can not adapt to these changes from time to time due to complex changes (Tabak & Akköse 2006). These changes cause fluctuations and disturbances in the structure of mental health in young people; they can especially cause frequent mood changes, excessive reactive actions, a variety of depressive symptoms or behaviors (Ceral & Dağ 2005).

The changes occuring in the young people and the changes to be made due to the college life itself often form the basis of an enabling environment in Turkey or other countries for stress. Young college student is an individual with personal problems and he/she also has developmental problems as well. Young person can have difficulties of the transition period from childhood to adulthood (Özgüven 1992). He/she may have problems such as finding its own identity, local and social aspects of childhood values, adopting to the national and universal values of the society and settlement, adapting to the values of society and issues such as reaching social maturity (Çuhadaroğlu 1989).

Those who get the chance to study at university will experience the joy of being in college and may face with some problems as well such as; family separation, a new environment and making friends, fear of being alone, the economic difficulties getting used to life in the country, the future of the profession and the working life and anxiety. These social, cultural and economic changes caused by the emergence of problems negatively affecting young people spiritually (Bumbery 1978, Sherer 1985). These issues may occur in their academic and professional, family or social

life. Young people may suffer from psychological problems as a result of stress and strain coming from various sources to overcome these problems. This strain is affecting their lives in various ways (Bilgili 1997, Uğurlu *et al.* 1999, Üre *et al.* 2001).

Yeşilyaprak (1986) examined the physchological complaints of the college students admitted to the Psychological Consultation Service, have found such complaints such as statements and problems such as severe boredom, internal contraction, pessimism, not wanting do anything, not getting pleasure from anything, sadness, depression and reluctance. Çoruh (١٩٨٩) in his survey of university students, determined that the studens often need psychological assistance and counseling for personal, social, occupational and educational turmoil, family problems, and making decisions. There may be a variety of reasons for the problems, but this phase is the process of obtaining the university environment and occupational, and psychological structures which profoundly affect the mental health of young people. Studies show that depression is the most comment psychological disorder with adjustment disorders in university students. In accordance with the fact that adjustment disorders contain some of the depressive symptoms and depression they can easily bring out depression if there is a continuation for a certain period of time thus it is obvious that the mental problems should be taken seriously.

Training nurses as active members of the health care team is a result of a good education and it is under the responsibility of educational institutions (İnanç 1998). The aim of college education should not just making students self -employed, but aim to educate young people to comprehend his role in life, be in a happy relationship with the surroundings, be someone who knows the meaning to life, capable of thinking and have a mission while being mentally healthy and efficient (İmamoğlu & Gültekin 1993).

University students and nursing students have their conflicts as a student at university and face with a number of challenges brought by the nursing education as well. Getting into intensive contact with young people with impaired health at a young age, often facing with negative emotions such suffering , pain, despair, often with negative emotions and having no authority but being responsible to his/her educator for the care of patients can adversely affect the mental health of students. Education in individuals will not reach an adequate level and an unsatisfactory level of education of an individual will make it difficult for for him/her to play an active role in society (Okanlı 1999, Kocaman 2003, Tanrıverdi 2007).

Within the scope of nursing in the health care team, nursing students will have the task of giving care services when they graduate for the individual, family and community health, and they will be the members of the health care team who are responsible for the protection of care or improvement in case of illness and for making the planning, implementation and evaluation of the health care plans. Students must be mentally health to fulfill these important duties and responsibilities (Uğurlu & Akın 2008). This study is thought to be an important study for contributing positively both in their student lives and in their professional lives after graduation.

Study aim:

This research was conducted to investigate some of the variables affecting the mental status of the nursing students studying at a university in Denizli (Turkey).

Methods

Study design and samples

The population of this descriptive study is formed by 352 students studying at Pamukkale University Denizli School of Health Education in the 1st, 2nd, 3rd and 4th grades during the period of 2009-2010. The study was not made with the usage of the method of sample selection and data collection was made with the people who could be instantly volunteered to participate in the study and 270 (77%) students were accepted this way.

Data collection tools

A questionnaire was developed by researchers and the data was collected with this questionnaire and the Brief Symptom Inventory (BSI).

Questionnaire: This questionnaire was created by researchers with the examination of the literature (Bumbery 1978, Sherer 1985, Yeşilyaprak 1986, Özgüven 1992, Bilgili 1997, Okanlı 1999, Uğurlu *et al.* 1999, Üre *et al.* 2001, Ceral & Dağ 2005,

Tanrıverdi 2007, Uğurlu & Akın 2008). A pilot study of for this questionnaire was made on 10 nursing students. Necessary changes and adjustments were made in the questionnaire in accordance with the results of this pilot study. There are 26 questions in the questionnaire about the students' socio-demographic characteristics (age, gender, number of siblings, the longest place of residence, high school education, work status and current place of residence) and several other aspects like parents' education and employment status, situations of family members communicating with each other, communication with his/her family, school choice, satisfaction level with the school, the evaluation of his or her physical and mental health status, psychologist/psychiatrist contact situations when forced to cope with stress, the presence of individuals diagnosed by a psychiatric and the presence of someone close with a psychiatric diagnosis.

BSI: As a result of the studies made by Derogatis (1992) with the SCL-90- R questionnaire, this has been developed for adults to browse the various psychological symptoms. BSI is the abbrevation of SCL-90-R and it consists of 9 subscales, additional articles and three global indices (Şahin & Durak 1994, Savaşır & Şahin 1997, Şahin et al. 2002).

The sub-scales of the scale are originally; somatisation, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychotism. Global indexes are the disorder severity index, the sum of symptoms and symptoms discomfort index (Şahin & Durak 1994).

Three seperate studies were made to adapt BSI to Turkish (Şahin & Durak 1994, Savaşır & Şahin 1997, Şahin *et al.* 2002). BSI consists of 53 items about the psychiatric and psychological symptoms and five different symptom dimensions (eg, anxiety, depression, negative self, somatisation, hostility) for making evaluations.

Scoring and Evaluation of inventory: Five options for each one of the 53 items in the BSI were given with the scoring points ranging from 0 to 4. These options are: None: 0, a little: 1, moderate: 2, a lot: 3, too much: 4. The total score ranges from 0 to 212. Severity of psychological disturbance data scores from the disorder severity index (DSI) were determined with the data obtained from BSI.

DSI scores were calculated by dividing the total subscale scores of BSI to the total number of questions. If the DSI score is 0.35 and above those are considered to have high psychiatric morbidity. The total score of the scale height has been reported to be showing the frequency of the general psychological symptoms (Şahin et al. 2002).

In the study made by Şahin and Durak (1994) for the validity and reliability of BSI using the total score of the inventory, the Cronbach's alpha internal consistency coefficient was determined as 0.94. Cronbach's alpha internal consistency coefficient was determined as 0.87 in our study.

Data analysis

Data were analyzed using the Statical Package for Social Sciences for Windows 15.0 (SPSS 15.0). Evaluation of the data was made by Numerical, Percentage, T-test and One-way analysis of variance. Alpha error level of statistical significance of $p < 0.05$ was considered statistically significant in the statistical comparisons.

Ethical considerations

Written consent was taken from the Directorate of Denizli Pamukkale University School of Health for the study. The aim and the benefits of the study was explained by researchers, who are also the instructors of the course, to the students included in the study. Voluntary verbal consent was taken from the students in accordance with the principle of willingness to participate in the study. Written permission was taken from the Pamukkale University School of Medicine Clinical Research Ethics Commission.

Results

The mean age of the nursing students in the study was found to be 6.21 ± 2.79. 90.7 % of the students had a nuclear family, 95.0 % of them had parents who continued to be married, 48.9% of them had 1 or 2 brothers, 40,0% of them were living in the center of the county, and 39.3% of them were reported be living in the Aegean region.

The majority of students were (31.5%) 1st grade, 71.1% of them were female and a great ma-

Table 1. The Distribution of the Descriptive Characteristics of the Students (n=270)

Descriptive Characteristics	Number	%
Grades		
1st Grade	85	31.5
2nd Grade	78	28.9
3rd Grade	56	20.7
4th Grade	51	18.9
Gender		
Female	192	71.1
Male	78	28.9
Occupational Status		
Employed	23	8.5
Unemployed	247	91.5
Educational Status of the Mother		
Illiterate	35	13.0
Elementary school	166	61.5
Middle school	27	10.0
High school	33	12.2
College	9	3.3
Occupation of the Mother		
Worker	10	3.7
Public Servant	10	3.7
Housewife	250	92.6
Educational Status of the Father		
Illiterate	8	3.0
Elementary School	125	46.3
Middle School	40	14.8
High School	52	19.3
College	45	16.7
Occupation of the Father		
Retired	71	26.3
Artisan	56	20.7
Farmer	51	18.9
Public Servant	44	16.3
Worker	43	15.9
Unemployed	5	1.9
Occupational Preferences Status		
Wanted the Occupation	152	56.3
Did not Want the Occupation	118	43.7
School Satisfaction Level		
Satisfied	112	41.5
Not Satisfied	158	58.5

Table 2. The Distribution of the Evaluation Status of Several Characteristics of the Students (n=270)

Several Characteristics of the Students	Number	%
The Level of Communication Among Family Members According to the Student Evaluation		
Poor	5	1.9
Medium	53	19.6
Good	110	40.7
Very Good	102	37.8
The Level of Communication Between the Student and the Family Members		
Poor	6	2.2
Medium	36	13.3
Good	116	43.0
Very Good	112	41.5
Physical Health Evaluation Status		
Poor	17	6.3
Medium	51	18.9
Good	165	61.1
Very Good	37	13.7
Mental Health Evaluation Status		
Poor	44	16.3
Medium	95	35.2
Good	120	44.4
Very Good	11	4.1
Do They Get Help From a Physcologist/Psychiatrist When They Have Difficulty in Coping With Problems?		
Yes	42	15.6
No	228	84.4
Will They Think About Getting Help From a Physcologist/ Psychiatrist When They Have Difficulty in Coping With Problems?		
Yes	210	77.8
No	60	22.2
Is there a Family Member with a Pscyhiatric Diagnosis?		
Yes	44	16.3
No	226	83.7
Is There a Friend/Peer with a Psychiatric Diagnosis?		
Yes	82	30.4
No	188	69.6

jority of them (91.5%) were unemployed. Of those surveyed, 61.5% of them had mothers who are elementary school graduates and 46.3% of them had fathers who are elementary school graduates, 92.6% of them had mothers who are housewives and 26.3% of them had a retired father. Although more than half of the students (56.3%) stated that they have chosen the profession willingly, 58.5% of them stated that they were not satisfied with the school (Table 1).

According to the evaluation of the nursing students, 40.7% of them stated that their family members had a good communication among eachother and 43.0% of them reported that they had established a good communication with family members. While some of the students evaluated their physical (61.1%) and mental (44.4%) health as good, 84.4% of them stated that they did not seek help from a psychologist/psychiatrist when they are forced to cope with problems and have difficulties; however, vast majority (77.8%) stated that they think about getting help. It was determined that the majority of students had no family member (83.7%) and or someone in the immediate vicinity (69.6%) who had a psychiatric diagnosis (Table 2).

Table 3. The Distribution of the *BSI Sub-Scale Mean Scores of the Students

	Min-Max	$\overline{x} \pm SD$
BSI Anxiety	0-45	13.55±9.49
BSI Depression	0-53	15.91±10.07
BSI Negative Self	0-44	11.57±8.97
BSI Somatization	0-34	8.07±6.71
BSI Hostility	0-28	9.45±5.43
**DSI	0-3	1.09±0.70

*BSI: Brief Symptom Envantery
**DSI: Disorder Severity İndex

The highest mean scores obtained from the BSI depression subscales are; depression (15.91 ± 7.10), anxiety (13:55 ± 9:49), negative self (11:57 ± 8.97), hostility (9.45 ± 5.43) and somatisation (6.71 ± 8:07). Students' DSI mean score was found as 1.09 ± 0.70 and it is quite high (Table 3).

The distribution of BSI subscale mean scores according to some of the defining characteristics of the studentsare given in Table 4. When the BSI subscale mean scores according to gender were examined it was understood that, except the somatisation subscale (t= 2:34, p<0.05), anxiety, de-

pression, negative self, hostility, DSI mean scores were not statistically significant (p>0.05). With respect to the father's education and mother's education, still no statistically difference was found between the BSI subscale mean scores (p> 0.05).

When the Grades were analyzed, a statistically significant difference was found between the mean scores of anxiety (F =11.65, p<0.05) and depression (F = 7.10, p<0.05), negative self (F=10.62, P<0.05), somatisation (F=11.11, P<0.05), hostility (F=2.12, p<0.05) and DSI (F=12.36, p < 0.05) (Table 4).

According to their physical health evaluation status of the students, a statistically significant difference was found between the mean scores of anxiety (F=12.89, p<0.05) and depression (F=9.90, p <0.05), negative self (F=9.95, p<0.05), somatisation (F=15.16, p<0.05), hostility (F=5.81, p<0.05) and DSI (F=12.45 p<0.05). It was seen that the ones who evaluated their physical health as poor had higher mean scores (Table 4).

When the mental health evaluation levels are examined, a statistically significant difference was found between the mean scores of anxiety (F=25.20, p<0.05) and depression (F=31.29, p<0.05), negative self (F=22.85, p<0.05) somatisation (F=14.14, p< 0.05), hostility (F=19.97, p<0.05) and DSI (F=27.14, p< 0.05) (Table 4).

When the BSI subscale mean scores according to the level of communication between the family members of the students according to their evaluations are examined, except the somatisation subscale mean score (p>0.05), a stastitically significant difference was found between the mean scores of anxiety (F=6.25, p<0.05), depression (F=8.62, p<0.05), and negative self (F=9.18, p<0.05), hostility (F=5.03, p<0.05) and DSI (F=6.96, p<0.05) (Table 4).

When the students' level of communication with their family members was examined, a statistically significant difference was found between the mean scores of anxiety (F=5.85, p<0.05) depression (F=8.02, p<0.05), negative self (F=17.11, p<0.05), somatisation (F=4.46, p<0.05), hostility (F=5.78, p<0.05) and DSI (F=7.60, p<0.05) (Table 4).

A stastically significant relationship was not found between the BSI subscale mean scores of the students according to their choices of occupation (p>0.05). When the students' levels of satisfaction about school were examined, a statistically significant difference was found between the mean sco-

Table 4. *The Distribution of Some Students According to Their BSI Sub-Scale Mean Scores*

Descriptive Characteristics	BSIAnxiety X̄ ± SS	BSI Depression X̄ ± SS	BSI Negative Self X̄ ± SS	BSI Somatization X̄ ± SS	BSI Hostility X̄ ± SS	DSI X̄ ± SS
Gender						
Female	13.97±9.65	16.59±10.36	11.64±8.76	8.67±7.23	9.59±5.44	1.12±0.72
Male	12.51±9.07	14.24±9.14	11.42±9.52	6.57±4.94	9.12±5.44	1.00±0.65
	t=1.15, p>0.05	t=1.74, p>0.05	t=0.18, p>0.05	t=2.34, p<0.05	t=0.63, p>0.05	t=1.29, p>0.05
Grades						
1st Grade	12.60±7.60	15.32±8.89	10.60±7.34	6.98±6.03	8.72±4.46	0.99±0.55
2nd Grace	17.75±11.30	20.10±11.68	15.21±11.01	11.00±7.39	11.73±6.19	1.41±0.83
3rd Grade	13.85±7.71	15.71±8.37	12.35±8.30	8.66±6.39	10.17±4.92	1.13±0.63
4th Grade	8.39±8.34	10.70±8.35	6.78±5.82	4.74±5.04	6.41±4.56	0.70±0.57
	F=11.65, p<0.05	F=10.07,p<0.05	F=10.62,p<0.05	F=11.11,p<0.05	F=12.02,p<0.05	F=12.36,p<0.05
Educational Status of the Father						
Illiterate	12.75±11.54	13.50±11.94	11.25±11.46	6,37±5.37	9.50±4.95	0.98±0.80
Elementary School	13.71±9.40	16.44±9.65	11.58±8.56	8,00±6.99	9.32±5.11	1.10±0.69
Middle School	11.82±8.43	14.17±9.46	10.42±8.29	7,47±5.04	8.60±4.80	0.97±0.62
High School	14.32±9.12	16.21±9.96	12.03±9.01	8,63±7.31	10.34±5.88	1.15±0.68
College	14.15±10.84	16.34±11.65	12.36±10.38	8,61±6.88	9.68±6.42	1.12±0.81
	F=0.63, p>0.05	F=0.65, p>0.05	F=0.50, p>0.05	F=0.51, p>0.05	F=0.63 ,p>0.05	F=0.61, p>0.05
Educational Status of the Mother						
Illiterate	14.94±9.96	16.57±10.12	12.85±8.82	7.57±5.74	9.85±5.23	1.14±0.68
Elementary	14.02±9.69	16.42±10.26	12.12±9.12	8.55±7.19	9.48±5.45	1.14±0.73
Middle School	12.22±8.80	15.59±10.35	10.40±9.63	6.96±5.67	9.40±6.09	1.01±0.66
High School	12.33±8.76	14.21±9.27	9.48±7.83	7.93±6.06	9.33±4.84	0.93±0.62
College	8.00±7.26	11.22±8.10	7.77±7.87	4.88±6.07	8.11±6.93	0.74±0.60
	F=1.33, p>0.05	F=0.87, p>0.05	F=1.30, p>0.05	F=0.95, p>0.05	F=0.18, p>0.05	F=1.30, p>0.05
Physical Health Evaluation Status						
Poor	24.88±13.07	25.64±11.82	20.47±11.79	13.94±8.13	13.35±5.15	1.83±0.88
Medium	16.13±9.41	19.09±10.23	14.41±9.17	11.56±7.66	10.98±5.29	1.35±0.70
Good	12.16±8.38	14.59±9.19	10.14±7.72	7.13±5.76	8.86±5.32	0.98±0.63
Very Good	11.00±8.31	12.94±9.42	9.97±9.55	4.70±5.02	8.24±5.24	0.86±0.63
	F= 12.89, p<0.05	F=9.90, p<0.05	F= 9.95, p<0.05	F= 15.16, p<0.05	F= 5.81, p<0.05	F=12.45, p<0.05

Mental Health Evaluation Status						
Poor	22.54±10.97	25.61±11.01	19.40±10.26	12.52±8.41	13.88±5.30	1.76±0.76
Medium	14.41±8.22	17.65±8.56	12.69±8.37	9.12±6.07	10.22±5.34	1.17±0.61
Good	10.00±7.28	11.50±7.56	8.36±6.68	5.93±5.40	7.40±4.19	0.81±0.54
Very Good	8.90±10.19	10.18±11.16	5.63±8.90	4.45±6.96	7.63±7.08	0.68±0.83
	F=25.20, p<0.05	F=31.29, p<0.05	F=22.85, p<0.05	F=14.14, p<0.05	F=19.97, p<0.05	F=27.14, p<0.05
The Level of Communication Among Family Members According to the Student Evaluation						
Poor	21.40±13.90	27.80±12.49	20.80±12.87	14.0±12.58	15.20±6.05	1.86±1.04
Medium	17.37±10.90	20.00±10.03	14.92±9.19	9.28±7.10	11.16±5.52	1.36±.073
Good	13.44±8.91	16.04±9.61	11.76±8.79	8.11±6.79	9.31±5.47	1.08±0.69
Very Good	11.30±8.36	13.06±9.39	9.18±8.07	7.09±5.88	8.44±5.00	0.91±0.63
	F=6.25, p<0.05	F=8.62, p<0.05	F=7.09, p<0.05	F=2.63, p>0.05	F=5.03, p<0.05	F=6.96, p<0.05
The Level of Communication Between the Student and the Family Members						
Poor	14.66±8.31	18.83±10.45	10.83±7.73	3.83±2.31	10.83±5.56	1.11±0.56
Medium	18.75±11.91	22.38±11.32	18.55±10.79	11.36±8.36	12.72±7.09	1.56±0.87
Good	13.93±9.37	16.16±9.52	11.80±8.51	8.10±6.65	9.22±4.88	1.09±0.67
Very Good	11.42±8.13	13.41±9.27	9.14±7.67	7.20±5.99	8.58±5.02	0.93±0.62
	F= 5.85, p<0.05	F= 8.02, p<0.05	F= 11.17, p<0.05	F= 4.46, p<0.05	F= 5.78, p<0.05	F= 7.60, p<0.05
Occupational Preferences Status						
Wanted the Occupation	12.96±9.06	15.12±9.84	10.62±859	7.26±6.22	8.94±5.16	1.02±0.66
Did Not Want the Occupation	14.31±10.02	16.93±10.30	12.80±9.34	9.10±7.20	10.12±5.72	1.18±0.74
	t=1.15, p>0.05	t=1.46, p>0.05	t=1.99, p>0.05	t=2.23, p>0.05	t=1.78, p>0.05	t=1.86, p>0.05
School Satisfaction Level						
Satisfied	11.38±7.55	13.05±8.16	9.19±6.48	6.46±5.88	7.97±4.40	0.90±0.56
Not Satisfied	15.09±10.41	17.94±10.80	13.26±10.07	9.20±7.04	10.51±5.85	1.22±0.76
	t=3.39, p<0.05	t=4.23, p<0.05	t=4.03, p<0.05	t=3.47, p<0.05	t=4.06, p<0.05	t=3.91, p<0.05

res of anxiety (t=3.39, p<0.05), depression (t=4.23, p<0.05), and negative self (t=4.03, p<0.05), somatisation (t=3.47, p<0.05), hostility (t = 4.06, p<0.05) and DSI (t=3.91, p<0.05) (Table 4).

Discussion

Nursing is a profession focused on contact with people so mentally healthy members of the profession are required. This study was made to investigate some of the variables affecting the mental states of the nursing students studying at a university in Denizli (Turkey).

When the BSI subscale mean scores of the nursing students in this study are examined, the highest mean scores are as follows; depression, anxiety, negative self, hostility and somatisation. Subscale mean scores in this study are similar to some studies. In a study made by Arslan *et al*. (2012) with the health sciences students, it was determined that the highest mean scores were the sub-dimensions of obsessive-compulsive disorder and paranoid thoughts and also in a study made by Deniz *et al*. (2012) similiarly it was found that the highest subscale mean scores belonged to the sub-dimensions obsession and depression. In a study made by Tanriverdi and Ekinci (2007) with nursing students, it was found that the highest subscale mean scores belonged to the sub-dimensions depression and interpersonal sensitivity, in a study made by Yıldırım et al. (2008) these were found as somatisation and depression, in a study made by Gözüağca (2004), these were found as depression and anger and in a study made by Uğurlu (2002), these were found as paranoid ideation and depression subscale mean scores.

DSI is the general score of the scale and it determines the distress over mental symptoms in an individual. The ones with a GSI score of 0.35 and above are considered to have high psychiatric morbidity. In this study, the mean scores of the students was 1.09 ± 0.70 GSI so it can be said that there was a trend towards psychopathology. This finding of our study is similar to the findings of some studies (Gözüağca 2004, Tanrıverdi & Ekinci 2007, Yıldırım *et al*. 2008, Deniz *et al*. 2012).

In this study, no statistically significant difference was found among the subscale mean scores of BSI other than somatisation. In general, women

are more eager to succeed so they have high expectations in interpersonal relations and this causes higher levels of anxiety and depression (Melman *et al*. 2007). When the findings of a few studies about gender are examined, generally different findings are observed. For example, Çuhadaroğlu (1993) investigated the distribution of psychiatric symptoms among college students, and he found that there was no statistically significant difference in terms of gender in the dimensions of depression and anxiety, however he found that girls showed higher levels of anxiety symptoms. In a study made by Doğramacı (1997) with BSI, he has stated that only in the depression subscale there was a differentiation in terms of gender. In a study made by Aylaz *et al*. (2007) no statistically significant difference was found between male and female students' mean depression scores. In a study made by Kapi *et al*. (2007) with adolescents of different cultures, girls were found to have more symptoms of anxiety and depression than boys. In our country (Turkey), in the studies made with students in different departments, it was found that female students were experiencing more mental problems compared to male students (Aştı *et al*. 2005, Uskun *et al*. 2005, Özdemir & Rezaki 2007, Aylaz *et al*. 2007, Alparslan *et al*. 2008, Demirel *et al*. 2011). As it can be seen, research on adolescents' psychological disorders showed different results in terms of gender differentiation. There was no significant difference between the sexes in our study and we think it may be related to increase in the roles of women in Turkey and there are more opportunities for them to express themselves more comfortably and even more so because they are aware of the alternatives. However, 71.1% of our research sample was formed by female students, and the number of the male students was less (28.9%) so this makes it more difficult make this suggestion.

When the difference grades of the students were examined, it was found that there was a difference between the BSI subscale mean scores, and this difference was found to be statistically significant. BSI subscale mean scores are higher in 2nd grade students. Some of the results in our study are similar to the results of other studies in this field (Karakoç 2004, Koç & Polat 2006, Şahin *et al*. 2002, Tanrıverdi & Ekinci 2007, Yıldırım *et al*. 2008). The reason for significantly higher sub-

scale mean scores for 2nd grade students may be the embodiment of awareness about the profession, to students confronting the problems they are facing with, and it may be due to this period being a period of questioning in which the students are questioning themselves more clearly.

In our study, it was found that the parents' level of education and profession did not affect the BSI subscale mean scores (p>0.05). This finding is consistent with the literature. In a study made by Aylaz *et al.* (2007) which measured the incidence of depression among high school students they have found that the health education and occupational status of parents does not affect the students' mean score of depression. In a study made by Yıldırım *et al.* (2008), it was determined that the profession and the educational status of the parents of the students did not affect the SCL-90-R mean scores. Again Gözüağca (2004) has determined that there was no statistically significant relationship between the educational and occupational status of the parents of the students and the mean scores of psychological symptoms of the students.

A statistically significant difference was found between the BSI subscale mean scores of the students according to their physical and mental health evaluations (p<0.05). It was seen that the ones who evaluated their physical health as poor had higher mean scores. In a study made by Yıldırım *et al.* (2008), it was found that students having chronic health problems affected the SCL-90-R mean scores statistically. According to the study made by Tanrıverdi and Ekinci (2007), it was determined that the nursing students having chronic health problems increased the SCL-90-R subscale mean scores. The findings of the studies made by Gözüağca (2004) and made by Temel *et al.* (2007) support the findings of our study. This is thought to be an important findings in terms of showing man is a biopsychosocial being, therefore, a change occurred in one area can affect other areas.

A statistically significant relationship was found between the assessment of the students in the aspect of the level of communication between the family member and also the level of communication between the student and the family members and the BSI subscale mean scores; it was found that the ones who were evaluating this communication as poor had higher mean scores.

This finding of our study is similar to the findings of some other studies. In a study made by Bingöl *et al.* (2012) about the examination of the medical school students' general health according to some variables, it was determined that the general health scores of the students who have evaluated the level of communication in their family as poor were found to be high. Again in a study made by Montes-Berges and Augusto (2007) with medical and nursing students, it was found that the evaluation of social support as good by students had an effect on the abilities of students in the aspect of coping with stress. In a study made by Lo (2002) with nursing students, it was found that one of the perceived stressors and therefore sources that adversely affects the mental health was the poor communication within the family and the deterioration of health.

A statistically difference was found between the BSI subscale mean scores of the students who were not satisfied with the school and the students who were satisfied with the school and the unsatisfied group had higher mean scores compared to the other group. In a study made by Temel *et al.* (2007) with the nursing students, it was found that the depression mean scores of the students expressing dissatisfaction with school was found to be higher compared to others in a statistically significant way. School is an environment which contributes quite significantly to the socialization of an individual. In the light of this finding, if the student is satisfied with his/her school, this helps him/her to make positive assessments about himself/herself and the future and therefore helps the individual to maintain his/her mental health; however, if the student is not satisfied with the school, then this may have a negative effect on the mental health of the student.

Number of siblings of students, the occupation of the parents, the place of residence for the longest time, that place of residence during training, the presence of an individual being diagnosed with a psychiatric condition in the family and the occupational choice of the student was determined to have no effect on the BSI subscale mean scores and this was not statistically significant. It was determined that these findings of our study was similiar to the findings of some other studies (Konan 1997, Okanlı 1999).

Conclusion

In conclusion, DSI mean score of the students was found as 1.09±0.70 . In this study, the highest BSI subscale mean scores are as follows; depression (15.91±7.10) , anxiety (13.55±9.49), negative self (11.57±8.97), hostility (9.45±5.43) and somatisation (6.71±8.07). A statistically significant relationship was found between the BSI subscale mean scores of the students and their grades, their evaluation of own physical and mental health, their evaluation of the level of communication between their family members, their own level of communication with their family members and their satisfaction level of the school.

Number of siblings of students, the occupation of the parents, the place of residence for the longest time, that place of residence during training, the presence of an individual being diagnosed with a psychiatric condition in the family and the occupational choice of the student was determined to have no effect on the BSI subscale mean scores and this was not statistically significant.

Based on these findings, it is advised that; high quality orientation programs for first-year nursing students nursing should be organized, periodically nursing students should be examined to determine the one with mental health problems and other problems and they should be directed to the Guidance and Counseling Centers to get help; seminar and conferences should be given to the students at certain intervals by qualified instructors in the aspect of coping with mental health problems; students with chronic illness should be determined and adequate health care opportunities should be provided to them to minimize the negative effects on their lives and education.

Limitations

The results can be generalized to students included in this research. By keeping a larger sample size of this study, it can be applied to a few university nursing schools. Moreover, the study was largely (71.1%) formed by female students and the number of the male students was less (28.9%) so this may be another limitation of this study.

References

1. Alparslan N, Yaşar S, Dereli E, et. al. Depressive symptoms of the students in the faculty of health and technical sciences and the examination of the factors affecting those symptoms. *Journal of Nursing Research and Development, 2008; 2: 48-57.*

2. Arslan S, Nazik E, Gürdil S, et. al. Assessment of school students' mental health. *TAF Preventive Medicine Bulletin, 2012; 11: 325-330.*

3. Aşti N, Acar G, Bağcı H. Mental status of the Students to be trained as health care professionals and approaches to their mental states. *Muğla University, Institute of Social Sciences Journal, 2005; 15: 25-35.*

4. Aylaz R, Kaya B, Dere N, et. al. Health Prevalence of depression and related factors among high school students. *Anatolian Journal of Psychiatry, 2007; 8: 46-51.*

5. Bilgili N. Assessment of the general mental status of the SSK Hospital nurses. *National Nursing Congress Book. Izmir, Turkey, 1997.*

6. Bingöl G, Gebeş R, Yavuz R. An analysis of the overall health status of the students in the Amasya School of Health. *Göztepe Medical Journal, 2012; 27: 106-111.*

7. Bumbery W. Validation of the BDI in a university population using psychiatric estimate as the criterion. *Cons J Clin Psychol, 1978; 46: 150-155.*

8. Ceral S, Dağ I. Differences in perceived self-esteem, depressiveness and general psychological attitudes in adolescents due to percieved parenting styles. *3 P Journal, 2005; 13: 233-241.*

9. Compatibility issues in the period of youth. (2013) Available at: http://aileniz.net/saglik/psikoloji (accessed 10 April 2013).

10. Çoruh M. Compatibility issues of the university students. Compliance Issues of the University Youth Symposium. *Bilkent University Counseling and Research Center, Ankara, Turkey, 1989.*

11. Çuhadaroglu F. The distribution of psychiatric symptoms among university students. *22 National Congress of Psychiatry and Neurological Sciences. Adana-Mersin, Turkey, 1989.*

12. Çuhadaroğlu F. *The association of depression and anxiety in adolescents: Revision. Turkish Journal of Psychiatry, 1993; 4: 183-188.*

13. Demirel SA, Eğlence R, Kaçmaz E. *Determination of the mental status of college students. Neu Journal of the Institute of Social Sciences, 2011; 1: 18-29.*

14. Deniz ME, Avşaroğlu S, Hamarta E. *Levels of psychological symptoms of college students admitted to counseling, 2011; Available at: http://pegem.net/ dosyalardokuman/292.pdf*

15. Derogatis LR. *The Brief Symptom Inventory (BSI). Administration, scoring and procedures manual: II Clinical Research Inc. Pschometric. USA, 1992.*

16. Doğramacı M. *Analysis of spiritual symptoms and self-esteem of adolescents living in orphanages. Ege University, Faculty of Letters Department of Psychology. İzmir, 1997.*

17. Gözüağca D. *Conditions of nursing students in the aspect of mental problems and the determination of the problem areas. Erzurum Ataturk University, Institute of Health Sciences, Department of Psychiatric Nursing. Erzurum, 2004.*

18. İmamoğlu O, Gültekin YY. *Recommended balanced individual model in the light of the social problems of the youth of the university. Turkish Journal of Psychology, 1993; 8: 27-41.*

19. İnanç N. *Quality of nursing education. Nursing-Midwifery Education and Practice, Quality Symposium. Kayseri, Turkey, 1998.*

20. Kapi A, Veltsista A, Sovio U, et. al. *Comparison of self - reported emotional and behavioral problems in adolescents from Greece and Finland. Acta Paediatr, 2007; 96: 1174-1179.*

21. Karakoç S. *Examination of the relationship between the mental symptoms and the effects of these symptoms on the life of the GATA School of Nursing Students. Ankara Gulhane Military Medical Academy, Institute of Health Sciences, Department of Psychiatric Nursing. Ankara, 2004.*

22. Kocaman G. *Nursing education issues in Turkey. Hemar-G Journal, World Nurses' Day (special edition), 2003; 71-75.*

23. Koç M, Polat U. *Mental health of college students. International Journal of Human Sciences, 2006; 3: 1-22.*

24. Konan M. *The relationship between the mental status and the future expectations of the the students at the university of the van undergraduate programs.* Van University, Institute of Health Sciences, Department of Public Health. Van. 1997.

25. Lo R. *A longitudinal study of perceived level of stress, coping and self-esteem of undergraduate nursing students: an Australian case study. Journal of Advanced Nursing, 2002; 39: 119-126.*

26. Melman S, Little SG, Akin-Little KA. *Adolescent over scheduling: the relationship between levels of participation in scheduled activities and self Reported clinical symptomology. The High School Journal, 2007; 90: 18-30.*

27. Montes-Berges B, Augusto JM. *Perceivedemotional exploring the relationship between intelligence, coping, social support, health in nursing students andmental. Journal of Psychiatric and Mental Health Nursing, 2007; 14: 263-171.*

28. Okanlı A. *The relationship between the perceived social support of the nursing students from their families and friends and their anxiety level. Erzurum Ataturk University, Institute of Health Sciences, Department of Psychiatric Nursing. Erzurum. 1999.*

29. Özdemir H, Rezaki M. *General health questionnaire for the detection of depression-12. Turkish Journal of Psychiatry, 2007; 18: 13-21.*

30. Özgüven IE. *Problems of the university students and their ways of coping. Hacettepe University, Journal of Education, 1992; 7: 5-13.*

31. Şahin NH, Durak A. *The Brief Symptom Inventory: Its adaptation for the Turkish youth. Turkish Journal of Psychology, 1994; 9: 44-56.*

32. Şahin NH, Batıgün Durak A, Uğurtaş S. *Brief Symptom Inventory (BSI) The validity, reliability and factor structure. Turkish Journal of Psychiatry, 2002; 13: 125-135.*

33. Savaşır I, Şahin HN. *Evaluation in cognitive- behavioral therapies: Frequently used scales. Turkish Psychological Association Publications. Ankara. 1997.*

34. Sherer M. *Depression and suicidal ıdeation in college students. Psychol Rep. 1985; 57: 1061-1062.*

35. Tabak RS, Akköse K. *Health locus of control perception levels of adolescents and its effects on their health behaviors. TAF Preventive Medicine Bulletin, 2006; 5: 118-130.*

36. Tanrıverdi D, Ekinci M. *Status of nursing students to have mental health problems and the determination of the problem areas. Journal of Ataturk University School of Nursing, 2009; 10: 42-51.*

37. *Temel E, Bahar A, Çuhadar D. Determination of level of the ways of coping with stress and depression of the nursing students. Euphrates Journal of Health Services, 2007; 2: 108-118.*

38. *Uğurlu N, Sayan A, Tan M. The relationship between self-esteem and internal- external locus of control in nurses. VII. National Nursing Congress Book. Erzurum, Turkey, 1999.*

39. *Uğurlu N. The relationship between the locus of control and coping strategies among nurses their psychological symptoms. Ataturk University, Institute of Health Sciences, Department of Psychiatric Nursing. Erzurum. 2002.*

40. *Uğurlu N, Akın H. The relationship between physical self-concept and psychological distress symptoms of the nursing students in Muğla Faculty of Health. Journal of Ataturk University School of Nursing, 2008; 11: 38-47.*

41. *Uskun M, Aydin U, Öztürk M, et. al. The social and psychological characteristics of the students in the faculty of dentistry of Suleyman Demirel University. Ankara University Journal of the Faculty of Dentistry, 2005; 32: 35-44.*

42. *Üre O, Yalçın B, Hamarta E. Examination of the levels of psychological symptoms of college students admitted to study counseling. Konya Selcuk University Faculty of Social Sciences. Konya, Turkey. 2001.*

43. *Yeşilyaprak B. Psychological problems of college students. Turkish Journal of Psychology, 1986; 20: 80-85.*

44. *Yıldırım A, Hacıhasanoglu R, Karakurt P. Analysis of the factors affecting mental status of nursing students. Journal of Ataturk University School of Nursing, 2008; 11: 1-7.*

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Surveillance of parasitic diseases in Federation of Bosnia and Herzegovina

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Abstract

Infectious diseases surveillance system exists for a long time in B&H, and one part of them are parasitic diseases. Some of them are obligatory for registration.

This work is one retrospective epidemiological study which presents the incidence of parasitic diseases in Federation of B&H. The data source are the infectious diseases reports from the different public health levels.

According to the analysis we can see that parasitic diseases are rare in FB&H, but it is better to say they are rarely registered. They are only less than 1% from total number of all registered cases of infectious diseases.The most important are: trichinellosis, hydatidosis and amoebiasis. Making of diagnosis for some of parasitic diseases is possible only in very sofisticate laboratories and it is sometimes the main problem in surveillance. Our diagnostics capacities network is insufficient and it needs to be improved, as a first step to making surveillance better.

We can conclude that surveillance system of parasitic diseases in Federation of Bosnia and Herzegovina is not enough good and that the small number of registered parasitic diseases is the expected consequence .

Introduction

According to the definition, parasitic diseases are infectious diseases caused by a parasite. They are very common in all the world, in underdeveloped and in developed countries as well. But in different countries are different parasitic diseases present and the transmission ways are very different.

They are: protozoa, helminths and ectoparasites. The main transmission ways are : contaminated food or water and sometimes direct contact. In the affected organisms parasitic diseases can cause mild discomfort, evident clinical symptoms, and sometimes can be deadly.

For some of them very important is the risk of transplacentarian transmission and the possibility of severe congenital lesion, and it is the reason that some parasitic diseases are specially dangerous for pregnant women. One example is toxoplasmosis. Some others are mostly tropical diseases and they are very important for the inhabitants of tropical countries and for travellers as well, like malaria.

There are no vaccines for parasitic diseases for commercial use till now.

For treatment are different drugs available. Some of them are very expensive and the treatment is quite long, very often some months. Consequently prevention is especially important.

Disease surveillance is always based and depends on the registration mode. In our country the parasitic disease surveillance has a long history according the local health regulation, however the exact number of infected people is rarely known. There is no separate surveillance for parasitic diseases, they are included in the surveillance of infectious diseases.

Our Law has one decree for the registration of infectious diseases. It is obligatation for all medical doctors and labs. Among the infectious diseases some parasitic diseases are also obligatory for registration. These are: amoebiasis, leishmaniasis, hydatidosis, malaria, trichinellosis and toxoplasmosis.

Aim

In this work we want to present current surveillance system of parasitic diseases in Federation of Bosnia and Herzegovina and possibilities of its improvement.

Materials and Methods

For this work were used registration reports of infectious diseases, especially parasitic from municipality, cantonal and federal public health level.

It is one restrospective epidemiological study in which we present the analysis of parasitic diseases as a part of total number of all reportable infectious diseases. We analised epidemiological aspects of registered cases and investigated to :

- type of parasitic diseases
- place - Federation of Bosnia and Herzegovina
- time – five years period (2003.- 2007.)

Results

In the period from 2003 to 2007 the total number of registered cases of infectious diseases in whole Federation of B&H was 211 809 . Only one small part, 489 cases were parasitic diseases, it was 0,23 %

According to registered cases the most frequent parasitic disease in FB&H (36,6% of all cases) were trichinellosis with 179 registered cases in the five year period.

The next one was hydatidosis with 172 cases (35 %), followed by amoebiasis with 118 cases (24%).

The number of patients with hydatidosis was permanently very similar each year, there were between 31 and 37 cases. In the same period of time the number of patients with trichinellosis was very variable, from 5 to 54 cases per year. The highest number of trichinella cases was in 2005. In this year two outbreaks were registered.

In the observed period only four cases of imported malaria were registred, all in the main Clinic Hospital in the capital city of Sarajevo. (Figure 1)
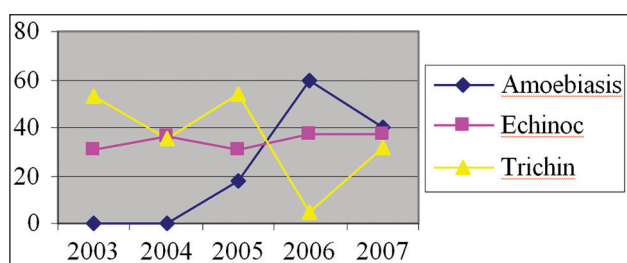

Figure 1. Parasitic diseases in FB&H in the period 2003-2007

The highest number of parasitic diseases in FB&H was registered in 2005, it was 108 cases, or 22,1% of the total number.

The territorial distribution of registered cases is very interesting because the number of registered cases is very different in the different parts of Federation of B&H. During the five years period the highest number of registered cases was in Canton 7. It was 33,1 % of all registered cases. Of all hydatidosis cases registered in Federation B&H in this canton were registered 51,1% and more then 75% of leishmanisis cases

In the same time in The Canton 2 and Canton 8 there were no registered cases of parasitic diseases.

Very similar situation is with amoebiasis. It was registered the first time in 2005 and till now it is registered only in Cantons 5, 7, 9 and 10, and again, with the highest number of registered cases in Canton 7 and 9.

Toxoplasmosis was registered rarly, and the total number of cases was 12. The greatest part, 30 %, were the patients from Canton 7. (Figure 2)
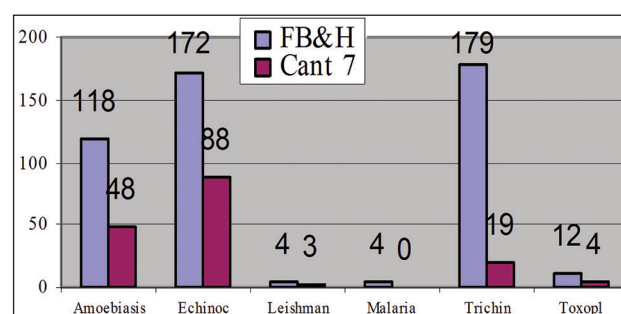

Figure 2. Parasitic diseases – comparation FB&H / Canton 7

There are some objective difficulties for the better surveillance. First of all diagnostics capaties, because for the diagnostics of parasitic diseases very sofisticated labs are needed and it is our big problem. Some cantons don't have any parasitological labs, and that is an important problem for the making of diagnosis as a first step in the surveillance of parasitic diseases.

The second problem is knowledge, or education about parasitic diseases. Our medical faculties don't have parasitolology as an independent subject and students learn about parasitic diseases from different subjects: as a part of microbiology, infectious diseases and epidemiology. Microbiology as a subject is studied on the second year od medical faculties and students usually don't learn more about it.

Parasitology is very dinamic, especially in the last years connected with global climate changing and increasing of travel and trade.

The public health importance of parasitic diseases is growing from year to year. It demands better readiness and better conditions for the surveillance of parasitic diseases.

Conclusion

According to official registration it can be concluded that the parasitic diseases in the five years period (2003-2007) were not very common in Federation of B&H, because the number of registered cases was less then 1% of all registered cases of infectious diseases. The most frequent were trichinellosis, hydatidosis and amoebiasis.

The territorial distribution was very different and the highest number was registered on the Canton 7. In two cantons were no registered cases.

It is difficult to believe and to understand this small number of cases. The explanation could be that we don't have enough developed net of parasitological labs as a first condition for the making of etiological diagnosis. Because of insufficient diagnostics it can be supposed that the number of registered cases is less than in reallity.

We need to make surveillance of parasitic diseases better. It could to be our aim in the future and to achive this aim it is necessary to improve the lab diagnostics and to pay more attention on education about parasitic diseases.

References

1. Autcott JN, Ravidin J. Amebiasis and «nonpathogenic» intestinal protozoa, Infecti. Diseases Clin. North America, 1993; 7: 467-485

2. Cook GC. Manson's Tropical Diseases, twentieth Edition, W.B. Saunders Company L.T.D., 1996

3. Craig PS, et. al. Hydatid disease research and control in Turkana II.The role of immunological techniques for the diagnosis of hydatid disease – Trans. Royal Soc.Trop. Med. Hyg., 1986; 80: 183-192

4. Euzeby J. The epidemiology of hydatidosis with special referebce to the mediterranean area – Parassitologia – Ann. Trop. Med. Hyg., 1981; 30: 645-652.

5. Hommel M, Gilles HM. Malaria in Topley & Wilson's Microbiology and Microbial Infections, 1998; vol. 5 Parsitology, 9th Edition, Arnold.

6. Hume OS. Toxoplasmosis and pregnancy, Am. J. Obstet. Gynaelcol., 1972; 144: 703-714

7. Kappus Kd. et. al. Intestinal parasitism in the United States: update and continuing problem, Am. J. Trop. Med. Hyg., 1994; 50: 705-713

8. Schnyder CC. Toxoplasmos et pathologie oculaire–Schweiz. Med.Wochenschr., 1995; 125(supp. 65): 82S-88S.

9. Stefanoiu V, et. al. Hydatidosis a serious disease which has to be reconsidered – Rev. Rom. Parasitol, 1994; IV(2): 73 – 74

10. WHO – Control of Echinococcosis / Hydatidosis: present status of worldwide progress - Bulletin OMS, 1996; 64: 333-336

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Features of lower respiratory infection during period 2011-2012

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Abstract

Introduction: Acute respiratory infections (ARI) and acute inflammatory diseases of the respiratory system are the most common infections and the most common diseases in general. Taking into account this fact this research was conducted. **Goal:** To investigate the incidence of lower respiratory tract infections, their sex and age representation at the Clinic of Infectious Disease, Clinical Center of Sarajevo University, characteristics of lower respiratory tract infections, and the most common period in which infection occurs.

Material and methods: Retrospective-prospective study included 100 patients with lower respiratory tract infections in the Clinic of Infectious Disease, Clinical Center of Sarajevo University. The study was conducted in the period from January 2011 to December 2012. The study included patients suffering from infection of the lower respiratory system of all age groups. The diagnosis is based on: clinical evaluation (medical history, clinical status, particularly physical findings of the lungs), X-ray of the lungs, laboratory and microbiological diagnostics.

Results: The most common age group in the study was older than 65 years. More present were male patients with 52%. In patients with infections of the lower respiratory tract most common was pneumonia at 79% of cases. Dominating period of the year was the winter with 50%. In patients with pneumonia the most common characteristics are X-ray of the lungs with 93.6% and auscultatory findings of the lungs in 77%, while the clinical symptoms of fever followed with 86%. Dominating laboratory parameter was CRP at 83.5%. In patients suffering from acute bronchitis dominant features are: fever at 90% and 80% cough as the leading clinical symptoms. Predominant characteristics of COPD were dyspnea and cough at 71.4%. In the analysis of X-ray of the lungs was observed that in the group of patients with infections of the lower respiratory tract disease the most common was pneumonia at 74%. Similar information we obtained by the physical examination, where pneumonia is the most common with 61%. When analyzing the relationship of physical findings and x-ray of the lungs, in all lower respiratory tract infections was used Student's t test for testing significance of the difference, which amounted to 0.93 for statistical pairs.

Conclusions: Infections of the lower respiratory tract are almost equally represented in both sexes with a slightly more males with pneumonia and COPD. The incidence of infection occurrence is the most common in the winter. Out of infections usually with highest percentage is represented pneumonia. Lung X-Ray in two planes, by all protocols, demonstrated with the auscultatory finding the highest value in the diagnosis of clinical pneumonia.

Key words: infections of the lower respiratory tract, pneumonia, COPD, acute bronchitis, chronic bronchitis.

Introduction

Acute respiratory infections (ARI) and acute inflammatory diseases of the respiratory system are the most common infections and the most common diseases in general. The reasons for such a high incidence of ARI can be found in the structure and position of the respiratory system with a variety of different causes of infections that are easily transmitted, and the still modest possibilities of prevention and treatment. Although the infection upper respiratory system of a very common condition, they are clinically mild and do not lead to death, as opposed to infection of the lower respiratory system, which are more severe, and

often fatal disease. This part deals with infections of the lower respiratory tract as well as the conditions that are usually not infectious, but because irreversible structural damage and infection may represent complicating factor.

The lower respiratory tract infections include **acute bronchitis, bronchiolitis, chronic bronchitis, bronchiectasis and pneumonia** as the most severe inflammatory diseases of the respiratory system (1,2,5).

Goals

To investigate the incidence of lower respiratory tract infections, their sex and age representation at the Clinic of Infectious Disease, Clinical Center of Sarajevo University, characteristics of lower respiratory tract infections, and the most common period of the year in which infection occurs.

Material and methods

Retrospective-prospective study included 100 patients with lower respiratory tract infections at the Clinic of Infectious Diseases, Clinical Center of Sarajevo University. The study was conducted in the period from January 2011 to December 2012. The study included patients suffering from infection of the lower respiratory system of all age groups. We used medical records of hospitalized patients with lower respiratory tract infections, which are treated in the Clinic of Infectious Diseases. Criteria for inclusion in this study were physical findings and clinical symptoms in favor of infection and x-rays of the lung with infiltrations, increased parameters of laboratory findings suggestive of infection of the lower respiratory tract, while the criteria for exclusion from the study were patients with PA X-ray with lung infiltrations that by differential diagnosis does not correspond to infections of the lower respiratory tract.

Methods

The diagnosis is based on: clinical evaluation (medical history, clinical status, particularly physical findings of the lungs), X-ray of the lungs, laboratory and microbiological diagnostics. History data analysis consisted of leading clinical symptoms for

which the patient was admitted at the Clinic of Infectious diseases (fever, cough, sputum, shortness of breath, shivering, fatigue). From clinical findings, we analyzed age, gender and local auscultatory findings, which was different in infections of the lower respiratory tract. Patients diagnosed with acute bronchitis had diffusely increased bronchial polyphonic sounds at the auscultation finding, whereas in case of chronic bronchitis during expiration and inspiration had diffuse bronchial polyphonic noise and rattle. In developed bacterial pneumonia auscultatory finding is characterized by bronchial breathing and appearance of crepitations, and on occasion could be also heard pleural friction. However, at the beginning of the disease can be heard only weakened vesicular breathing. In atypical pneumonia findings of the lungs at the beginning of the disease was generally normal, while later may be registered fine crepitations and high frequency noise at the end of inhalation. Physical findings of the lungs in case of COPD indicates obstruction in the airways as whistling in calm breathing, tightness in the chest and prolonged forced expiration longer than 5 seconds. From laboratory parameters were analyzed biochemical findings: erythrocyte sedimentation rate, blood count and hematocrit, differential blood count (referring mostly to neutrophils), C-reactive protein, radiological findings (the largest number of patients with infections of the lower respiratory tract had a standard PA and left lateral a chest X-ray where can be seen various pulmonary infiltrations: homogeneous, stains, sliven, diffusely distributed in smaller or larger parts of the lungs and the rest of the patients had a normal X-ray of lungs) and microbiological analysis (culture of the nose and throat swabs, sputum smear). All abovementioned tests were made at the Clinical Center of Sarajevo University Clinic of Infectious Disease, Institute for Radiology, Institute of Microbiology and the Department of Pulmonary Diseases.

Results

Between January 2011 and December 2012 the study involved 100 hospitalized patients with infections of the lower respiratory tract, at the Clinic of Infectious Diseases. In relation to the total number of patients, there is a significantly higher prevalence of male patients (58%) compared to fe-

male (42%). The most common age group in our study at the Clinic of Infectious Diseases was over 65 years old.

In patients with infections of the lower respiratory tract in most cases was present pneumonia with 79%. Next by the frequencies is acute bronchitis with 10%, chronic obstructive pulmonary disease (COPD) with 7%, while chronic bronchitis was represented only by 4% (Figure 1).
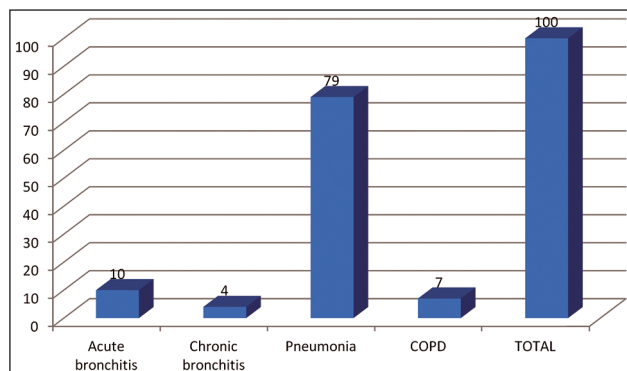

Figure 1. The incidence of infections of the lower respiratory tract

By analyzing the most common period of lower respiratory tract infections occurrence, we saw that the dominant period of the year is winter with 50%, followed by a spring with 32%. In autumn, the incidence of lower respiratory tract infections was 11%, and the lowest was during the summer period of 7% (Table 1).

Table 1. Analysis of the most common period for occurrence of lower respiratory tract infections

Period	N	%
Spring	32	32
Summer	7	7
Autumn	11	11
Winter	50	50

In patients with pneumonia the most common are characteristics of lung X-ray represented in 93.6%, auscultatory findings of the lungs in 77%. Clinical symptoms are fever with 86%, cough 58.1% and shivering with 5%. Laboratory parameters are dominated by the CRP (C-reactive protein) 83.5%, erythrocyte sedimentation rate (SE) 70%, leukocytes in the blood 44.3%, and 5% by pathological neutrophils findings (Table 2).

Table 2. Pneumonia features

Features	N	%
Fever	68	86
Shivering	4	5
Cough	46	58.1
Erythrocyte sedimentation rate	56	70
CRP	66	83.5
Blood leukocytes	35	44.3
Neutrophils	4	5
Auscultation finding	61	77
Lung X-ray	74	93.6

X-ray of the lungs in two planes by all protocols has a key value for clinical diagnosis of pneumonia. It gives a decisive answer to the question which part of the respiratory system id affected by inflammation.

In patients suffering from acute bronchitis dominant characteristics are represented by percentages: fever with 90%, 40% shivering, and cough 80% as the leading clinical symptoms. Laboratory parameters are SE 40%, CRP 70%, and leukocytes in the blood 30%. Auscultatory altered findings are present at 80%, while X-rays of the lungs in 30% (Figure 2).
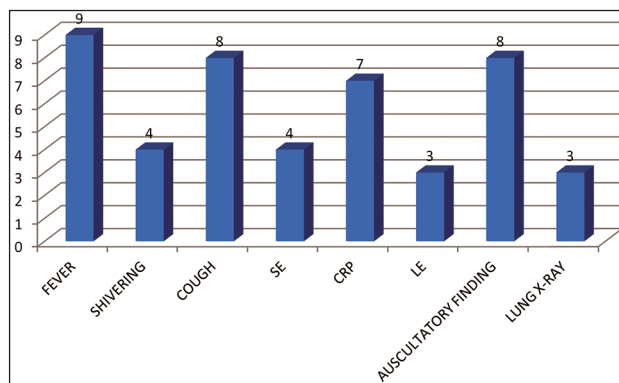

Figure 2. Characteristics of the acute bronchitis

In patients suffering from chronic bronchitis leading characteristic was auscultatory findings represented in 100%. During auscultation of the lungs, during expiration and inspiration, diffuse are heard the noises and polyphonic bronchitis rales. The clinical picture of chronic bronchitis is characterized primarily by chronic cough with sputum. In this study, cough with sputum was present in 75%. Shortness of breath in our patients was present in 2 patients (50%). X-ray of the lungs was positive in 75% of patients with chronic bronchitis. From laboratory parameters SE was elevated

in 25%, while CRP and LE were characteristics that were present in 50% of patients (Figure 3).
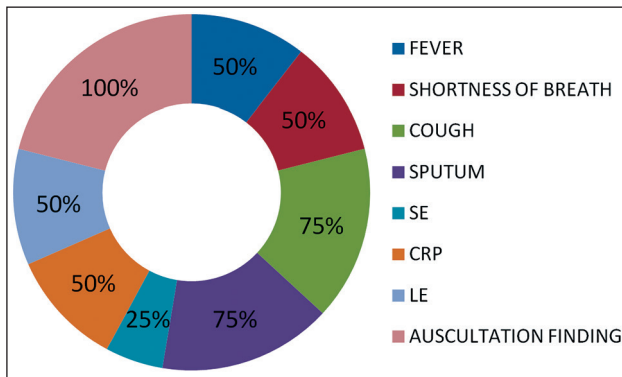

Figure 3. Features of chronic bronchitis

Table 3 shows the characteristics of chronic obstructive pulmonary disease. Dominant features of COPD are cough and dyspnea at 71.4%, the percentage of the fever was 43%, followed by X-ray of the lungs with 28.5%. Auscultatory findings, SE, CRP and leukocytes in the blood were pathological in 14.3%.

Table 3. COPD features

Features	N	%
Fever	3	43
Shortness of breath	5	71.4
Cough	5	71.4
Erythrocyte sedimentation rate	1	14.3
CRP	1	14.3
Blood leukocytes	1	14.3
Auscultation finding	2	14.3
Lung X-ray	2	28.5

In the analysis of the lung X-ray was observed that in the group of patients with infections of the lower respiratory tract the most common was pneumonia with 74%, followed by acute and chronic bronchitis with 3%, and 2% with COPD. Similar data we obtained during the physical examination, where pneumonia is the most common with 61%, followed by acute bronchitis.

When analyzing the relationship of physical findings and the X-ray of the lungs, in all lower respiratory tract infections, was used Student's t test of significance of the difference, which amounted to 0.93 for statistical pairs (Figure 4 and 5).
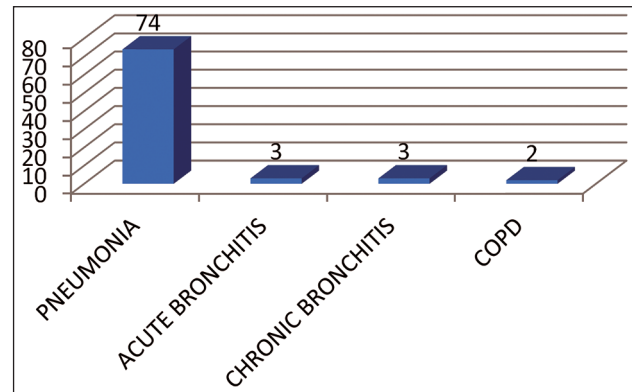

Figure 4. Analysis of X-ray findings in infections of the lower respiratory tract
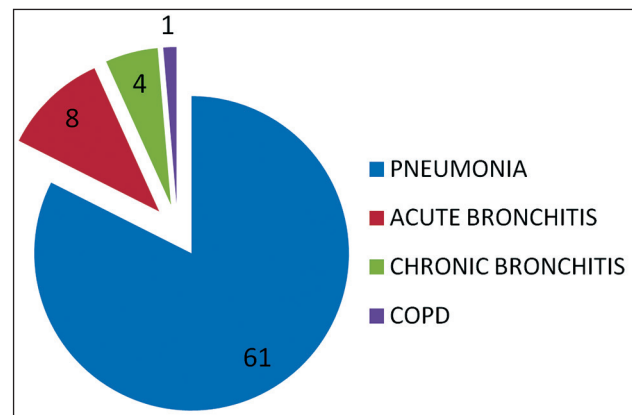

Figure 5. Analysis of the physical findings in lower respiratory tract infections

Discussion

The research by File has proven that the male patients were dominant in all infections of the lower respiratory infections (15). Donowitz and Mandell in their study in the UK showed that pneumonia takes 10 times more lives than any other infectious disease. While in the U.S. pneumonia is among the leading causes of death (10,12). Also our study has shown that pneumonia is the leading infectious disease of the lower respiratory tract. In developing countries, infection of the lower respiratory tract are the most common cause of death, especially when it comes to pneumonia as determined by the WHO (World Health Organization). The incidence of infections in our study was similar to studies published by Kuzman and associates and Ajanovic et al. according to which the infection occurred most often during the winter, which coincides with our results (5,6,26). Pneumonia characteristics in our study are consistent with the study

of Holmberg, provided that they found opposite to our findings atypical pneumonia among their patients (30). Woodhead et al. and Lehtomäki et al, as well as others claim that because the pneumonia is acute illness with rapid progression, in which decisions about antibiotic treatment should be made immediately after clinical diagnosis, and inability to perform tests for etiologic diagnosis, basic laboratory tests (ESR, CRP and LE) are the most common laboratory parameters which are then used in the classification and differential diagnosis of pneumonia (2,3,24,29). Our study has shown that C-reactive protein as a parameter of inflammation was the third characteristic with a high representation in all patients with 83.5%. While the erythrocyte sedimentation rate (SE) was elevated in 56 patients. In acute bronchitis, cough, as the main symptom of this disease appears as dry and severe, especially at night, and later became purulent. The association of cough with fever in acute respiratory infection suggests the possibility that the traheobronchial tree is affected, although it depends on the cause (1,14,15,22). They are the dominant characteristics in our study among the patients suffering from acute bronchitis. Auscultation of the lungs revealed diffuse extended polyphonic bronchitis noises, which were present in 80% of the cases. With our conclusions agree observations by Bosnjak-Petrovic, which claim that the diagnosis is based on history and auscultatory finding (9). Lung X-ray was positive in only 30% of respondents, which supports the results of other authors. In practice, a chest X-ray is normal, if complications did not occurred and are the most important distinguishing mark from pneumonia (1). Laboratory findings have greater value in diagnosis. Sedimentation can be accelerated, but is usually normal. It depends less on the type of pathogen, and more on acuteness of the process, as well as from previous chronic disease (2,4). Of our patients who had the diagnosis of acute bronchitis elevated SE was represented 40%, LE in 30%, while the pathological CRP was the most represented among laboratory parameters with 70%. Reynolds HY et al. came to the conclusion that the X-ray of the lung in chronic bronchitis is without specific characteristics and greater meaning, so its use is to rule out other diseases. But sometimes reveal enhanced bronchovascular image, hyperin-

flation, and narrowed retrosternal space (32). Dyspnea is basic emphysema symptom which along with chronic bronchitis represents COPD (chronic obstructive pulmonary disease). In the beginning is only present under the load, and in parallel with the progression of the disease exists also at rest (27). It is evident that our results coincide because dyspnea was represented at 71.4% as one of the leading characteristics, along with a cough. Coughing was also present in 71.4% of cases.

Conclusions

Infections of the lower respiratory tract are almost equally represented in both sexes with slightly more represented males.

The occurrence of infection is most common during the winter.

Out of all infections, usually with high percentage is represented pneumonia.

Lung X-Ray in two planes, by all protocols, demonstrated with the auscultatory finding the highest value in the diagnosis of clinical pneumonia.

References

1. *Greene G, Hood K, Little P, et. al. Towards clinical definitions of lower respiratory tract infection (LRTI) for research and primary care practice in Europe: an international consensus study. Prim Care Respir J 2011; 20: 299-306.*

2. *Woodhead M, Blasi F, Ewig S, et. al. Guidelines for the management of adult lower respiratory tract infections— full version. Clin Microbiol Infect 2011; 17(suppl 6): E1-59.*

3. *Woodhead M, Blasi F, Ewig S, et. al. Guidelines for the management of adult lower respiratory tract infections. Eur Respir J, 2005; 26(6): 1138–1180.*

4. *Mizgerd JP. Acute lower respiratory tract infection. N Engl J Med 2008; 358(7): 716-727*

5. *Kuzman I. Pneumonije Uzrocnici i dijagnostika. MEDICUS 2005; 71-82.*

6. *Kuzman I. Pneumonije U: Kuzman I. Ur. Pneumonije – uzročnici, dijagnostika, liječenje. Zagreb: Medicinska naklada 1999; 341-382.*

7. *Kasper LD, Braunwald E. i sur. Harrisons principles of Internal Medicine, 16 edition Manual of medicine. SAD 2005; 134: 679-685*

8. *Ayres JG. Seasonal pattern of acute bronchitis in general practice in the United Kingdom 1976-83. Thorax 1986; 41: 107-10*

9. *Bošnjak-Petrović V. Interna medicina. Peto izdanje, Beograd 2009; 440-450.*

10. *Mandell LA, Wunderink RG, Anzueto A, i sur. Infectious Diseases Society of America / American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. Clin Infect Dis 2007; 44(Suppl 2): 27-72.*

11. *Champan SW, Bradsher RW Jr, Campbell GD Jr, et. al. Infectious Diseases Society of America. Practise guidelines for the management of patiens with blastomycosis. Clin Infect Dis 2000; 30: 679-683.*

12. *Donowitz GR, Mandell GL. Acute Pneumonia. U: Mandell GL, Bennett JE, Dolin R. Ur. Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases. Sixth ed. Philadelphia: Elsevier, Churchill Livingstone 2005; 819-45.*

13. *Welker JA, Huston M, McCue JD. Antibiotic timing and errors in diagnosing pneumonia. Arch Intern Med 2008; 168: 351-6.*

14. *Li JZ, Winston LG, Moore DH, i sur. Efficacy of shortcourse antibiotic regimens for community-acquired pneumonia: a meta-analysis. Am J Med 2007; 120: 783-90*

15. *Depuzdt P, Myny D, Blot S. Nosocomial pneumonia: aetiology, diagnosis and treatment. Cur Opin Pulm Med 2006; 12: 192-197.*

16. *Rello J: Bench-to-bedside review: Therapeutic options and issues in the management of ventilator-associated bacterial pneumonia. Crit Care 2005; 9: 259-265.*

17. *Niederman MS. De-escalation therapy in ventilator-associated pneumonia. Cur Opin Crit Care 2006; 12(5): 452-457.*

18. *Monto AS. Epidemiology of viral respiratory infections. Am J Med 2002; 112: 4S-12S.*

19. *File TM JR. Community-acquired pneumonia. Lancet 2003; 362: 1991-2001*

20. *Hall CB, Hall WJ. Bronchiolitis. U: Mandell GL, Bennett JE, Dolin R, eds. Principles and practice of infectious diseases. 4th ed. New York: Churchill Livingstone, 1995; 612-9.*

21. *Neuhaus T, Evig S. Defining severe community-acquired pneumonia. Med Clin North Am 2001; 85: 1413-25.*

22. *File TM Jr. Clinical implications and treatment of multiresistant Streptococcus pneumoniae pneumonia. Clin Microbiol Infect 2007; 12: 31-41.*

23. *Marrie TJ, Poulin-Costello M, Beecroft MD, i sur. Etiology of community-acquired pneumonia treated in an ambulatory setting. Respir Med 2005; 99: 60-5.*

24. *Woodhead M. Community-acquired pneumonia guidelines: much guidance, but not much evidence. Eur Respir J 2002; 20: 20-7.*

25. *Bartlett JG. Diagnostic test for etiologic agents of community-acquired pneumonia. Infect Dis Clin North Am 2004; 18: 809-827.*

26. *Ajanović E, Dizdarević Z. Pulmologija.Medicinski fakultet Sarajevo-Tuzla 2000; 133-187.*

27. *Ball P. Epidemiology and treatment of chronic bronchitis and its exacerbations. Chest 1995; 108 (Suppl. 2): 43-52.*

28. *Kerttula Y, Leinonen M, Koskela M, i sur. The aetiology of pneumonia. Aplication of bacterial serology and basic laboratory methods. J Infect 1987; 14: 21-30.*

29. *Lehtomaki K, Leinonen M, Takala A, i sur. Etiological diagnosis of pneumonia in military conscripts by combined use of bacterial culuture and serological methods. Eur J Clin Microbiol Infect Dis 1988; 7: 348-54.*

30. *Holmberg H. Community-acquired pneumonia in adults. Curr Opin Infect Dis 1998; 11: 147-51.*

31. *Vrhovac B, Francetić I, Jakšić B, i sur. Interna medicina. Zagreb 2003;*

32. *Reynolds HY. Chronic bronchitis and acute infectious exacerbations. U: Mandell GL, Benett JE, Dolin Reds. Principles and practice of infectious disease. 4th ed. New York: Churchill Livingstone, 1995; 608-12.*

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Osnovne i pridružene tegobe bolesnika s križoboljom: etiološka analiza

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Abstract

Introduction: In today's world lumbago represents one of the most important public health problems. Problems that are accompanied by lumbago such as a dissability, decreased social activity, pain and phychological problems are the reasons why the patiens with lumbago use medicament therapy for pain relief, go to the physical therapy, and get absent from work very often (apsentism) and have double costs for the health care comparing to the general population.

Goal of the study: Determine the sex, age and profession, basic problems, compare frequency, kind and strength of the problems/discomforts, frequency and kind of accompaning side effects, as well as determining the frequency and signs of depression of the patients with lumbago among the surveyed group on one side and on the other side the values obtained from the surveyed healthy population.

Respondents and methods: The research is elaborated as cross-sectional study, and respondendts are patients with lumbago treated at the Department for Physical Medicine during one year period. Control group are the employees of the company in the metal industry. All surveyed filled out the questionare that have been defined in advance.

Results: Basic health problems of the patients with lumbago were more frequent and have worse results comparing to the different research studies that have been done in the world. Comorbid discomforts on different scales Subjective health complaints (SHC) questionare in the surveyed group are more dominant comparinmg to the control group. Among them the most common were the patients that had the pain in the legs during physical activity (76,2% : 21,3%) and pain in the shoulder (50,5%: 11.1%).

In the Japanese Orthopedic Association Back Pain Evaluation Questionnaire (JOABPEQ) surveyed group had significantly higher value of all variables comparing to the control group. In the control group the most frequent was mild kind of depression (95,4%), while the higher levels of depression were present in the surveyed group, moderate depression (7,9%) and severe depression (8,9%). Among the total number of the male respondants the most dominant was mild kind of depression, while the higher levels of depression were more dominant among female respondants.

Conclusion: Patients with lumbago have worse lab results and more side effects comparing to the surveyed healthy population.

Key words: Lumbago, side effects, Subjective Health Complaint Inventory, JOA back pain evaluation questionaire, Beck's depresions indicator

Uvod

Križobolja je veliki javnozdravstveni problem danas, budući da njezina životna prevalencija varira od 11% do visokih 84% (1). Također, dijagnosticira se u svakog šestog bolesnika koji dolazi na pregled zbog neke mišićno-koštane tegobe. Bolesnici s križoboljom troše skoro dva puta više zdravstvene njege u odnosu na opću populaciju, što sve iziskuje veću svjesnost o ovom problemu (2). Potreba za većom zdravstvenom njegom proizlazi iz tegoba koje su prateće križobolji poput onesposobljenosti, smanjenja društvene aktivnosti, boli, psiholoških tegoba kao što su depresivnost i osjećaj straha (3,4,5).

Cilj rada

Utvrditi spol, dob, zanimanje i osnovne tegobe kod bolesnika s križoboljom, usporediti učesta-

lost, vrstu i jačinu tegoba s podatcima iz literature, usporediti učestalost i vrstu pridruženih tegoba s referentnim vrijednostima dobivenim ispitivanjem zdrave populacije, kao i utvrditi učestalost i značajke depresije kod bolesnika s križoboljom u usporedbi s zdravom populacijom.

Materijali i metode

Istraživanje je koncipirano kao presječna studija. Ukupan broj ispitanika koji je uključen u istraživanje iznosi 209. Ispitanici promatrani u ovom radu su podjeljeni u dvije skupine. Ispitnu skupini čini 101 bolesnik pregledani i liječeni na Odjelu za fikalnu medicinu i rehabilitaciju Sveučilišne kliničke bolnice Mostar (SKB Mostar) u razdoblju od 01. Siječnja 2010. do 01. siječnja 2011. godine. Kontrolnu skupinu čini 108 ispitanika, uposlenika tvrtke „Aliminij d.d." Mostar, koji su nasumično izabrani pomoću statističkog programa(SPSS), kojim se randomiziranim načinom dobilo 120 ispitanika. Svi ispitanici su popunjavali tri upitnika: Japanese Orthopedic Association Back Pain Evaluation Questionnaire (JOABPEQ) upitnik Japanske udruge ortopeda, koji se odnosi na osnovne simptome križobolje i pridružene poremećaje u zadnjih sedam dana, a sadrži 25 pitanja, podijeljenih u pet grupa, te tri analogne skale boli i tegoba (6). Subjective health complaints (SHC) upitnik o subjektivnim tegobama (7) s 29 pitanja o subjektivnim somatskim i psihološkim pridruženim tegobama koje je bolesnik imao u zadnjih mjesec dana. Ozbiljnost tegoba bodovana je ljestvicom od 4 boda (bez tegoba, malo, nešto, ozbiljne te-

gobe). SHC upitnik ima 5 podljestvica - muskuloskeletnu bol (glavobolja, bolovi u gornjem dijelu kralježnice, križobolja, bolovi u rukama, bolovi u ramenima, migrena, bolovi u nogama), pseudoneurološki problemi (amputacije, naleti vrućine, problemi sa snom, umor, omaglice, anksioznost, tuga ili depresija), gastrointestinalne tegobe (nadimanje, problemi s želudcem, proljev, zatvor, gastritis, žgaravica, bol u trbuhu), alergije (smetnje pri disanju, ekcem, astma) i gripa (prehlada, gripa, kašalj). Beckov indikator depresije (8) koji se sastoji od 21 skupine tvrdnji bodovanih od 0 do 3, a odnose se na protekli tjedan. Iz svake skupine ispitanik izabire jednu ili više tvrdnji. Zbroj bodova svih izabranih tvrdnji je skor koji utvrđuje razinu depresivnosti. Ovako dobiveni podatci su uneseni u bazu podataka formiranu u kompjuterskom programu Microsoft Access .

Rezultati

U istraživanju je sudjelovao 101 ispitanik (51,7%) u ispitnoj skupini te 108 ispitanika (48,3%) u kontrolnoj skupini (χ^2 test=0,234; df=1; P=0,628). Prosječna životna dob ispitanika uključenih u istraživanje bila je 55,0 [14,5] godina. Ispitna skupina na svim varijablama SHC upitnika imala je značajno više vrijednosti od kontrolne skupine, a ženski spol značajno više vrijednosti od muškog spola. Vrijednosti varijabli SHC upitnika u osoba s lakšim fizičkim poslom bile su značajno više od vrijednosti druge dvije vrste posla (sjedeći i teški fizički poslovi). Komorbidne tegobe na svim ljestvicama SHC upitnika u ispitnoj skupini bile su izraženije u odnosu na kontrolnu skupinu, među kojima su najizraže-

Tabela 1. Raspodjela ispitanika po spolu unutar ispitivanih grupa.

| Spol | Skupina | | χ^2-test | P |
	Kontrolna	Ispitna		
Ženski	24(22,2)	77(76,2)	60,979	<0,001
Muški	84(77,8)	24(23,8)	60,979	<0,001
Ukupno	108(100,0)	101(100,0)		

Tabela 2. Zastupljenost određene vrste posla u ukupnom broju ispitanika

Vrste poslova	Broj	Postotak	χ^2 test	P
Sjedeći poslovi	87	41,6		
Lakši fizički poslovi	97	46,4	43,675	<0,001
Teški fizički poslovi	25	12,0		
Ukupno	209	100,0		

nije bile bol u nogama za vrijeme fizičke aktivnosti (76,2% :21,3%) i bol u ramenu (50,5%: 11.1%). Ispitna skupina, ženski spol i osobe s lakšim fizičkim poslovima imali su veće vrijednosti varijabli na svim ljestvicama JOA upitnika, u odnosu na kontrolnu skupinu, muški spol i osobe s drugim vrstama poslova. U kontrolnoj skupini učestalije je zastupljen minimalni oblik depresije (95,4%) , dok su veće razine depresije zastupljene u ispitnoj skupini, umjerena(7,9%) i teška (8,9%). U ukupnom broju

Tablica 3. Prikaz funkcioniranja ispitanika prema varijablama mjerenim SHC upitnikom po ispitivanim skupinama

Varijable	C [Q]* vrijednosti varijabli prema skupini		Mann-Whitney U	P
	Ispitna	**Kontrolna**		
Mišićnoskeletalna bol	11,02 [14,5]	0,23 [1,5]	730,500	<0,001
Pseudoneurologija	3,73 [6,2]	0,11 [0,6]	1424,500	<0,001
Gastrointestinalne tegobe	0,30 [2]	0,00 [0]	3438,000	<0,001
Alergija	0,00 [0,2]	0,00 [0,02]	4397,500	0,004
Prehlada/Gripa	1,00 [6]	0,00 [0,3]	2828,000	<0,001

* C [Q]=medijan [interkvartilni raspon].

Tablica 4. Zastupljenost razina depresije u ispitnoj i kontrolnoj skupini

Beck skupine	Skupina		Ukupno	χ^2 test	P
	Kontrolna	**Ispitna**			
Minimalna	103(95,4%)	66(65,3%)	169(80,9)		
Blaga	2(1,9%)	18(17,8%)	20(9,6)		
Umjerena	3(2,8%)	8(7,9%)	11(5,3)	33,688	<0,001
Teška	0(0,0%)	9(8,9%)	9(4,3)		
Ukupno	108(100,0)	101(100,0)	209(100,0)		

Tablica 5. Prikaz funkcioniranja ispitanika i stupnja boli mjerenog JOA upitnikom u ispitnoj i kontrolnoj skupini

Varijable	C [Q]* vrijednosti varijabli prema skupini		Mann-Whitney U	P
	Ispitna	**Kontrolna**		
Križobolja	14,28 [25,0]	85,71 [28,57]	1370,000	<0,001
Funkcija lumbalne kralježnice	16,67 [25,0]	100,00 [16,67]	794,500	<0,001
Sposobnost hoda	35,71 [35,71]	100,00 [7,14]	808,000	<0,001
Društvena funkcija	21,62 [21,62]	83,78 [29,05]	239,500	<0,001
Mentalno zdravlje	44,17 [23,54]	72,81 [19,17]	719,000	<0,001
Stupanj križobolje	7,00 [4]	0,00 [3]	1243,000	<0,001
Stupanj bola u stražnjici i nogama	7,00 [4]	0,00 [3]	1107,000	<0,001
Stupanj ukočenosti u stražnjici i nogama	6,00 [4]	0,00 [2]	1098,500	<0,001

* C [Q]=medijan [interkvartilni raspon].

Tablica 6. Zastupljenost stupnja depresije po spolu svih ispitanika

Beck skupine	Spol		Ukupno	χ^2 test	P
	Muški	**Ženski**			
Minimalna	99(91,7)	70(69,3)	169(80,9)		
Blaga	3(2,8)	17(16,8)	20(9,6)		
Umjerena	4(3,7)	7(6,9)	11(5,3)	18,405	<0,001
Teška	2(1,9)	7(6,9)	9(4,3)		
Ukupno	108(100,0)	101(100,0)	209(100,0)		

ispitanika u muškom spolu učestalije je zastupljena minimalni oblik depresije, dok su veće razine depresivnosti zastupljenije u ženskom spolu. U sjedećim poslovima učestalije je zastupljena minimalna depresivnost (93,1%), dok su veće razine depresivnosti najučestalije zastupljene u lakšim fizičkim poslovima, a potom u teškim fizičkim poslovima.

Diskusija

Od svih promatranih čimbenika u ovom istraživanju, nakon isključivanja varijabli s visokom interkorelacijom, u konstrukciju prediktivnog modela križobolje uključeni su mišićno-koštana bol, spol, depresija i zanimanje. Od navedenih parametara rezultati regresijske analize pokazali su da zanimanje ne utječe značajno na stupanj križobolje, već da je varijanca utjecaja na križobolju za koju se smatralo da pripada vrsti zanimanja zbog slabijih rezultata u lakšim fizičkim poslovima, zapravo dio varijance od mišićno-koštane boli, spola i depresije.

U navedenom prediktivnom modelu ženski spol, veća mišićno-koštana bol te veća razina depresije potvrdili su se kao značajni pozitivni prediktivni čimbenici većeg stupnja križobolje. Križobolja je bolest s vrlo visokom pojavnošću i značajan uzrok morbiditeta. Zbog mogućih posljedica kao što su depresija (9,10), funkcionalna nesposobnost (11), neadekvatno zbrinuta bol u donjem dijelu leđa (12) i kompromitirana kvaliteta života (13), potrebna je daljnja, šira analiza ove bolesti, koja će obuhvatiti njezine uzroke, a time ne samo liječenje, nego i prevenciju ove bolesti. Zbog navedenog, trebalo bi se standardizirati prikupljanje podataka s metodama poput dijagrama boli uz uzimanje podataka o njezinim mogućim uzrocima, čime bi se omogućile lakše usporedbe između studija što bi posljedično vodilo efikasnijem vođenju liječenja križobolje i njezinoj prevenciji.

Reference

1. Airaksinen O, Brox JI, Cedraschi C, Hildebrandt J, Klaber MJ, Kovacs F, i sur. *European guidelines for the managment of chronic nonspecific low back pain. Eur Spine J. 2006 Mar; 15 Suppl 2: S192-300.*

2. Waddell G. *Volvo award in clinical sciences. A new clinical model for the treatment of low back pain. Spine (Phila Pa 1976). 1987 Sep; 12(7): 632-44.*

3. Vukmir RB. *Low back pain: Review of diagnosis and therapy. Am J Emerg Med. 1991 Jul; 9(4): 328-35.*

4. Stanos S, Houle TT. *Multidisciplinary and interdisciplinary management of chronic pain. Physical Medicine and Rehabilitation Clinics of North America. 2006 May; 17(2): 435–50.*

5. Gamulin S, Marušić M, Kovač Z. *Patofiziologija. 4. izd. Medicinska Naklada: Zagreb; 1998; 890.*

6. Fukui M, Chiba K, Kawakami M, Kikuchi S, Konno S, Miyamoto M, i sur. *Japanese Orthopaedic Association Back Pain Evaluation Questionnaire. Part 3. Validity study and establishment of the measurement scale. J Orthop Sci. 2008 May; 13(3): 173-9.*

7. Eriksen HR, Ihlebaek C, Ursin H. *A scoring system for subjective health complaints (SHC). Scand J Public Health. 1999 Mar; 27(1): 63-72.*

8. Furlanetto LM, Mendlowicz MV, Romildo Bueno J. *The validity oft he beck depression invertory-Short Form as a screening and diagnostic instrument for moderate and severe depression in medical in patients. J Affect Disord. 2005 May; 86(1): 87-91.*

9. Cohen-Mansfield J, Marx MS. *Pain and depression in the nursing home: corroborating results. Journal of Gerontology: Psychological Sciences. 1993 Mar; 48(2): 96–7.*

10. Magni G, Calderon C, Rigatti-Luchini S, Merskey H. *Chronic musculoskeletal pain and depressive symptoms in the general population: an analysis of the 1st national health and nutrition examination survey data. Pain. 1990 Dec; 43(3): 299-307.*

11. Williamson GM, Schulz R. *Pain, activity restriction, and symptoms of depression among community-residing older adults. J Gerontol. 1992 Nov; 47(6): 367-72.*

12. Dietl M, Korczak D. *Over-, under- and misuse of pain treatment in Germany. GMS Health Technol Assess. 2011 Apr 19; 7: 3.*

13. Moss MS, Lawton MP, Glicksman A. *The role of pain in the last year of life in older persons. J Gerontol. 1991 Mar; 46(2): 51-7.*

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Korištenje interneta i prednosti njegove upotrebe u primarnoj zdravstvenoj zaštiti (PZZ)

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Abstract

Using ICT and internet in Primary Health Care improves services and makes stronger relationship with patients: spending less time on administrative duties doctors can have better overview of the patient, and through the database they can easier monitor the development of the patient's condition.

The goal of this study is to research using internet and advantages of it in a Primary Health Care for the patients and health professionals.

The survey was used in the research as a data carrier, with a set of different questions for patients as well as for health professionals.

193 health care professionals and 201 patients were surveyed.

The survey was done in the Health Care Center of Sarajevo Canton in the year of 2012.

Continuing variables that have been normally distributed, are described by arithmetic mean (standard deviation), and those that have not been normally distributed are described by median (interquartile range). Qualitative variables are presented by absolute and relative frequencies. Normal distribution of continuing variables is tested by using Kolmogor-Smirnov test.

Defined level of significance is $\alpha=0,05$. Statistic tests that have been used are Chi-Square Test, Mann-Whitney Rank Sum Test.

Results of this reserach show that the biggest number of the surveyed participants - 80 of them (40,3%) thinks that expertise of the staff is the most important while using internet in Primary Health Care, (29,9%) surveyed participants thinks that " possibility to get information quickly" is the most important. 20,2% thinks that professionalism of the personal is the most important. 75,1%, is using internet once or more time during the day in the last 12 months, while 87, 1% is using E-mail as a way of communication.

18,7% of the surveyed thinks that advantages of using internet is more efficient work of the health workers ,, possibility of getting data quickly and reading lab results".

56, 7% of patients is using the internet to learn about own disease or other diseases.

Results of this research are parallel with the similar research that has been done in the past and implies to the conclusion that using information-communication technology and the Internet in the Primary Health Care is significant and it is in progress: It is proportioned with the development and the level of education of health professionals, as well as patients by itself.

Advantages of using ICT and the Internet are immeasurable in the more efficient work in the Primary Health Care.

Key words: Internet, Primary Health Care, patients, health professionals

Uvod

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.

Korištenje ICT i interneta u primarnoj zdravstvenoj zaštiti (PZZ) doprinosi poboljšanju usluga i boljem odnosu sa pacijentima jer samim skraćivanjem vremena potrebnog za administrativne poslove, ljekari mogu imati bolje uvide u stanje pacijenta, te kroz bazu podataka vidjeti kako se razvija i lakše pratiti razvoj pacijentovog stanja. (1.2.3)

Ciljevi

Cilj ovog rada je ispitati upotrebu interneta i njegove prednosti u primarnoj zdravstvenoj zaštiti od strane pacijenata i zdravstvenih profesionalaca.

U istraživanju je korišten anketni upitnik kao nosac podataka, sa setom različitih pitanja kako za pacijente, tako i za zdravstvene profesionalce.

Ispitanici i metode

Prikupljanje podataka vršeno je metodom ankete i anketnog upitnika. U anketiranju je učestvovalo, tj ispitano ukupno 193 zdravstvena radnika i 201 bolesnika.

Ispitivanje je vršeno u Domu zdravlja Kantona Sarajevo u 2012 godini.

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). Kvalitativne varijable su prikazane pomoću apsolutnih i relativnih frekvencija. Normalna distribucija kontinuiranih varijabli je testirana koristeći Kolmogorov-Smirnov test. Određen je nivo signifikantnosti α=0,05. Od statističkih testova su korišteni Chi-Square Test, Mann-Whitney Rank Sum Test.

Rezultati

Rezultati ovog istraživanja prikazani su u narednim pregledima:

Od ukupnog broja pacijenata *(n=201)*, njih 110 (54,7%) su muškog, a 91 (45,3%) su ženskog spola. Od ukupnog broja zdravstvenih radnika *(n=193)*, njih 100 (51,8%) su muškog spola, a 93 (48,2%) su ženskog spola *(Grafikon 1)*. Nije postojala statistički signifikantna razlika u učestalosti ispitanika muškog i ženskog spola, između dvije posmatrane grupe ispitanika. (χ^2= 0,336; *p*=0,562); (*p*>0,05)

Od ukupnog broja bolesnika *(n=201)*, najveći broj ispitanika, njih 76 (37,8%) su u intervalnom razredu 20-29 godina, između 30-39 godina je njih 67 (33,3%), dok su 33 (16,4%) ispitanika u intervalnom razredu 10-29 godina, te preko 40 godina 25 (12,5%) ispitanika.

Od ukupnog broja zdravstvenih radnika *(n=193)*, najveći broj ispitanika, njih 70 (36,3%) je u intervalnom razredu 20-29 godina, između 30-39 godina je njih 60 (31,1%), dok je 27 (14,0%)
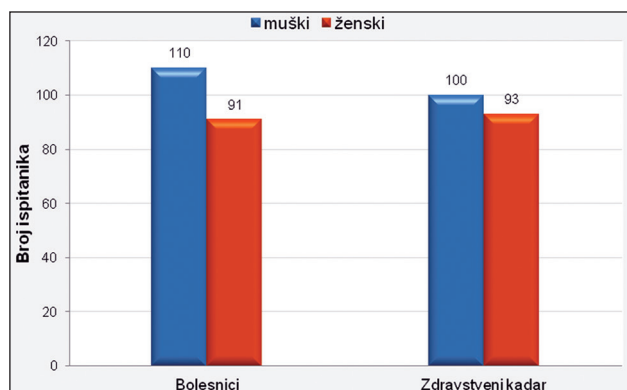
Tabela 1. Distribucija ispitanika prema spolu i vrsti tretmana

Spol	Ispitanici				Ukupno	
	Bolesnici		Zdravstveni kadar			
	n	%	n	%	n	%
muški	110	54,7%	100	51,8%	210	53,3%
ženski	91	45,3%	93	48,2%	184	46,7%
Ukupno	201	100,0%	193	100,0%	394	100,0%

Tabela 2. Distribucija ispitanika prema starosnoj dobi

Starosna dob (godine)	Ispitanici			
	Bolesnici		Zdravstveni kadar	
	n	%	n	%
10-19	33	16,4%	27	14,0%
20-29	76	37,8%	70	36,3%
30-39	67	33,3%	60	31,1%
40-49	18	9,0%	27	14,0%
50-60	5	2,5%	9	4,7%
nepoznato	2	1,0%	0	0,0%
Ukupno	201	100,0%	193	100,0%

ispitanika u intervalnom razredu 10-19 godina, odnosno preko 40 godina 36 ispitanika (18,7%).

Grafikon 1. Distribucija ispitanika prema spolu i vrsti tretmana

Od ukupnog broja bolesnika *(n=201)*, najmlađi ispitanik ima 13,0 godina, a najstariji ima 59,0 godina, 50% ispitanika je bilo mlađe od 28,0 godina, a preostalih 50% je bilo starije od 28,0 godina; Vrijednost prvog kvartila (Q_1) iznosila je 22,0 godine, odnosno 25% ispitanika je bilo mlađe od 22,0 godine, dok je 75% ispitanika bilo starije od 22,0 godine. Vrijednost trećeg kvartila (Q_3) iznosila je 34,0 godine, odnosno 75% bolesnika je bilo mlađe od 34,0 godine, dok je 25% ispitanika bilo starije od 34,0 godine. Interkvartilni raspon je iznosio 12,0 godina.

Od ukupnog broja zdravstvenih radnika *(n=193)*, najmlađi ispitanik ima 16,0 godina, a najstariji ima 56,0 godina, 50% ispitanika je bilo mlađe od 29,0 godina, a preostalih 50% je bilo starije od 29,0 godina. Vrijednost prvog kvartila (Q_1) iznosila je 23,0 godine, odnosno 25% ispitanika je bilo mlađe od 23,0 godine, dok je 75% ispitanika bilo starije od 23,0 godine. Vrijednost trećeg kvartila (Q_3) iznosila je 38,0 godina, odnosno 75% zdravstvenog kadra je bilo mlađe od 38,0 godina, dok je 25% ispitanika bilo starije od 38,0 godina. Interkvartilni raspon je iznosio 15,0 godina.

Nije postojala statistički signifikantna razlika u medijani starosne dobi između dvije grupe ispitanika (*p*>0,05).

Postojala je visoko statistički signifikantna razlika u nivou obrazovanja, između dvije posmatrane grupe ispitanika (χ^2= 33,643; *p*=0,000); (*p*<0,05)

Od ukupnog broja bolesnika *(n=201),* najveći broj ispitanika, njih 141 je naveo „informacije i preporuke" kao osnovne prednosti upotrebe interneta u PZZ, zatim redom, 123 ispitanika su naveli „efikasnost usluga", 118 ispitanika je navelo „bolju komunikaciju između pacijenata i zdravstvenog kadra", 99 ispitanika je navelo „brigu za pacijente".

Tabela 3. Distribucija ispitanika prema nivou obrazovanja

Nivo obrazovanja	Ispitanici				Ukupno	
	Bolesnici		Zdravstveni kadar			
	n	%	n	%	n	%
srednja stručna sprema	119	*59,2%*	90	*46,6%*	209	*53,0%*
viša stručna sprema	39	*19,4%*	28	*14,5%*	67	*17,0%*
visoka stručna sprema	23	*11,4%*	42	*21,8%*	65	*16,5%*
magisterij/doktorat	3	*1,5%*	26	*13,5%*	29	*7,4%*
ostalo	17	*8,5%*	7	*3,6%*	24	*6,1%*
Ukupno	201	*100,0%*	193	*100,0%*	394	*100,0%*

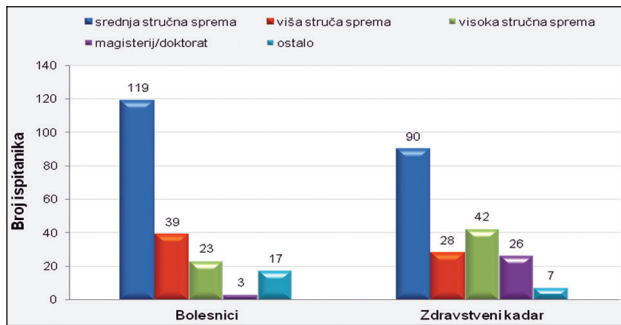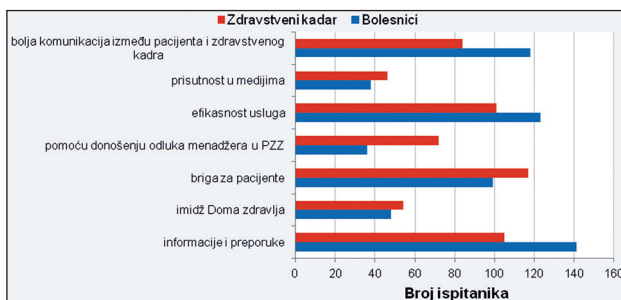*Tabela 4. Distribucija odgovora na pitanje „Koje su osnovne prednosti upotrebe interneta u PZZ"?*

	Bolesnici	Zdravstveni kadar
informacije i preporuke	141	105
imidž Doma zdravlja	48	54
briga za pacijente	99	117
pomoću donošenju odluka menadžera u PZZ	36	72
efikasnost usluga	123	101
prisutnost u medijima	38	46
bolja komunikacija između pacijenta i zdravstvenog kadra	118	84

Grafikon 2. *Distribucija ispitanika prema nivou obrazovanja*

Grafikon 3. *Distribucija odgovora na pitanje "Koje su osnovne prednosti upotrebe interneta u PZZ"*

Od ukupnog broja zdravstvenih radnika *(n=193),* najveći broj ispitanika, njih 117 je naveo „brigu za pacijente", zatim 105 ispitanika „informacije i preporuke", 101 ispitanik je naveo „efikasnost usluga", te 84 ispitanika su naveli „bolju komunikaciju između pacijenata i zdravstvenog kadra".

Od ukupnog broja bolesnika *(n=201),* najveći broj ispitanika, njih 80 (40,3%) smatra da je stručnost osoblja najbitnija da se osigura pri korištenju interneta u PZZ, dok 60 (29,9%) ispitanika navodi „mogućnost brzog dobivanja informacija". Od ukupnog broja zdravstvenih radnika *(n=193),* 60 ispitanika (31,1%) navodi „mogućnost brzog dobivanja informacija", dok 39 ispitanika (20,2%) navodi „stručnost osoblja. Postoji visoko statistički signifikantna razlika u odgovorima, između dvije posmatrane grupe ispitanika (χ^2= 37,051; *p*=0,000); (*p*<0,05).

Tabela 5. *Distribucija odgovora na pitanje „Šta vam je najbitnije da se osigura pri korištenju interneta u PZZ"?*

	Ispitanici				Ukupno	
	Bolesnici		Zdravstveni kadar			
	n	%	n	%	n	%
stručnost osoblja	81	40,3%	39	20,2%	120	30,5%
mogućnost brzog dobivanja informacija	60	29,9%	60	31,1%	120	30,5%
kratko vrijeme čekanja u Domu zdravlja	32	15,9%	26	13,5%	58	14,7%
brzo djelovanje kod svih procedura	18	9,0%	31	16,1%	49	12,4%
stalna briga o pacijentu	8	4,0%	16	8,3%	24	6,1%
sigurnost/povjerljivost	2	1,0%	19	9,8%	21	5,3%
ne zna/ne želi reći	0	0,0%	2	1,0%	2	0,5%
Ukupno	201	100,0%	193	100,0%	394	100,0%

Tabela 6. *Distribucija odgovora na pitanje „Koliko često koristite internet u posljednjih 12 mjeseci"?*

	Ispitanici				Ukupno	
	Bolesnici		Zdravstveni kadar			
	n	%	n	%	n	%
jednom u toku dana ili više	151	75,1%	153	79,3%	304	77,2%
jednom svake sedmice ili više	15	7,5%	27	14,0%	42	10,7%
jednom mjesečno ili više	6	3,0%	7	3,6%	13	3,3%
jednom svakih šest mjeseci	1	0,5%	1	0,5%	2	0,5%
jednom godišnje	2	1,0%	0	0,0%	2	0,5%
ne koristi se	26	12,9%	5	2,6%	31	7,9%
Ukupno	201	100,0%	193	100,0%	394	100,0%

Grafikon 4. Distribucija odgovora na pitanje „Šta vam je najbitnije da se osigura pri korišće-nju interneta u PZZ“?

Grafikon 5. Distribucija odgovora na pitanje "Koliko često koristite internet u posljednjih 12 mjeseci“?

Od ukupnog broja bolesnika *(n=201),* najveći broj ispitanika, njih 151 (75,1%), koristi internet jednom u toku dana ili više u posljednjih 12 mjeseci, dok se 26 ispitanika (12,9%) nije koristilo internetom u navedenom periodu. Od ukupnog broja zdravstvenih radnika *(n=193),* većina ispitanika, njih 153 (79,3%) se koristi internetom jednom u toku dana ili više u posljednjih 12 mjeseci, dok se samo 5 ispitanika (2,6%) nije koristilo internetom u navedenom periodu. Postoji statistički signifi-kantna razlika u učestalosti korištenja interneta u posljednjih 12 mjeseci, između dvije posmatrane grupe ispitanika (χ^2= 19,590; *p*=0,001); (*p*<0,05).
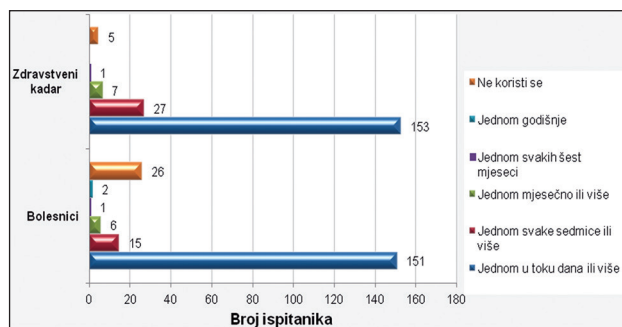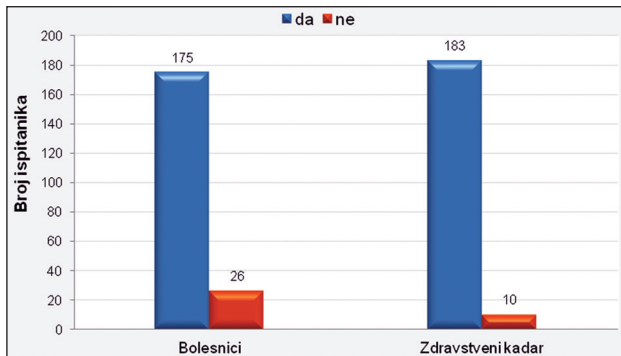
Od ukupnog broja bolesnika *(n=201),* najveći broj ispitanika, njih 117 (58,25) smatra da primje-na interneta u PZZ pomaže u edukaciji bolesnika, dok se 11 ispitanika (5,5%) ne slaže sa ovom tvrd-njom.
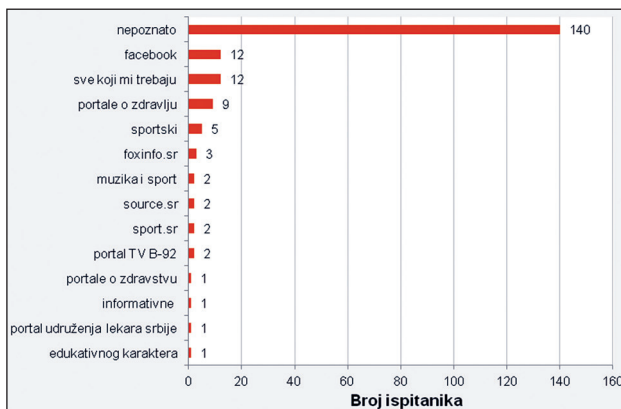
Od ukupnog broja zdravstvenih radnika *(n=193), većina* ispitanika, njih 131 (67,9%) sma-tra da primjena interneta u PZZ pomaže u eduka-ciji zdravstvenog kadra, dok su samo četiri ispi-tanika (2,1%) dali negativan odgovor. Ne postoji statistički signifikantna razlika u odgovorima ispi-tanika, između dvije posmatrane grupe (χ^2=5,614; *p*=0,060); (*p*>0,05).

Od ukupnog broja bolesnika *(n=201),* većina ispitanika, njih 175 (87,1%) koriste e-mail kao način komunikacije, dok od ukupnog broja zdrav-stvenih radnika *(n=193),* njih 183 (94,8%) je dalo pozitivan odgovor.

Postoji statistički signifikantna razlika u učesta-losti korištenja e-mail-a, između dvije posmatrane grupe ispitanika. (χ^2= 7,130; *p*=0,008); (*p*<0,05)

Tabela 7. Distribucija odgovora na pitanje „Da li primjena interneta u PZZ pomaže u edukaciji bole-snika/zdravstvenog kadra“?

| | Ispitanici | | | | Ukupno | |
| | Bolesnici | | Zdravstveni kadar | | | |
	n	%	n	%	n	%
da	117	58,2%	131	67,9%	248	62,9%
ne	11	5,5%	4	2,1%	15	3,8%
možda	73	36,3%	58	30,1%	131	33,2%
Ukupno	201	100,0%	193	100,0%	394	100,0%

Tabela 8. Distribucija odgovora na pitanje „Da li koristite E-mail “?

| | Ispitanici | | | | Ukupno | |
| | Bolesnici | | Zdravstveni kadar | | | |
	n	%	n	%	n	%
da	175	87,1%	183	94,8%	358	90,9%
ne	26	12,9%	10	5,2%	36	9,1%
Ukupno	201	100,0%	193	100,0%	394	100,0%

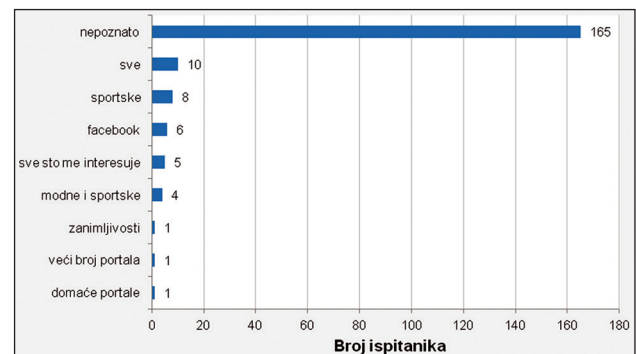*Grafikon 6. Distribucija odgovora na pitanje „Da li koristite E-mail "?*

Grafikon 7. Distribucija odgovora zdravstvenih radnika na pitanje „Koje internet portale najče-šće posjećujete"?

Od ukupnog broja zdravstvenih radnika *(n=193),* najveći broj ispitanika, njih 36 (18,7%) smatra da je prednost interneta u efikasnijem radu zdravstvenog kadra „mogućnost brzog dobijanja informacija i čitanje laboratorijskih nalaza", te po 32 ispitanika (16,6%) je navelo „edukaciju zdravstvenog osoblja, istraživačko-naučni rad, pisanje

stručnih radova", odnosno „e-mail komunikaciju pacijent-ljekar i razmjena informacija između kolega i ustanova".

Grafikon 8. Distribucija odgovora bolesnika na pitanje „Koje internet portale najčešće posjeću-jete"?

Tabela 10. Distribucija odgovora bolesnika na pitanje „Da li koristite internet kako biste se informisali o svojoj bolesti ili o drugim bolestima"?

	Broj ispitanika	**%**
da	114	56,7%
ne	22	10,9%
ponekad	65	32,3%
Ukupno	201	100,0%

Od ukupnog broja bolesnika *(n=201),* većina ispitanika, njih 114 (56,7%) koristi internet kako bi se informisali o svojoj bolesti ili o drugim bolestima.

Tabela 9. Distribucija odgovora zdravstvenih radnika na pitanje „Možete li navesti bar nekoliko radnji u kojima internet dolazi do izražaja i pokazuje svoju efikasnost u radu zdravstvenog kadra"?

	Broj ispitanika	**%**
sigurnost i povjerljivost između pacijenta i ljekara	3	1,6%
briga o pacijentu	8	4,1%
ne znam	14	7,3%
ostalo	24	12,4%
e-mail komunikacija pacijent-ljekar i razmjena informacija između kolega i ustanova	32	16,6%
edukacija zdravstvenog osoblja, istraživačko -naučni rad, pisanje stručnih radova	32	16,6%
mogućnost brzog dobijanja informacija i čitanje laboratorijskih nalaza	36	18,7%
nepoznato	44	22,8%
Ukupno	193	100,0%

Tabela 11. Distribucija odgovora bolesnika na pitanje "Da li upotreba internet u PZZ razvija svijest o prevenciji i ranoj dijagnostici određene bolesti"?

	Broj ispitanika	**%**
da	77	38,3%
ne	27	13,4%
možda	97	48,3%
Ukupno	201	100,0%

Od ukupnog broja bolesnika *(n=201),* blizu polovine ispitanika, njih 97 (48,3%) smatra da upotreba interneta u primarnoj zdravstvenoj zaštiti „možda" razvija svijest o prevenciji i ranoj dijagnostici određene bolest, dok je 77 ispitanika (38,8%) dalo pozitivan odgovor.

Zaključci

Rezultati ovog istraživanja pokazuju da nije postojala statistički signifikantna razlika u učestalosti ispitanika muškog i ženskog spola, između dvije posmatrane grupe ispitanika.

(χ^2= 0,336; *p*=0,562); (*p*>0,05). Postojala je visoko statistički signifikantna razlika u nivou obrazovanja, između dvije posmatrane grupe ispitanika (χ^2= 33,643; *p*=0,000); (*p*<0,05). Od ukupnog broja bolesnika *(n=201),* najveći broj ispitanika, njih 80 (40,3%) smatra da je stručnost osoblja najbitnija da se osigura pri korištenju interneta u PZZ, dok 60 (29,9%) ispitanika navodi „mogućnost brzog dobivanja informacija". Od ukupnog broja zdravstvenih radnika *(n=193),* 60 ispitanika (31,1%) navodi „mogućnost brzog dobivanja informacija", dok 39 ispitanika (20,2%) navodi „stručnost osoblja. Od ukupnog broja bolesnika *(n=201),* najveći broj ispitanika, njih 151 (75,1%), koristi internet jednom u toku dana ili više u posljednjih 12 mjeseci, dok se 26 ispitanika (12,9%) nije koristilo internetom u navedenom periodu. Od ukupnog broja zdravstvenih radnika *(n=193),* većina ispitanika, njih 153 (79,3%) se koristi internetom jednom u toku dana ili više u posljednjih 12 mjeseci, dok se samo 5 ispitanika (2,6%) nije koristilo internetom u navedenom periodu. Postoji statistički signifikantna razlika u učestalosti korištenja interneta u posljednjih 12 mjeseci, između dvije posmatrane grupe ispitanika (χ^2= 19,590; *p*=0,001); (*p*<0,05).

Od ukupnog broja bolesnika *(n=201),* većina ispitanika, njih 175 (87,1%) koriste e-mail kao način komunikacije, dok od ukupnog broja zdravstvenih radnika *(n=193),* njih 183 (94,8%) je dalo pozitivan odgovor. Postoji statistički signifikantna razlika u učestalosti korištenja e-mail-a, između dvije posmatrane grupe ispitanika. (χ^2= 7,130; *p*=0,008); (*p*<0,05)najveći broj ispitanika, njih 36 (18,7%) smatra da je prednost interneta u efikasnijem radu zdravstvenog kadra „mogućnost brzog dobijanja informacija i čitanje laboratorijskih nalaza", te po 32 ispitanika (16,6%) je navelo „edukaciju zdravstvenog osoblja, istraživačko-naučni rad, pisanje stručnih radova", odnosno „e-mail komunikaciju pacijent-ljekar i razmjena informacija između kolega i ustanova", a većina ispitanika, njih 114 (56,7%) koristi internet kako bi se informisali o svojoj bolesti ili o drugim bolestima.

Rezultati ovog istraživanja se podudaraju sa slicnim do sada sprovedenim i upucuju na zakljucak da je upotreba informaciono komunikacionih tehnologija i Interneta u primarnoj zdravstvenoj zaštiti u porastu i srazmjeri sa njihovim razvojem i stepenom obrazovanja, kako zdravstevih profesionalaca, tako i samih pacijenata.

Gotovo su nemjerljive prednosti upotrebe IKT i interneta u efikasnijem radu u primarnoj zdravstvenoj zaštiti.

Reference

1. *Sukic C, Kudumovic M. Telemedicine and development of multimedia database management system, HealthMed. Dec 2009; 3(4), 392-398.*

2. *Kajevic A. IKT I upotreba interneta u primarnoj zdravstvenoj zaštiti, diplomski rad, Sarajevo, 2012*

3. *Kajevic A. IKT I upotreba interneta u primarnoj zdravstvenoj zaštiti, diplomski rad, Sarajevo, 2012.*

4. *Bajgoric N. Informacijska Tehnologija, Mostar, Univerzitetska knjiga, 1999; 3-4.*

5. *Sukic C, Kudumovic M. Informaticke Tehnologije, Sarajevo, Sejtarija doo, 2009; 150-152.*

6. *Wojcik J. Many employees still reluctant to use internet for health info, Business Insurance. 4/21/2003; Vol. 37 Issue 16: p1. 2p*

7. *Brodie M, Flournoy RE, Altman DE, et. al. Health information, the Internet, and the digital divide. Health Affairs 2000; 19: 255–65.*

8. *Diaz JA, Griffith RA, Ng JJ, et. al. Patients' use of the Internet for medical information. Journal of General Internal Medicine 2002; 17: 180–5.*

9. *Murray E, Lo B, Pollack L, et. al. The impact of health information on the Internet on health care and the physician–patient relationship. Journal of Medical Internet Research 2003; 5: e17.*

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Abstract

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Key words: Camera ready paper, Journal.

Introduction

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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)
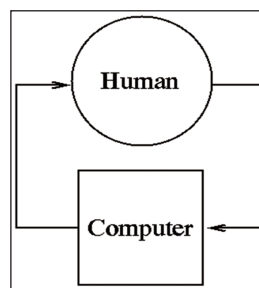

Figure 1. Text here

Conclusion

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

Acknowledgements (If any)

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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.*

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