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آموزش مهارت های کاربردی در تدوین و چاپ مقاله
Gender Differences in Mental Health among Adult Population in Vojvodina, Serbia

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Introduction

Mental health represents one of the basic components within entire health of an individual which is very difficult to describe (1) and its importance is incorporated in the definition of health, as follows: “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. Mental health is an integral part of this definition (2).

The World Health Organization (WHO) has defined mental health as a state of well-being in which an individual realizes his or her own abilities, can cope with the common stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (2). Mental health and its disorders are determined by multiple and interacting social, psychological and biological factors which determine the prevalence, onset and course of mental and behavioral disorders. These include social and economic factors, demographic factors such as sex and age, and family environment (3). Some authors consider that females express more psychopathological
phenomena, others consider that those conditions are more present in males, although there are also considerations that both genders suffer equally but have different problems. A very frequently asked question is what is the source of the existing differences? A final answer still does not exist but the most often discussion is concerned with whether the difference is determined by biological or psychological factors. There are also authors who consider that all the differences are determined by social experiences. Within the discussion on social causes there are statements that male and female problems are a result of exposure to significantly different life circumstances and stresses while other consider both genders face the same experiences but with different reactions to them (4).

Some community studies have revealed that the overall prevalence of mental and behavioral disorders does not seem different between men and women, but there are differences concerning the type of mental disorders affecting females, i.e. males (3). These differences vary across age groups. In childhood, most studies report a higher prevalence of conduct disorders such as aggressive and antisocial behaviors among boys. During adolescence, girls have a much higher prevalence of depression and eating disorders and engage more in suicidal ideation and suicide attempts than boys. Boys experience more problems with anger, engage in high-risk behaviors and commit suicide more frequently than girls (5, 6). In adulthood, anxiety and depressive disorders are more common among women, while substance use disorders and antisocial personality disorders are higher in men (5, 7), and these findings have been seen both in developed and developing countries (8, 9). In contrast to depressive and anxiety disorders, severe mental disorders such as schizophrenia and bipolar affective disorders do not show any clear differences of incidence or prevalence. Schizophrenia, however, seems to have an earlier onset and more disabling course among men, while women are more likely to exhibit serious forms of bipolar depression (3, 5).

Many reasons for the higher prevalence of depressive and anxiety disorders among women have been proposed: genetic, biological, psychological and social factors. Additionally, greater exposure of females toward domestic and sexual violence contributes a lot to these differences (3).

There is also the gender difference in perceptions of distress and in patterns of health-care seeking among those suffering from mental health problems (5). There is evidence that women report a higher number of physical and psychological symptoms, they more often seek for help, and more often get prescribed psychotropic medicines than men (3). Women are consistently more likely to use outpatient mental health services, while men usually ask for help at a later stage after the onset of symptoms, or delay until symptoms become severe (5).

Concerning these facts, on the basis of a representative sample, the aim of our study was to analyze gender differences in the level of mental health among adult population in Vojvodina, Serbia.

**Materials and Methods**

Mental health research of the adult population in the Province of Vojvodina, northern part of Serbia, was carried out within the national study “National Health Survey in Serbia” in 2006. It was conducted as a cross-sectional study on the representative population sample in the Republic of Serbia. The Ministry of Health of the Republic of Serbia allowed the use of national study data base, and therefore enabled realization of this study.

Data used in this paper refer to the representative sample of the adult population in Vojvodina aged 20 yr and over (N=3627). A stratified two-stage sample was formed to provide a statistically reliable estimation of the selected indicators. Distribution of respondents by sex and age in the sample match the population distribution estimated for the year 2006 based on the census data (10). A specially created face-to-face questionnaire was used as a research instrument, i.e. the part of questionnaire that corresponds to the standard questionnaire usually used in this type of research (11). The survey was conducted by trained interviewers and their work was supervised by licensed super-
The process of the data collection was standardized and performed in accordance with the methodological guidelines. Before the interview, the interviewers asked the members of the selected households for permission to ask the questions for the study (10).

Mental health was assessed on the basis of a question analysis referring to the presence of stress and emotional problems, as well as the analysis of mental health assessment scales (a scale of emotional problems impact on work ability, a psychological distress scale and a vitality scale) that were formed on the basis of the questionnaire (11). All questions referred to the month prior to the survey.

The scale of emotional problems impact on work ability (Role-Emotional scale), consisted of three questions, each containing two modalities of answers. The score on the scale was positive i.e. greater score means better functioning. A raw score was obtained by calculation of a simple score of marks for three questions and afterwards it was transformed in order to acquire scale from 0-100 where greater score stands for better mental health. The psychological distress scale (Mental Health Index MHI-5) deals with the frequency of positive (serenity, calmness and happiness) and negative (anxiety, depression, despair and sadness) conditions and feelings. It consisted of five questions, each having six modality answers. By adding marks for these questions a raw score was obtained and afterwards transformed, in order to get a scale 0-100, where greater score means better mental health.

The Vitality scale that was used in the estimation of whether examinees more often feel enthusiasm and energy or tiredness and exhaustion, encompasses four questions with six modality answers. By adding marks for four questions the raw score was obtained and afterwards transformed in a scale 0-100, where greater score stands for better mental health, i.e. better vitality.

Statistical data processing
Standard methods of descriptive and inferential statistics were used. Numerical data was presented through mean values, while attributive characteristics were presented through the distribution of frequencies and percentages. For the purpose of determination of difference significance, the Pearson’s $\chi^2$ test, Student’s t test and one-way variance analysis (ANOVA) were used.

Results
The research has encompassed 3627 inhabitants of Vojvodina aged 20 yr and over, with an average age 49.9 years (51.2 years for females and 48.4 years for males). Women were a bit more present in the sample (53.5%). It was noticed that women had a lower educational status compared to men and also they were more often professionally inactive (Table 1). Differences in educational and professional status were statistically significant ($P<0.001$).

Within the estimation of mental health, the exposure to stress, presence of emotional problems and their impact on work ability were analyzed, as well as frequency of positive and negative conditions and feelings during the month prior to the survey. Results showed that one in two examinees (48.4%) was exposed to stress while one third of the adult population (32.9%) had emotional problems like sadness, hostility, worry and depression, whereas both stress and emotional problems were more evident in female population in all observed socio-demographic categories (Table 2, 3).

Among men, the oldest were the least exposed to stress, while there were no significant differences regarding education level and employment status. Among women, statistically significant differences were observed between women with a different employment status, so that students and employed women were more exposed to the stressful situations (Table 2).

When it comes to emotional problems, there were no statistically significant differences in relation to the observed socio-demographic characteristics among women, while in men the difference is confirmed among those with the different level of education, in terms that men with the lowest education level more faced with emotional problems (Table 3).
Table 1: Socio-demographic characteristics of examinees

| Variables               | Total n | Male (n=1685) | Female (n=1942) |
|-------------------------|---------|---------------|-----------------|
|                         | % (95%CI)| % (95%CI)     | % (95%CI)       |
| Age (yr)                |         |               |                 |
| 20-44                   | 1440    | 42.7 (40.3-45.1) | 37.1 (35.0-39.3) |
| 45-64                   | 1324    | 36.8 (34.5-39.1) | 36.3 (34.2-38.4) |
| 65+                     | 863     | 20.5 (18.6-22.4) | 26.7 (24.7-28.7) |
| Educational level       |         |               |                 |
| Primary school and lower| 1407    | 30.4 (28.2-32.6) | 46.0 (43.8-48.2) |
| Secondary school        | 1824    | 57.3 (54.9-59.7) | 44.2 (42.0-46.4) |
| Post secondary school   | 396     | 12.2 (10.6-13.8) | 9.8 (8.5-11.1)   |
| Employment status       |         |               |                 |
| Employed                | 1302    | 47.9 (45.5-50.3) | 25.5 (23.6-27.4) |
| Retired                 | 1018    | 27.4 (25.3-29.5) | 28.7 (26.7-30.7) |
| Student                 | 97      | 2.3 (1.6-3.0)   | 3.0 (2.2-3.8)    |
| Unemployed              | 1209    | 22.4 (20.4-24.4) | 42.8 (40.6-45.0) |

Table 2: Stress exposure in the population of Vojvodina

| Variables               | Total n | Male | Female | P     |
|-------------------------|---------|------|--------|-------|
|                         | % (95% CI) | % (95% CI) | % (95% CI) |       |
| Age (yr)                |         |      |        |       |
| 20-44                   | 1438    | 49.9 (47.3-52.5) | 42.6 (39.0-46.2) | 57.3 (53.7-60.9) | <0.001 |
| 45-64                   | 1323    | 49.9 (47.2-52.6) | 45.6 (41.7-49.5) | <0.001 | 53.7 (50.0-57.4) | 0.171 |
| 65+                     | 862     | 43.7 (40.4-47.1) | 31.0 (26.1-35.9) | 52.2 (47.9-56.5) | <0.001 |
| Educational level       |         |      |        |       |
| Primary school and lower| 1406    | 48.7 (46.1-51.3) | 39.8 (35.6-44.0) | 53.9 (50.6-57.2) | <0.001 |
| Secondary school        | 1822    | 47.3 (45.0-49.6) | 41.7 (38.6-44.8) | 53.7 (50.4-57.0) | 0.066 |
| Post secondary school   | 395     | 52.7 (47.8-57.6) | 43.4 (36.6-50.2) | 62.6 (55.7-69.5) | <0.001 |
| Employment status       |         |      |        |       |
| Employed                | 1301    | 49.1 (46.4-51.8) | 43.3 (39.9-46.7) | 58.6 (54.3-62.9) | <0.001 |
| Retired                 | 1017    | 44.6 (41.6-47.6) | 36.3 (31.9-40.7) | 51.5 (47.4-55.7) | <0.001 |
| Student                 | 97      | 56.7 (46.8-66.6) | 44.7 (28.9-60.5) | 64.4 (52.2-76.6) | 0.049 |
| Unemployed              | 1207    | 59.3 (47.5-53.1) | 42.9 (37.9-47.9) | 53.7 (50.3-57.1) | <0.001 |
| Total                   | 3623    | 48.4 (46.8-50.0) | 41.3 (39.1-43.5) | 54.6 (52.2-57.0) | <0.001 |
Table 3: Presence of emotional problems in the population of Vojvodina

| Variables                  | Total | Male | Female | P   |
|----------------------------|-------|------|--------|-----|
|                            | n     | %    | P      | %   | P   |
|                            |       | (95% CI) |       | (95% CI) | P (95% CI) |
| Age                        |       |       |       |     |     |
| 20-44                      | 1437  | 31.1 (28.7-33.5) | 23.1 (20.0-26.2) | 39.1 (35.5-42.7) | <0.001 |
| 45-64                      | 1324  | 34.6 (32.0-37.2) | 27.3 (23.8-30.8) | 41.1 (37.5-44.7) | <0.001 |
| 65+                        | 861   | 33.1 (30.0-36.2) | 21.2 (16.9-25.5) | 41.0 (36.8-45.2) | <0.001 |
| Educational level          |       |       |       |     |     |
| Primary school and lower   | 1405  | 36.8 (34.3-39.3) | 28.1 (24.2-32.0) | 41.8 (38.6-45.0) | <0.001 |
| Secondary school           | 1822  | 30.4 (28.3-32.5) | <0.001 22.6 (20.0-25.2) | 39.3 (36.0-42.6) | <0.001 |
| Post secondary school      | 395   | 30.1 (25.6-34.6) | 22.4 (16.7-28.1) | 38.4 (31.5-45.3) | <0.001 |
| Employment status          |       |       |       |     |     |
| Employed                   | 1302  | 27.6 (25.0-30.0) | 22.2 (19.3-25.1) | 36.6 (32.4-40.8) | <0.001 |
| Retired                    | 1017  | 32.9 (30.0-35.8) | 24.8 (20.9-28.8) | 39.7 (35.6-43.8) | <0.001 |
| Student                    | 97    | 36.1 (26.5-45.7) | <0.001 23.7 (10.2-37.2) | 44.1 (31.4-56.8) | 0.146 |
| Unemployed                 | 1205  | 38.1 (35.4-40.8) | 27.9 (23.4-32.4) | 42.8 (39.4-46.2) | <0.001 |
| Total                      | 3622  | 32.9 (31.4-34.4) | 24.2 (22.3-26.1) | 40.3 (38.0-42.6) | <0.001 |

Table 4: Average score values on the Role-Emotional Scale in the population of Vojvodina

| Variables                  | Total Mean | Male P | Female Mean | Female P |
|----------------------------|------------|--------|-------------|----------|
| Age (yr)                   |            |        |             |          |
| 20-44                      | 88.0 (86.5-89.4) | <0.001 | 91.7 (89.9-93.5) | 0.014 |
| 45-64                      | 83.5 (81.8-85.3) | <0.001 | 88.1 (85.8-90.3) | 0.006 |
| 65+                        | 81.9 (79.4-84.3) | <0.001 | 87.2 (83.8-90.5) | <0.001 |
| Educational level          |            |        |             |          |
| Primary school and lower   | 80.4 (78.5-82.3) | <0.001 | 86.1 (83.8-88.9) | 0.003 |
| Secondary school           | 88.1 (86.7-89.4) | <0.001 | 91.2 (89.6-92.8) | <0.001 |
| Post secondary school      | 86.3 (83.3-89.2) | <0.001 | 89.2 (85.4-93.0) | 0.008 |
| Employment status          |            |        |             |          |
| Employed                   | 90.0 (88.5-91.3) | <0.001 | 92.5 (90.9-94.1) | <0.001 |
| Retired                    | 82.3 (80.1-84.5) | <0.001 | 85.8 (82.8-88.7) | 0.005 |
| Student                    | 83.9 (77.6-90.1) | <0.001 | 94.7 (89.3-100.0) | 0.008 |
| Unemployed                 | 81.9 (80.0-83.8) | <0.001 | 87.0 (83.9-90.2) | 0.005 |
| Total                      | 84.9 (83.8-85.9) | <0.001 | 89.4 (88.1-90.7) | <0.001 |

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Additionally, females, in all observed socio-demographic categories, had a lower average score value on the scale of emotional problems impact on work ability which indicates that emotional problems influenced their professional functioning to a greater extent (Table 4). An average score value on the psychological distress scale was 64.1 and it was significantly lower in females compared to males in all analyzed socio-demographic categories, except among the most educated men and women (Table 5).

An average score value on the vitality scale was 50.9 and it was significantly lower in females than in males, regardless education level and employment status (Table 6). The youngest, those with higher educational level, employed ones and the students of both genders had the best scores on all three scales (Tables 4, 5, 6).

### Table 5: Average score values on the psychological distress scale (Mental Health Index) in the population of Vojvodina

| Variables                    | Total          | Male          | Female         | P     |
|------------------------------|----------------|---------------|----------------|-------|
| Age (yr)                     |                |               |                |       |
| 20-44                        | 67.4 (66.5-68.2)| 69.2 (68.1-70.2)| 65.6 (64.3-66.8)| <0.001|
| 45-64                        | 63.1 (62.2-64.0)| <0.001        | 64.8 (63.5-66.1)| <0.001|
| 65+                          | 60.4 (59.2-61.6)| 64.5          | 57.6          | <0.001|
| Educational level            |                |               |                |       |
| Primary school and lower     | 59.6 (58.7-60.6)| 62.2 (60.8-63.6)| 58.1 (56.9-59.3)| <0.001|
| Secondary school             | 66.9 (66.1-67.6)| <0.001        | 68.5 (67.5-69.4)| <0.001|
| Post secondary school        | 67.5 (65.9-69.0)| 68.8          | 66.0          | 0.075 |
| Employment status            |                |               |                |       |
| Employed                     | 67.5 (66.7-68.3)| 68.7 (67.7-69.7)| 65.6 (64.2-67.0)| <0.001|
| Retired                      | 64.7 (60.6-62.7)| 64.4          | 59.4          | <0.001|
| Student                      | 69.3 (66.2-72.4)| <0.001        | 72.6 (68.3-76.9)| <0.001|
| Unemployed                   | 62.2 (61.2-63.2)| 64.2          | 61.3          | 0.009 |
| Total                        | 64.1 (63.6-64.7)| 66.6          | 62.0          | <0.001|

### Discussion

The most serious social distinction in our culture is the one regarding the gender. It is the fact that either a male or a female person has their own approach towards resources, life choices and opportunities. This also creates their relations to other people, expectations of others and also their own expectations. Gender affiliation influences our internal conditions and directions, feelings about ourselves, impressions of the world and emotional reactions. Considering that our social approaches are basically determined by gender, the reasonable assumption is that gender is also going to have a significant impact on mental health and appearance of emotional problems in males and females (4). In addition, the manifold role of a woman in society as wife, mother, someone who takes care of others, followed by increasing professional engagement also influence enlarged risk of mental disorder manifestation (3).
Table 6: Average score values on the Vitality scale in the population of Vojvodina

|                | Total       | Male         | Female        | P   |
|----------------|-------------|--------------|---------------|-----|
|                | Mean (95% CI) | P Mean (95% CI) | P Mean (95% CI) | P   |
| Age (yr)       |             |              |               |     |
| 20-44          | 55.1 (54.3-55.9) | 56.1 (55.1-57.2) | 54.0 (55.8-55.1) | 0.007 |
| 45-64          | 50.0 (49.1-50.9) | <0.001       | 49.2 (48.0-50.4) | 0.072 |
| 65+            | 45.3 (44.1-46.6) | 49.3 (47.4-51.2) | 42.7 (41.1-44.2) | <0.001 |
| Educational level |            |              |               |     |
| Primary school and lower | 45.6 (44.7-46.5) | 47.5 (46.1-48.8) | 44.5 (43.4-45.7) | 0.001 |
| Secondary school | 53.9 (53.2-54.6) | <0.001       | 53.1 (52.0-54.1) | 0.037 |
| Post secondary school | 55.7 (54.2-57.3) | 57.3 (55.2-59.5) | 54.0 (51.9-56.2) | 0.032 |
| Employment status |            |              |               |     |
| Employed       | 53.7 (52.8-54.5) | 54.4 (53.3-55.4) | 52.5 (51.1-53.9) | 0.035 |
| Retired        | 48.3 (47.2-49.4) | 50.5 (48.9-52.1) | 46.5 (45.1-47.9) | <0.001 |
| Student        | 60.0 (56.9-63.0) | <0.001       | 63.8 (59.4-68.3) | <0.001 |
| Unemployed     | 49.4 (48.4-50.4) | 51.1 (49.4-52.9) | 48.6 (47.4-49.8) | 0.023 |
| Total          | 50.9 (50.3-51.5) | 52.8 (52.0-53.6) | 49.2 (48.5-50.0) | <0.001 |

The results of our research also confirmed that mental health is more endangered in female population. This research revealed that females are more often exposed to stress (especially employed and students), more often are faced with emotional problems and also have greater influence of emotional problems on work ability than males. Similar results are obtained in other parts of Serbia in 2006 as well as in 2000 (10). In addition, the unfavorable score value on the psychological distress scale of the SF-36 questionnaire (Mental Health Index MHI-5) indicates that negative conditions and feelings like anxiety, depression, worry and sadness exist more often in females, which is also confirmed by the survey carried out in Great Britain (12). It is also very important to emphasize that EUROHIS (European Health Interview Survey), a group for screening of mental disorders in population, recommends this scale because it shows the best correlation with the total mental health score of the SF-36 questionnaire (13-15). On the vitality scale (SF-36 Vitality Scale) which is also recommended by the EUROHIS group for the mental health estimation, females again have more unfavorable average score which indicates that they more often feel tiredness and exhaustion than males which is reasonable considering the duties they have. Significant differences in mental health between males and females can also be explained by differences existing in educational and labor status of these two population groups, considering numerous researches demonstrating that persons with a lower educational level and unemployed ones had a low level of mental health (2, 16). The mental health survey among Australian population which applied the same psychological distress scale has demonstrated that inactive unemployed examinees had lower values on this scale (17) and similar re-
Results were also obtained in Great Britain where the most educated persons and the employed had the greatest score values (12).

Our study confirmed that education and employment have a positive impact on the mental health of both genders. It should be emphasized that an average score values on the psychological distress scale were not significantly different only within the most educated group of men and women (in all other observed categories women had less favorable values), indicating that investment in women's education is of great importance for the improvement of their mental health and must be one of the priorities of the program aimed at improving the mental health of the population. On the other hand, when it comes to employment, it has been noted that working women are more exposed to stressful situations compared to unemployed ones, and that they have less favorable score on the scale of psychological distress than employed men, which can be explained by the large number of responsibilities which working women are faced with. The above mentioned findings were confirmed by the WHO, as well (3).

Considering all these facts, programs aimed at improving the population's mental health would have to take this into account and find a way to relieve working women.

In order to understand gender differences more completely it has to be emphasized that different psychopathologies present in males or females, have their source in traditional approaches relating to the way of behavior that is socially acceptable for one, i.e. the other gender. Males are often criticized when expressing feelings like weakness, worry, vulnerability, which are typical of females and linked to depression and anxiety. On the other hand, behavior typical of males, like the expression of anger and antisocial behavior is hardly tolerated for women (4).

Conclusion

When mental health is considered, the overall research has confirmed that females are more vulnerable than males, that they are more often exposed to stressful situations and emotional problems, that women are more often faced with negative conditions and feelings and more often feel the lack of energy and life enthusiasm, which can be one of the significant signs of depression. On the other hand, one should be aware of the fact that males reluctantly admit to have emotional problems and face with negative mood conditions and feelings which doesn't mean these problems are not evident and that they are not going to cause certain psychopathology. Finally, further analysis should be aimed at cause determination of this gender difference, as well as the establishment of appropriate mental health care program and improvement of the mental health, as an important part of the overall health and the quality of life.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, data fabrication and/or falsification, double publication and/or submission, redundancy, etc) have been completely observed by the authors.

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کارگاه‌های آموزشی مرکز اطلاعات علمی

مقاله نویسی علوم انسانی

اصول تنظیم قراردادها

آموزش مهارت های کاربردی در تدوین و چاپ مقاله