



## Work motivation and job satisfaction of health workers in urban and rural areas

Radna motivacija i zadovoljstvo poslom zdravstvenih radnika u urbanim i ruralnim sredinama

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### Abstract

**Background/Aim.** Motivated and job satisfied health professionals represent a basis of success of modern health institutions. The aim of this study was to investigate whether there was a difference in work motivation and job satisfaction between health workers in urban and rural areas in the region of Central Serbia. **Methods.** The study included 396 health professionals from urban setting, and 436 from a rural area, employed in four randomly selected health facilities. An anonymous questionnaire was used for data gathering. Statistical analysis was performed using  $\chi^2$ , Student *t*-test, Spearman's correlation coefficient, and logistic regression analysis. **Results.** Urban health professionals were significantly more motivated and job satisfied than respondents from rural area. In relation to work motivation factors and job satisfaction of health professionals in urban and rural areas, there were no significant differences in working conditions and current equipment, and in terms of job satisfaction there were no significant differences in relation to income either. **Conclusion.** In order to increase the level of work motivation and job satisfaction of health workers in rural areas, apart from better income, they should get more assistance and support from their supervisors, and awards for good job performance; interpersonal relationships, promotion and advancement opportunities, managerial performance and cooperation at work should be improved; employment security should be provided, as well as more independence at work, with professional supervision of health workers.

**Key words:** motivation; job satisfaction; health; physicians; health personnel; serbia; surveys and questionnaires; urban health services; rural health services.

### Apstrakt

**Uvod/Cilj.** Motivisani zdravstveni radnici, zadovoljni poslom, predstavljaju osnov uspeha savremenih zdravstvenih ustanova. Cilj rada bio je da se ispita da li postoji razlika u radnoj motivaciji i zadovoljstvu poslom između zdravstvenih radnika zaposlenih u urbanim i ruralnim sredinama centralne Srbije. **Metode.** Istraživanjem je obuhvaćeno 396 zdravstvenih radnika u urbanoj i 436 u ruralnoj sredini, zaposlenih u četiri zdravstvene ustanove, koje su izabrane metodom slučajnog izbora. U istraživanju je korišćen anonimni upitnik. U statističkoj analizi podataka korišćeni su  $\chi^2$  test, Studentov *t*-test, Spirmanov koeficijent korelacije i logistička regresiona analiza. **Rezultati.** Zdravstveni radnici u urbanoj sredini bili su značajno motivisaniji i zadovoljniji poslom, nego u ruralnoj. U odnosu na faktore radne motivacije i zadovoljstvo poslom zdravstvenih radnika u urbanoj i ruralnoj sredini nije bilo značajne razlike u uslovima na radu i savremenosti opreme za rad, u vezi sa zadovoljstvom poslom ni u odnosu na visinu novčanog iznosa mesečne zarade. **Zaključak.** U cilju povećanja nivoa radne motivacije i zadovoljstva poslom zdravstvenih radnika zaposlenih u ruralnim sredinama, pored novčane zarade, potrebno je obezbediti bolju pomoć i podršku u radu od strane rukovodilaca, dodeljivati nagrade za dobro obavljen posao, unaprediti međuljudske odnose, omogućiti napredovanje i usavršavanje, poboljšati performanse rukovodilaca, obezbediti veću kooperativnost u radu, osigurati zaposlenje, omogućiti veći stepen samostalnosti u radu i sprovođenje stručnog nadzora nad radom zdravstvenih radnika.

**Ključne reči:** motivacija; posao, zadovoljstvo; zdravlje; lekari; zdravstveno osoblje; srbija; ankete i upitnici; zdravstvene službe, gradske; zdravstvene službe, seoske.

## Introduction

Health workers are the primary developmental resource of health institutions, therefore understanding their motivation and job satisfaction represents a basis of success, actual effectiveness, efficacy and quality of work of modern health institutions<sup>1-3</sup>.

Job satisfaction is defined as individuals' cognitive (assumptions and beliefs about work), affective (emotions about work) and evaluative (job assessment) reactions towards their job<sup>4</sup>. There are several key determinants of the organization and performed work related to job satisfaction (perceived quality control, system of rewarding, level of work and social stimulation, power decentralization, pleasant working conditions)<sup>4</sup>. Apart from these, there are also personal factors that affect job satisfaction (personal characteristics, employee status, personal interests, years of experience and general satisfaction with life)<sup>4</sup>. Although there are various subjective factors and individual expectations in different professions which influence job satisfaction, factors affecting job satisfaction also interact and cannot be generalized<sup>5,6</sup>.

Job satisfaction of health professionals is an element of health care quality, which includes job expectations and attitudes to health care services, having an impact on the productivity, quality of the realized health service, better results of health institution functioning, as well as costs of health care<sup>1,5,6</sup>. Researches have shown that gender, age, educational level, years of experience, training opportunities, interpersonal relationships, support by supervisors, organization of work, working conditions, income, working hours, promotion expectations and other factors are important for the feeling of job satisfaction of health workers<sup>7-14</sup>. Place of work can also be a significant factor that affects job satisfaction of health professionals<sup>15</sup>. Studies show that working in an urban area is not a necessary prerequisite for higher level of job satisfaction<sup>15,16</sup>.

Work motivation, as one of the factors of efficiency and effectiveness, influences the feeling of job satisfaction<sup>2,3</sup>. Motivation, being the widest notion, represents the process of initiating human activities directed towards achieving particular goals<sup>17</sup>. By an efficient management of human resources managers of health care institutions should motivate their employees adequately aiming at achieving effectiveness as well as quality of health care which is the ultimate goal of these institutions<sup>17,18</sup>.

So far, no investigations have been conducted on work motivation and job satisfaction of health workers in urban and rural areas in the Republic of Serbia.

The aim of this study was to investigate whether there was a difference in work motivation and job satisfaction between health workers in urban and rural areas in the region of Central Serbia.

## Methods

A cross-sectional study was conducted in the period from December 2010 to March 2011 among health professionals in two urban health facilities (Belgrade, with

approximately 1.8 million inhabitants) and in two rural health facilities (environment of the town Valjevo, with approximately 86,000 inhabitants), which were randomly selected. The study comprised 71.5% of all employees, namely 832 health workers (135 physicians and 261 nurses from urban setting and 91 physicians and 345 nurses from rural area). Data gathering was performed *via an* anonymous questionnaire, designed by the author (M.G.). The questionnaire was self completed by the respondents. Questionnaires were distributed and collected by the researcher. The survey was voluntary and anonymous. To ensure confidentiality and anonymity, questionnaire envelopes were personally handed over to respondents, and upon completion of questionnaires the envelopes were returned to the researcher without any identification. The questionnaire consisted of three parts. The first part examined demographic characteristics of health professionals, the second work motivation factors, and the third part assessed job satisfaction.

To evaluate the significance of particular work motivation factors, 15 factors were defined. Work motivation factors were measured using a five-level Likert scale ranging from 1 = it does not motivate me at all, 2 = it motivates me a little, 3 = I am not sure, 4 = it motivates me a lot, to 5 = it motivates me the most.

In order to evaluate the level of satisfaction regarding certain work motivation factors, the questionnaire included 15 statements/attitudes. The level of satisfaction (job satisfaction) by fulfillment of particular work motivation factors was also assessed by the application of five-level Likert scale ranging from 1 = I strongly disagree, 2 = I partially disagree, 3 = I am not sure, 4 = I partially agree, to 5 = I strongly agree.

Work motivation of urban and rural health workers was assessed as follows: respondents who rated all 15 work motivation factors with 4 = it motivates me a lot, or 5 = it motivates me the most were considered motivated, while those who rated all 15 work motivation factors with 1 = it does not motivate me at all or 2 = it motivates me a little were considered to be unmotivated. In this way, a new, dichotomous variable was created referred to as "motivational category".

Statistical analysis was performed using  $\chi^2$ , Student *t*-test, Spearman's correlation coefficient test, and logistic regression analysis.

Logistic regression analysis (stepwise data entry) was used to examine the influence of demographic characteristics such as gender, age, profession, years of experience and place of employment – urban or rural area, on the motivation of all respondents, respondents employed in urban area and respondents employed in rural area. The outcome (a dependent variable) in the logistic regression models was the motivational category. The respondents who rated all 15 work motivation factors with 3 = I am not sure, were not included into logistic regression analysis.

The Statistical Package for the Social Sciences (SPSS) (version 17) was used to analyze statistical data of this research.

## Results

In regard to urban health workers, among health workers in rural area there were significantly more males

(17.2% vs 7.3%), under the age of 40 years (41.0% vs 28.8%), and younger on the average ( $43.2 \pm 9.5$  years vs  $45.2 \pm 9.7$  years).

Urban health professionals were significantly more motivated than rural health workers by the following work motivation factors: goals of my institution (health promotion, disease prevention, early diagnosis and treatment of patients), professional recognition, good interpersonal relationships, promotion and advancement, personal qualities of immediate supervisors, income, cooperative working environ-

ment, training opportunities, job security, support by supervisors, autonomy in the workplace, rewards for exceptional work (verbal or written awards, days off, financial bonuses and so on) and professional supervision (Table 1).

In regard to rural health professionals, urban health workers were significantly more satisfied with the management support, recognition they received from their managers, good interpersonal relationships, support from supervisors to get a promotion or a better job, good personal qualities of their immediate supervisors, cooperative working environ-

Table 1

**Urban/rural distribution of health workers in the region of Central Serbia (n = 832) in terms of work motivation factors**

| Work motivation factors                     | I am motivated by | Urban area |      | Rural area |      | p       |
|---|-------------------|------------|------|------------|------|---------|
|   |                   | n          | %    | n          | %    |         |
| Goals of my institution                     | No                | 55         | 13.9 | 91         | 20.9 | < 0.001 |
|   | I am not sure     | 58         | 14.6 | 93         | 21.3 |         |
|   | Yes               | 283        | 71.5 | 252        | 57.8 |         |
| Professional recognition                    | No                | 88         | 22.2 | 142        | 32.6 | < 0.001 |
|   | I am not sure     | 44         | 11.1 | 68         | 15.6 |         |
|   | Yes               | 264        | 66.7 | 226        | 51.8 |         |
| Good interpersonal relationships            | No                | 47         | 11.9 | 103        | 23.6 | < 0.001 |
|   | I am not sure     | 47         | 11.9 | 52         | 11.9 |         |
|   | Yes               | 302        | 76.2 | 281        | 64.5 |         |
| Promotion and advancement                   | No                | 100        | 25.2 | 144        | 33.0 | 0.005   |
|   | I am not sure     | 80         | 20.2 | 103        | 23.6 |         |
|   | Yes               | 216        | 54.6 | 189        | 43.4 |         |
| Personal qualities of immediate supervisors | No                | 55         | 13.9 | 91         | 20.9 | 0.019   |
|   | I am not sure     | 67         | 16.9 | 78         | 17.9 |         |
|   | Yes               | 274        | 69.2 | 267        | 61.2 |         |
| Income                                      | No                | 159        | 40.2 | 225        | 51.6 | < 0.001 |
|   | I am not sure     | 38         | 9.6  | 52         | 11.9 |         |
|   | Yes               | 199        | 50.2 | 159        | 36.5 |         |
| Working conditions                          | No                | 101        | 25.5 | 132        | 30.3 | 0.204   |
|   | I am not sure     | 70         | 17.7 | 82         | 18.8 |         |
|   | Yes               | 225        | 56.8 | 222        | 50.9 |         |
| Cooperative working environment             | No                | 58         | 14.6 | 93         | 21.4 | 0.002   |
|   | I am not sure     | 74         | 18.7 | 103        | 23.6 |         |
|   | Yes               | 264        | 66.7 | 240        | 55.0 |         |
| Training opportunities                      | No                | 77         | 19.4 | 135        | 31.0 | < 0.001 |
|   | I am not sure     | 68         | 17.2 | 89         | 20.4 |         |
|   | Yes               | 251        | 63.4 | 212        | 48.6 |         |
| Job security                                | No                | 35         | 8.8  | 70         | 16.0 | 0.002   |
|   | I am not sure     | 57         | 14.4 | 74         | 17.0 |         |
|   | Yes               | 304        | 76.8 | 292        | 67.0 |         |
| Support by supervisors                      | No                | 49         | 12.4 | 106        | 24.3 | < 0.001 |
|   | I am not sure     | 59         | 14.9 | 68         | 15.6 |         |
|   | Yes               | 288        | 72.7 | 262        | 60.1 |         |
| Autonomy in the workplace                   | No                | 45         | 11.4 | 77         | 17.7 | 0.027   |
|   | I am not sure     | 63         | 15.9 | 73         | 16.7 |         |
|   | Yes               | 288        | 72.7 | 286        | 65.6 |         |
| Current equipment                           | No                | 77         | 19.4 | 95         | 21.8 | 0.553   |
|   | I am not sure     | 64         | 16.2 | 76         | 17.4 |         |
|   | Yes               | 255        | 64.4 | 265        | 60.8 |         |
| Rewards for exceptional work                | No                | 85         | 21.5 | 176        | 40.4 | < 0.001 |
|   | I am not sure     | 55         | 13.9 | 63         | 14.4 |         |
|   | Yes               | 256        | 64.6 | 197        | 45.2 |         |
| Professional supervision                    | No                | 68         | 17.2 | 112        | 25.7 | < 0.001 |
|   | I am not sure     | 87         | 22.0 | 121        | 27.7 |         |
|   | Yes               | 241        | 60.9 | 203        | 46.6 |         |

ment, opportunities for continuous improvement provided by their institution, job security, support from immediate supervisors, independence in routine tasks, rewards for exceptional work and professional supervision (Table 2).

Urban health professionals were significantly more motivated than job satisfied concerning all work motivation factors, except for promotion and advancement, personal qualities of their immediate supervisors, autonomy in the workplace and professional supervision (Table 3). Urban health workers were significantly less motivated by work motivation factors – professional supervision in relation to the level of its fulfillment by

the institutions. According to Spearman's correlation coefficient test, the level of work motivation of urban health professionals was higher if the level of fulfillment (job satisfaction) provided by their institutions was higher. Rural health professionals were significantly more motivated than job satisfied concerning all work motivation factors, except for professional recognition, personal qualities of their immediate supervisors and autonomy in the workplace (Table 4). According to Spearman's correlation coefficient test, the level of work motivation of rural health professionals was higher if the level of fulfillment (job satisfaction) provided by their institutions was higher.

**Table 2**  
**Urban/rural distribution of health workers in the region of Central Serbia in terms of job satisfaction**

| Statements related to the level of job satisfaction                 | I agree       | Urban area |      | Rural area |      | <i>p</i> |
|---|---------------|------------|------|------------|------|----------|
|   |               | n          | %    | n          | %    |          |
| The manager supports me to reach my professional goals              | No            | 87         | 22.0 | 120        | 27.5 | 0.013    |
|   | I am not sure | 68         | 17.2 | 95         | 21.8 |          |
|   | Yes           | 241        | 60.9 | 221        | 50.7 |          |
| The manager gives me credit when it is necessary/appropriate        | No            | 92         | 23.2 | 129        | 29.6 | 0.001    |
|   | I am not sure | 74         | 18.7 | 110        | 25.2 |          |
|   | Yes           | 230        | 58.1 | 197        | 45.2 |          |
| Interpersonal relationships are good in my institution              | No            | 75         | 19.0 | 143        | 32.8 | < 0.001  |
|   | I am not sure | 96         | 24.2 | 116        | 26.6 |          |
|   | Yes           | 225        | 56.8 | 177        | 40.6 |          |
| The manager supports my personal promotion                          | No            | 105        | 26.5 | 163        | 37.4 | < 0.001  |
|   | I am not sure | 100        | 25.3 | 117        | 26.8 |          |
|   | Yes           | 191        | 48.2 | 156        | 35.8 |          |
| My immediate supervisor has good personal qualities                 | No            | 46         | 11.6 | 110        | 25.2 | < 0.001  |
|   | I am not sure | 74         | 18.7 | 82         | 18.8 |          |
|   | Yes           | 276        | 69.7 | 244        | 56.0 |          |
| I am satisfied with my income                                       | No            | 291        | 73.5 | 329        | 75.5 | 0.307    |
|   | I am not sure | 43         | 10.9 | 54         | 12.4 |          |
|   | Yes           | 62         | 15.6 | 53         | 12.1 |          |
| My institution provides good working conditions                     | No            | 125        | 31.5 | 159        | 34.1 | 0.110    |
|   | I am not sure | 93         | 23.5 | 112        | 24.6 |          |
|   | Yes           | 178        | 45.0 | 165        | 41.3 |          |
| There is a cooperative working environment in my institution        | No            | 78         | 19.7 | 137        | 31.4 | < 0.001  |
|   | I am not sure | 125        | 31.6 | 132        | 30.3 |          |
|   | Yes           | 193        | 48.7 | 167        | 38.3 |          |
| My institution provides me opportunities for continuous improvement | No            | 99         | 25.0 | 165        | 37.8 | < 0.001  |
|   | I am not sure | 104        | 26.3 | 108        | 24.8 |          |
|   | Yes           | 193        | 48.7 | 163        | 37.4 |          |
| My institution guarantees job security to employees                 | No            | 70         | 17.7 | 123        | 28.2 | 0.002    |
|   | I am not sure | 117        | 29.5 | 113        | 25.9 |          |
|   | Yes           | 209        | 52.8 | 200        | 45.9 |          |
| The manager provides me constant support at work                    | No            | 68         | 17.2 | 127        | 29.1 | < 0.001  |
|   | I am not sure | 82         | 20.7 | 105        | 24.1 |          |
|   | Yes           | 246        | 62.1 | 204        | 46.8 |          |
| The manager allows me independence in routine tasks                 | No            | 43         | 10.9 | 83         | 19.1 | < 0.001  |
|   | I am not sure | 57         | 14.4 | 86         | 19.7 |          |
|   | Yes           | 296        | 74.7 | 267        | 61.2 |          |
| My institution provides current equipment                           | No            | 108        | 27.3 | 128        | 29.4 | 0.525    |
|   | I am not sure | 99         | 25.0 | 95         | 21.8 |          |
|   | Yes           | 189        | 47.7 | 213        | 48.8 |          |
| My institution rewards employees for exceptional work               | No            | 210        | 53.0 | 279        | 64.0 | 0.003    |
|   | I am not sure | 90         | 22.7 | 86         | 19.7 |          |
|   | Yes           | 96         | 24.3 | 71         | 16.3 |          |
| The manager is qualified to supervise my work                       | No            | 54         | 13.6 | 106        | 24.3 | < 0.001  |
|   | I am not sure | 74         | 18.7 | 81         | 18.6 |          |
|   | Yes           | 268        | 67.7 | 249        | 57.1 |          |

Table 3

**Correlation between the significance of work motivation factors of urban health workers (n = 396) and the level of their fulfillment (job satisfaction) provided by their health institution**

| Work motivation factors of urban health workers | The mean significance/<br>motivation score<br>( $\bar{x} \pm SD$ ) | The mean fulfillment/<br>satisfaction score<br>( $\bar{x} \pm SD$ ) | t-test<br>(p)*          | Spearman's $\rho$<br>(p) <sup>†</sup> |
|---|--|---|-------------------------|---------------------------------------|
| Goals of my institution                         | 3.90 ± 1.18  | 3.58 ± 1.33   | 4.845<br>( $< 0.001$ )  | 0.382<br>( $< 0.001$ )                |
| Professional recognition                        | 3.66 ± 1.39  | 3.48 ± 1.39   | 2.427<br>(0.016)        | 0.425<br>( $< 0.001$ )                |
| Good interpersonal relationships                | 4.01 ± 1.18  | 3.56 ± 1.19   | 6.865<br>( $< 0.001$ )  | 0.347<br>( $< 0.001$ )                |
| Promotion and advancement                       | 3.40 ± 1.42  | 3.27 ± 1.35   | 1.838<br>(0.067)        | 0.381<br>( $< 0.001$ )                |
| Personal qualities of immediate supervisors     | 3.83 ± 1.21  | 3.89 ± 1.17   | 1.104<br>(0.270)        | 0.485<br>( $< 0.001$ )                |
| Income  | 3.13 ± 1.67  | 1.90 ± 1.28   | 14.133<br>( $< 0.001$ ) | 0.302<br>( $< 0.001$ )                |
| Working conditions                              | 3.46 ± 1.40  | 3.13 ± 1.36   | 4.880<br>( $< 0.001$ )  | 0.506<br>( $< 0.001$ )                |
| Cooperative working environment                 | 3.75 ± 1.18  | 3.37 ± 1.14   | 7.037<br>( $< 0.001$ )  | 0.525<br>( $< 0.001$ )                |
| Training opportunities                          | 3.67 ± 1.37  | 3.31 ± 1.33   | 5.071<br>( $< 0.001$ )  | 0.427<br>( $< 0.001$ )                |
| Job security                                    | 4.11 ± 1.13  | 3.48 ± 1.20   | 10.658<br>( $< 0.001$ ) | 0.415<br>( $< 0.001$ )                |
| Support by supervisors                          | 3.92 ± 1.20  | 3.64 ± 1.22   | 5.115<br>( $< 0.001$ )  | 0.531<br>( $< 0.001$ )                |
| Autonomy in the workplace                       | 3.93 ± 1.18  | 3.97 ± 1.14   | 0.742<br>(0.459)        | 0.437<br>( $< 0.001$ )                |
| Current equipment                               | 3.66 ± 1.33  | 3.20 ± 1.35   | 6.965<br>( $< 0.001$ )  | 0.484<br>( $< 0.001$ )                |
| Rewards for exceptional work                    | 3.70 ± 1.46  | 2.45 ± 1.43   | 15.644<br>( $< 0.001$ ) | 0.357<br>( $< 0.001$ )                |
| Professional supervision                        | 3.63 ± 1.24  | 3.84 ± 1.20   | 3.442<br>(0.001)        | 0.483<br>( $< 0.001$ )                |

\*Level of significance  $p$  – Student  $t$ -test for associated samples; <sup>†</sup>Level of significance  $p$  – Spearman's rank correlation coefficient.

Table 4

**Correlation between the significance of work motivation factors of rural health workers (n = 436) and the level of their fulfillment (job satisfaction) provided by their health institutions**

| Work motivation factors of rural health workers | The mean significance/<br>motivation score<br>( $\bar{x} \pm SD$ ) | The mean fulfillment/<br>satisfaction score<br>( $\bar{x} \pm SD$ ) | t-test<br>(p)*          | Spearman's $\rho$<br>(p) <sup>†</sup> |
|---|--|---|-------------------------|---------------------------------------|
| Goals of my institution                         | 3.52 ± 1.24  | 3.29 ± 1.41   | 3.448<br>(0.001)        | 0.454<br>( $< 0.001$ )                |
| Professional recognition                        | 3.25 ± 1.49  | 3.17 ± 1.45   | 1.189<br>(0.235)        | 0.499<br>( $< 0.001$ )                |
| Good interpersonal relationships                | 3.60 ± 1.41  | 3.00 ± 1.33   | 9.763<br>( $< 0.001$ )  | 0.510<br>( $< 0.001$ )                |
| Promotion and advancement                       | 3.09 ± 1.43  | 2.86 ± 1.38   | 3.469<br>(0.001)        | 0.498<br>( $< 0.001$ )                |
| Personal qualities of immediate supervisors     | 3.59 ± 1.33  | 3.48 ± 1.43   | 1.854<br>(0.064)        | 0.588<br>( $< 0.001$ )                |
| Income  | 2.74 ± 1.62  | 1.76 ± 1.16   | 11.908<br>( $< 0.001$ ) | 0.320<br>( $< 0.001$ )                |
| Working conditions                              | 3.25 ± 1.35  | 2.89 ± 1.33   | 5.652<br>( $< 0.001$ )  | 0.487<br>( $< 0.001$ )                |
| Cooperative working environment                 | 3.45 ± 1.28  | 2.99 ± 1.24   | 8.087<br>( $< 0.001$ )  | 0.516<br>( $< 0.001$ )                |
| Training opportunities                          | 3.23 ± 1.42  | 2.89 ± 1.40   | 5.000<br>( $< 0.001$ )  | 0.475<br>( $< 0.001$ )                |
| Job security                                    | 3.80 ± 1.25  | 3.21 ± 1.33   | 10.063<br>( $< 0.001$ ) | 0.523<br>( $< 0.001$ )                |
| Support by supervisors                          | 3.52 ± 1.39  | 3.18 ± 1.38   | 6.027<br>( $< 0.001$ )  | 0.612<br>( $< 0.001$ )                |
| Autonomy in the workplace                       | 3.64 ± 1.26  | 3.61 ± 1.32   | 0.609<br>(0.543)        | 0.480<br>( $< 0.001$ )                |
| Current equipment                               | 3.52 ± 1.34  | 3.18 ± 1.35   | 6.208<br>( $< 0.001$ )  | 0.588<br>( $< 0.001$ )                |
| Rewards for exceptional work                    | 2.99 ± 1.58  | 2.07 ± 1.30   | 12.314<br>( $< 0.001$ ) | 0.421<br>( $< 0.001$ )                |
| Professional supervision                        | 3.53 ± 1.32  | 3.49 ± 1.43   | 3.881<br>( $< 0.001$ )  | 0.474<br>( $< 0.001$ )                |

\*Level of significance  $p$  – Student  $t$ -test for associated samples; <sup>†</sup>Level of significance  $p$  – Spearman's rank correlation coefficient.

There were significantly more motivated respondents among urban health professionals (91.6%), and unmotivated among rural respondents (26.8%) (Table 5).

The logistic regression model among all health workers, which proved to be statistically significant, included profession, years of experience and place of employment (Table 6). The probability of being unmotivated was four times higher in nurses compared to physicians [OR 4.051, CI 95% (1.306, 12.568),  $p = 0.015$ ]. With each year of employment the probability of being unmotivated increased by 1.062 [CI 95% (1.016, 1.110),  $p = 0.008$ ]. The probability of being unmotivated was 3.835 times higher in rural health workers than in urban health professionals [CI 95% (1.602, 9.182),  $p = 0.003$ ]. Gender and age were not statistically significant predictors of motivation. The logistic regression model which included only health workers from urban area did not show a statistically significant impact of independent variables (gender, age, profession, years of experience) on the motivation of health workers. The logistic regression model which included only health workers from rural area showed that only years of experience had a statistically significant effect on the motivation of health workers (Table 7). With each year of employment the probability of being unmotivated in rural health workers increased by 1.057 [CI 95% (1.004, 1.113),  $p = 0.033$ ].

## Discussion

Our investigation shows that in regard to rural health professionals, urban health workers of Central Serbia were

significantly more motivated by all examined work motivation factors except for working conditions and current equipment. The results of the study conducted by Mathauer and Imhoff<sup>19</sup> show that place of work is an important factor that influences work motivation factors of health workers. The same study confirms that non-financial benefits and other tools of human resource management in practice (work supervision, recognition and respect from the supervisors, education and professional advancement opportunities, participation in decision making and teamwork promotion) play an important role in improving work motivation of health workers in rural areas<sup>19</sup>. The study conducted in urban and rural areas in Mali shows that factors which affect motivation of health workers are: responsibility, income, further training, responsibility taking and appreciation<sup>20</sup>. The most common reasons for the lack of motivation are: lack of supplies and recognition, difficult living conditions, no job description, subjective performance appraisal<sup>20</sup>. The study performed in the rural area of Papua New Guinea shows that the most important predictors of job satisfaction among rural nurses are work environment and supportive supervisors, confirming the importance of personnel management in maintaining motivation of rural health workers and thus providing high quality health care as well<sup>21</sup>. Researchers conducted in Slovenia (Maribor, Celje, Slovenj Gradec and Murska Sobota) show that job satisfaction of nursing professionals is most affected by the following motivation factors: good interpersonal relations, followed by pay, favorable supervisor feedback, advancement and education opportunities, supervisor support, good working conditions, a responsible and

**Table 5**  
Urban/rural distribution of health workers in the region of Central Serbia in terms of motivation

| Motivational category | Urban area |       | Rural area |       | Total |       |
|-----------------------|------------|-------|------------|-------|-------|-------|
|                       | n          | %     | n          | %     | n     | %     |
| Motivated             | 98         | 91.6  | 60         | 73.2  | 158   | 83.6  |
| Unmotivated           | 9          | 8.4   | 22         | 26.8  | 31    | 16.4  |
| Total                 | 107        | 100.0 | 82         | 100.0 | 189   | 100.0 |

$\chi^2 = 11.485$ ;  $p < 0.001$ .

**Table 6**  
Dependent variables and their impact on the motivation of health workers regardless of the place of employment

| Dependent variables | B      | $p$   | OR    | 95% CI for OR<br>lower limit–upper limit |
|---------------------|--------|-------|-------|--|
| Profession          | 1.399  | 0.015 | 4.051 | 1.306–12.568                             |
| Years of experience | 0.060  | 0.008 | 1.062 | 1.016–1.110                              |
| Place of employment | 1.344  | 0.003 | 3.835 | 1.602–9.182                              |
| Constant            | -4.625 | 0.000 | 0.010 |  |

OR – odds ratio; CI – confidence interval.

**Table 7**  
Dependent variables and their impact on the motivation of health workers in rural area

| Dependent variables | B      | $p$   | OR    | 95% CI for OR<br>(lower limit–upper limit) |
|---------------------|--------|-------|-------|--|
| Years of experience | 0.056  | 0.033 | 1.057 | 1.004–1.113                                |
| Constant            | -2.109 | 0.001 | 0.121 |  |

OR – odds ratio; CI – confidence interval.

challenging job, autonomy at work, and more free time<sup>22</sup>. The results of a research conducted at the Clinical Center of Banja Luka, show that factors that managers could apply in order to motivate employees to make an extra effort at work include better pay, adequate rewards, better working conditions and less stress; recognition and appreciation of expertise; better organizational climate and understanding; better organization, teamwork and adequate workload; fair work environment; adequate equipment and space; education, personal development and advancement; managerial competencies<sup>23</sup>. In the town of Niš, job satisfaction of health workers depends, among other things, on personal characteristics (opportunities to make friends and meet people)<sup>24</sup>.

In our study, in relation rural health professionals, urban health workers were significantly more satisfied with the management support, recognition they receive from their managers, good interpersonal relationships, support from supervisors to get a promotion or a better job, good personal qualities of their immediate supervisors, cooperative working environment, opportunities for continuous improvement provided by their institution, job security, support from immediate supervisors, independence in routine tasks, rewards for exceptional work and professional supervision. Place of work is an important factor that affects job satisfaction of health workers<sup>15</sup>. Studies show that working in urban areas is not a necessary prerequisite for higher level of job satisfaction among health professionals<sup>15,16</sup>. According to the study conducted in China, health professionals are most satisfied with their professional relationships, followed by patients' appreciation, relationship with the management, working conditions, environment, workload, awards and training opportunities<sup>25</sup>. Data on health workers employed at health centers in Belgrade show that they are satisfied with cooperation within their services, cooperation with colleagues from other departments, training and advancement opportunities, working conditions and work organization, extent to which their work is appreciated, their professional contributions to the institution, being informed about current issues at their departments, as well as with the possibility of presenting their ideas and questions to their supervisors<sup>26</sup>. The most common reasons for job dissatisfaction included low income, and to a lesser extent status at the department, the amount of paperwork and poor interpersonal relations<sup>26</sup>. Nikić et al.<sup>5</sup> conducted a survey at the Clinical Center Niš that shows that most health workers found their job to be stimulating and interesting, but that they work very hard. The same research shows that health workers are dissatisfied with their influence on the organization of work and working conditions<sup>5</sup>. Most health workers taking part in the survey say they have adequate cooperation with colleagues in the team<sup>5</sup>. In health care facilities of the Kolubara District employees are most satisfied with direct collaboration with colleagues and autonomy at work, and most dissatisfied with their monthly income<sup>27</sup>. The results of a study conducted by the Institute of Public Health of Serbia show that about half of the health workers employed in health institutions of the Republic of Serbia are satisfied with their job<sup>28</sup>. Employees are least satisfied with the equipment, opportunities for training and

promotion, and monthly salary<sup>28</sup>. The highest job satisfaction is found in health workers in Kosovo and Metohija, then in Central Serbia and Vojvodina, while employees of health institutions in Belgrade show lowest job satisfaction<sup>28</sup>. The study conducted in Slovenia shows that nurses are most satisfied with their job and collaboration with colleagues and least satisfied with their salary and care for employees<sup>22</sup>. Another study conducted in Slovenia shows that nursing managers often use inappropriate management methods, pointing out that only managers who can adjust their way of work with current situations and employees are effective and successful<sup>29</sup>. Skela-Savič and Pagon<sup>30</sup> point out that doctors and nurses in Slovenia assess their level of involvement in teamwork as very low, pointing to the need for greater involvement of health professionals in teamwork. In the city of Split, the total job satisfaction of physicians is not high<sup>31</sup>. The same study shows that physicians are most satisfied with the management of institutions, then working conditions, their superiors, working hours and wages, while they are least satisfied with their free time, opportunities for professional advancement and job security<sup>31</sup>.

Results of our research show that urban health professionals were significantly more motivated than job satisfied concerning the following work motivation factors: goals of my institution, professional recognition, good interpersonal relationships, income, cooperative working environment, working conditions, job security, support by supervisors, current equipment and rewards for exceptional work. Rural health professionals were significantly more motivated than job satisfied concerning the following work motivation factors: goals of my institution, good interpersonal relationships, promotion and advancement, income, cooperative working environment, working conditions, training opportunities, job security, support by supervisors, current equipment, rewards for exceptional work and professional supervision. The study conducted in Germany and the USA confirms that if average work motivation levels are compared with the average level of their fulfillment, physicians are significantly more motivated by several work motivation factors in regard to the level of their fulfillment (job satisfaction) by their health facilities<sup>3</sup>. Their gathered results show that physicians in Germany are significantly more motivated by reducing time-related work burden, financial incentives, participation in organization of health care processes, furthering academic careers, cooperation with the management and administration, continuous medical education, career opportunities, cooperation with nursing staff, job security and work environment in regard to the level of their fulfillment<sup>3</sup>. The same study shows that physicians in the USA are significantly more motivated by financial incentives, cooperation with the management and administration, reducing time-related work burden, administrative activities, work environment, cooperation with nursing staff, state-of-the-art equipment, participation in integrated delivery approaches, participation in organization of health care processes and nonfinancial incentives, than they are satisfied with fulfillment of these factors (job satisfaction) by their institutions<sup>3</sup>. A research conducted in the Tuzla Health Center<sup>32</sup> compares the most important motivational fac-

tors to health care workers and the level of their fulfillment by the institution they work for. The results of this study show that the most important work motivation factors are least satisfied by their institution: good salary, job security, career advancement and autonomy in workplace<sup>32</sup>. This study suggests that the Tuzla Health Center does not fully meet certain motivational factors, mostly basic to the employees (good salary, job security, career advancement, autonomy in workplace), and it is necessary to create work motivation strategies, since only motivated workers can achieve the goals of health facilities (quality health care and user satisfaction)<sup>32</sup>.

Our study has several limitations. It was a cross-sectional study, examining the current situation, preventing us from studying changes over time and making causal conclusions. Also, limitations of this study are associated with the instrument used for data collection. The researchers point out that during investigating work motivation and job satisfaction in health care facilities, one of the most common problems in practice is employees' fear from unwanted consequences (to get into an uncomfortable or undesired position by answering work-related questions)<sup>33,34</sup>. Given that evaluation of job satisfaction is a challenging test for institutions, particularly for the management, including opinions and attitudes of employees on specific aspects of work, researchers have tried to reduce the fear of unwanted consequences by emphasizing the anonymity of the questionnaire, and promise that the results will be used only for research purposes and will not be available to managers<sup>33,34</sup>. However, the reliability of answers cannot be determined<sup>33</sup>. We also used anonymous questionnaire in our research, but we are sure that we did not get completely honest answers, given that even the overall opinion on work motivation and job satisfaction in an institution represents some kind of danger to employees in terms of their relations with the management<sup>35</sup>. Also, by using subjective measuring instruments, reality is perceived from the perspec-

tive of the participants, and not as objective reality. Respondents were asked to complete a 5-point Likert scale on the significance of work motivation factors and the level of job satisfaction, so another limitation is the central tendency bias, as respondents avoid extreme response categories, and gave answers somewhere towards the middle of the scale. Finally, a limitation of the study is the fact that it included health professionals from two health centers in urban area and two health centers in rural area, so the results cannot be generalized to all health workers in the Republic of Serbia.

Aiming at monitoring and improving the quality of work in health care facilities and increase patients' satisfaction, it is of essential importance to continuously study job satisfaction and work motivation factors of all health professionals. This has to be performed on a representative sample of health workers, in urban as well as in rural areas of the Republic of Serbia, with constant result analysis. It is of utmost importance to undertake measures to improve employees' work motivation and job satisfaction and implement continuing education for all management levels in health care institutions in the field of human resource management.

### Conclusion

Urban health professionals are significantly more motivated and job satisfied than rural health workers. In order to increase the level of work motivation and job satisfaction of health workers in rural areas, apart from better income, they should get more assistance and support from their supervisors, and awards for good job performance; interpersonal relationships, promotion and advancement opportunities, managerial performance and cooperation at work should be improved; employment security should be provided, as well as more independence at work, with professional supervision of health workers.

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Received on July 15, 2014.

Revised on April 28, 2015.

Accepted on April 30, 2015.

Online First April, 2016.