

# **Occupational Stress among Rural Health Workers in Mashhad District, Northeast Iran**

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## **Abstract**

**Background:** This study explores the level of Occupational Stress and main sources of occupational and personal stress among Rural Health Workers (RHW) of the health network of Mashhad district.

**Method:** The first part of the Occupational Stress Inventory (OSI) (called the Occupational Roles Questionnaire (ORQ)) was used to measure the Rural Health Workers occupational stress (N=172). A number of extra questions were also added to measure their specific sources of stress. The questionnaires were distributed among RHW in a meeting held in the Health District Center in the city of Mashhad.

**Results:** The mean score of stress for the investigated subjects on OSI and all of its dimensions was within the normal range. On some dimensions such as role overload and role ambiguity however, about 40% of the Health Workers had middle to sever stress. Type of employment, distance of the village to the nearest city, number and combination of Health Workers in rural health clinics showed to have a significant impact on the RHW stress as well.

**Conclusion:** As the RHW Job is concerned, role overload and role ambiguity are the main sources of stress, which may have an adverse effect on the quality of their services. Type of employment, distance of the village to the nearest city, number and combination of Health Workers at the health center also put pressure on RHW that need to be taken under consideration in planning for improving RHW quality of work Life.

**Keywords:** *Occupational Stress, Health workers, Health Network, Iran*

## **Introduction**

Occupational Stress (OS) among health workers has been a matter of much scientific inquiry in literature over the past decades (1-3). High level of stress at work is a major threatening factor to both physical and psychological health of individuals (4-6) and affects their cognitive processes involving memory, recall of knowledge and attention (7-8). In the aspects of organizational and managerial affairs, a strong negative relationship has been found between nurses' occupational stress and job satisfaction (9) and it has been reported that high levels of OS results in increasing turnover rates and causes more and more nurses

to leave their jobs (10). Also a high level of OS caused by heavy workload has been found to reduce nursing quality, and can threaten the lives and security of patients (11). The available statistics reveal that occupational stress has become more and more prevalent and costly over the past decades (12-13). Direct medical costs of stress related problems are estimated to be between \$150 to \$300 billion annually in the United State (14). It was found that job stress causes health problems that lead to decrease productivity (15) as well.

The literature indicates that there is a relationship between age, gender, marital status, educational level, position, length of service and

working experience with occupational stress (16-21), but the results of a study that was conducted on urban police officers in the USA, showed that dynamic factors such as work environment and coping mechanisms, contributed more to explain variance of police stress than static factors such as race and gender (22). In several studies income, heavy workload, lack of workspace, lack of resources (including equipment and material to do tasks), absence of proper company procedures, insufficient time to perform duties, meeting deadlines imposed by others, have been introduced as stressors related to work environment (23-25). In other studies external accountability, responsibility, work relationships, insufficient consultation, communication, inadequate feedback on performance and organizational changes have been introduced as sources of occupational stress (26). In spite of a good amount of statistics available in this area (27-30), very little attention has been paid to OS among rural health workers. The RHW are called Behvarz in the Iranian culture. Health services in Iran are publicly financed. The health policy has been based on primary health care, with particular emphasis on expansion of health networks and referral procedures. In both towns and villages, a central Rural Health Center<sup>1</sup> that performs its functions (delivery of primary health care) through a large number of rural health clinics<sup>2</sup> (RHCs) and help of RHW. RHCs are mainly responsible for public health such as community care, preventive care, vaccination, health education, family planning, maternity care, child health care, school health care, primary diagnosis and treatment of some prevalent communicable diseases. In addition, RHCs play an important role as a demographic and health statistic collector from their areas. RHW are health personnel who work in these RHCs and are in charge of delivering the stated services.

RHW are trained in a Behvarzy School for 2 years to work in RHCs and are native to the village. In recent years however, some health technicians and midwives have replaced typical RHW and these are usually non-natives to the villages. We have called both of these RHW (Behvarz) in this study. If patient from rural areas are also in need of special care and services beyond whatever RHW are responsible for, they will be send to the specialist and hospitals in city and towns and this will be done by RHW through referral procedure. Overall, RHW have a key role in maintaining and promoting the rural population health.

The goal of the present study was to explore the level of OS among RHW of the health network of Mashhad district and to determine the main sources of personal and occupational stress of them.

## Material and Method

### *Participants and procedure*

One hundred seventy two RHW from the Mashhad health network affiliated with Mashhad University of Medical Sciences located in the northeast of Iran were chosen to participate in this survey. The data were collected through a self-report questionnaire. The data were gathered by the researcher at the Rural Health Center where the RHW had gathered for a workshop. The questionnaires were distributed at the beginning of the workshop and collected at the end of the session. Due to the limited number of RHW, no sampling was done in this research.

### *Variables and Instruments*

The survey questionnaire contained 4 parts and 83 questions as follows: Socio-demographic characteristics of RHW (9 items), Characteristics of rural health clinics (7 items), occupational stressors (60 items), and Job and personal problems of RHW (7 items).

The characteristics of Rural Health Clinics (RHC) were evaluated by 7 questions includ-

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<sup>1</sup>Shahri ya Roustaei Markaze Behdasht

<sup>2</sup> Khaneh Behdash Roustaei

ing the population size covered by the RHCs, distance from the village to the nearest city (in kilometers), existence or non-existence of satellite villages, safe water piping, electricity and heating and/or cooling facilities, enough space for rural health clinic activities, and number and combination of RHW working in the RHCs (e.g. single, couple, etc.).

The first part of the Occupational Stress Inventory (OSI) (41) was used to measure the RHW occupational stress. This part was called Occupational Roles Questionnaire (ORQ). The ORQ was validated by Raeissi and Monajemy (21) and consisted of six subscales including 1) Role overload, 2) Role insufficiency, 3) Role ambiguity, 4) Role boundary, 5) Role responsibility, and 6) Physical environment. Each subscale contained 10 questions, and 60 items. All questions in the ORQ were scored on a 5-point Likert scale ranging from 1= never to 5= always. The score on each subscale was obtained from summing the score of a set questions belong to that specific subscale. The total occupational stress score was also obtained from summing the scores of the stated subscales in above. The cut score for the distribution of the stress score on five subscales was as follows: 10-16= Without Stress, 17-30= Normal Stress, 31-38 = Moderate Stress and 39-45= Severe Stress (e.g. 1-Role overload, 2-Role insufficiency, 3-Role ambiguity, 4-Role boundary, 5- Role responsibility) and for physical environment subscale, 10-24 considered Normal, 25-32= Moderate and, 33-40= Severe.

For the total stress score distribution, the cut scores used were as follows: 60-107= Without Stress, 108-203= Normal Stress, 204-251= Moderate Stress and 252-300= Severe Stress.

A checklist of 10 items was used to measure RHW specific personal and occupational problems too and, for the ease of communication, we called them RHW specific personal and occupational stressors in this research. These items were as follows:

1- Lack of collaboration between rural health clinics and higher levels of the health net-

work (e.g. Rural Health Centers, District Health Centers, and District Hospitals), 2- Lack of coordination between Rural Health Clinics (RHCs) and sectors out of the health system such as Rural Councils, Schools etc., 3- Lack of coordination with RHCs about the time of workshops set by higher levels, 4- Delay in receiving formal letters, schedules and procedures, 5- Inadequate salary, 6- Problems in commuting for non-resident RHW, 7- Family problems related to RHW jobs such as inadequate and poor educational facilities and opportunities for their children. The stated items were measured as a "yes" and "no" question where 1=Yes and 0= No. Each item of this part was evaluated independently. Since the stated items were checking the facts, its validity was granted through judgment of the experts and no estimate of reliability was considered.

### **Data Analysis**

Total stress was measured by the Osipow and Spokane (41) questionnaire.

The impact of socio-demographic variables, rural health clinic characteristics or specific personal and occupational stressors on rural health workers' total stress was tested using one-way ANOVA or independent *t*-test. The data were analyzed by SPSS version 15.

### **Results**

A total of 172 rural health workers participated in this study of whom 77.7% were female and 22.3% male. The majority of the participants (86.6%) were married and 57% of them did not have a high school diploma. Almost all of them (94.8%) were graduated from Behvarzy schools. Their average length of employment was about fourteen years ( $X= 13.65$ ,  $SD= 7.33$ ). Ninety percent of the respondents were official employees of the RHCs and 10% were provisional employees. About 60% of RHW were native to the villages and were living in the same area. From the investigated RHW 71.4% were settled in their own houses among the village community and 28.6% in dormito-

ries attached to the Rural Health Clinics. The mean score of their age was 34.78 yr. Table (1) presents rural health workers' socio-demographic information.

In this research the average population coverage for each Rural Health Clinic was 1,941 persons and the villages on average were 34.41 km away from the nearest city (SD=23.40). In addition to their own villages, 67.8% of the rural health workers had to provide health care services to some satellite villages as well. Almost half (48.5%) of the RHCs were managed by a female rural health workers, and 19.3% by both a male and a female. Forty five percent of the RHW reported that they were dealing with a shortage of space in their RHCs. From the stated RHCs 33% did not have safe water piping and 55.3% electricity or air conditioning facilities. Table (2) presents demographic information of the Rural Health Clinics. The findings of the present study on RHW specific personal and professional stressors revealed that inadequate salary, interference of job obligations with family affairs, delay in receiving official letters, and commuting between village and city were the four top stressors for RHW in this research (Table 3).

In regard to the occupational stress of RHW measured by OSI, the findings of the present study revealed that the mean scores of RHW stress on all the OSI dimensions and as a whole fell within the normal range. However, 40% of the respondents had middle or severe stress on the "Role Overload" dimension and 30% of them gained a score higher than normal on the "Role Ambiguity" dimension (Table 4).

Type of employment, distance of the village to the nearest city, and number and combination of RHW in RHCs had a significant impact on RHW total OS (Table 5).

Concerning the number and combination of RHW working in a RHC, a single male<sup>3</sup> gained

the highest score for total stress. The second highest score was gained by a combination of a male and a female ( $\bar{x}$  =154, SD=24) who did not have any family relationship but were just colleagues. A rural health workers who were couple achieved one of the two lowest total stress scores ( $\bar{x}$  =139, SD=18) and finally, two RHW who were relatives (but not spouses) had the least total stress score ( $\bar{x}$  =96, SD= 1).

Regarding type of employment, we found that official employees gained higher total scores than provisional employees ( $\bar{x}$  =139, SD=15). With regard to distance, the findings revealed RHW who worked in faraway RHCs experienced more OS.

**Table 1:** Descriptive statistics of social Demographic variables

Variables	N	%
Age (yr)		
20-29	50	29.6
30-39	77	45.6
40-49	29	17.2
50-59	13	7.7
Marital status		
Single / Divorced/ Widow	23	13.4
Married	149	86.6
Educational level		
Primary School	24	14
Junior high school	74	43
High school	36	20.9
Diploma	36	20.9
Junior community college	2	1.2
Major		
Primary health care in Behvarzy School	163	
Others	7	
Years of employment		
<=1	4	2.4
2-10	64	38.8
11-19	63	38.2
20-30	34	20.6
Residence status		
Resident in village and native	102	59.3
Resident in village but non- native	17	9.9
Resident out of village but native	22	12.8
Resident out of village and non-native	31	18.0

For nonresident Rural Health Workers

<sup>3</sup> - mean score and standard deviation is not reported for this category do to the fact there was only one single male.

**Table 2:** Descriptive Statistics on Rural Health Centers' characteristics

<b>Characteristics</b>	<b>N</b>	<b>%</b>
<b>Population coverage of a Rural Health Clinic</b>		
< 500	6	3.6
500-1499	72	43.6
1500-2499	48	29.1
2500-3499	16	9.7
3500-4999	15	9.1
>= 4500	8	4.8
<b>Distance of village(Rural Health Clinic) to the nearest city(km)</b>		
< = 9	21	13.1
10-29	53	33.1
30-49	42	26.3
50-69	24	15.0
70-90	20	12.5
<b>Number and combination of Rural Health Workers in the Rural Health Clinic</b>		
A female	83	48.5
A male	3	1.8
A couple (wife and a husband)	22	12.9
Two females	12	7.6
A male and a female	33	19.3
Two Rural Health Workers who are relatives	3	1.8
More than two Rural Health Workers	14	8.2
Having satellite villages *	116	67.8
Insufficient space in Rural Health Clinic	88	55.3
Lack of safe water piping	52	32.9
Lack of electricity and / or air conditioning facilities	71	44.7

Satellite villages don't have any Rural Health Clinic and they receive their health care services from a mobile team who is sent to them by the nearest Rural Health Clinic

**Table 3:** Special Personal/Occupational stressors for Rural Health Workers

<b>Variables</b>	<b>N</b>	<b>%</b>
Lack of coordination with health houses about the time of workshops	56	35.4
Delay in receiving official letters, ...	102	65.0
In adequate Salary	132	84.6
Difficulties with shuttling between village and city	30	56.6
Interference of family affairs with Rural Health Workers job	113	76.4
Lack of collaboration between health house and higher levels	76	49.4
Lack of coordination between health houses and sectors out of health system	66	41.8

**Table 4:** Distribution of Rural Health Workers' Total Stress on (OSI) and its Dimensions

Level of stress	Without stress		Normal stress		Middles Stress		Sever stress	
	n	%	n	%	n	%	n	%
Subscales								
Role Overload	3	1.7	97	56.4	63	36.6	8	4.7
Role Insufficiency	19	11	149	86.6	1	0.6	0.0	0.0
Role Ambiguity	12	7	103	59.9	42	24.4	11	6.4
Role Boundary	4	2.3	132	76.7	32	18.6	1	0.6
Role Responsibility	36	20.9	114	66.3	12	7	1	0.6
Physical Environment	0.0	0.0	127	73.8	32	18.6	6	3.5
Total Stress	11	6.9	142	89	1.0	0.6	0.0	0.0

**Table 5:** Statistical Results for impact of Socio-demographic variables or Characteristics of health houses on Rural Health Workers Occupational Stress

Variables	F-value	P-value
Age	0.823	0.486
Marital status	0.526	0.666
Educational level	2.230	0.075
Major	1.457	0.232
Years of service	0.498	0.685
Type of employment	3.154	0.049*
Residence status	0.974	0.411
Place of living in the village	0.161	0.690
Population coverage by health house	0.786	0.564
Distance from village to nearest city	3.738	0.009**
Having satellite villages	0.068	0.769
Number and combination of Rural Health Workers in a health house	3.635	0.004**

\* Significant at  $P < 0.05$ , \*\* significant at  $P < 0.01$

## Discussion

The findings of the present study revealed that overall; RHW had normal levels of stress. These findings could be due to the characteristics of the job such as low levels of external accountability. Our findings in this area are in agreement with the findings of Byrne (9). On "role overload" however, we had a large number of RHW who had experienced

severe to moderate stress in their work environment. These findings support McGrath & Reid (6) and Adib-Saeedi (25). The stress of RHW on this dimension could be due to the following factors: 1) The average population coverage for each RHC is noticeably higher than the standard (i.e. 1,949 vs. 1,500), 2) As time passes, new health care programs add to the current programs and this adds to RHW work load.

A large number of RHW had moderate to severe stress on "role ambiguity". These findings support the results of Elovainio and Kivimaki (32). RHW stress on this dimension could be due to lack of unity of command at the RHCs-one of the classic principles of management. As it was mentioned previously, RHCs are supervised by Rural Health Centers and a general practitioner (MD) is usually in charge of running the Rural Health Center. In these centers, different health experts are responsible for different fields of health care services and when they supervise RHCs every one of them puts pressure on the RHW to allot their work priority to their own fields. The GPs as the managers also expect that RHW allot their job priorities to curative rather than preventive services. Therefore, RHW are often faced with confusing conditions and they sometimes do not know exactly what their job priorities and expectations are.

The number and combination of RHW who work together in RHCs have an impact on RHW occupational stress. These findings sup-

port the findings of Landa et al. (16). The job stress for those who were relatives and worked as couples in the RHCs was the least compared with others. This might be due to the supports that RHW who are relatives, receive from each other.

The distance of the village to the nearest city had a significant impact on RHW occupational stress. One possible explanation for these findings is that the remote RHCs do not receive sufficient support from the Rural Health Center or District Health Center for running their health service activities. For example, as the distance of the RHCs with the Rural Health Center or District Health Center increases RHW are faced with more problems in terms of having transportation facilities to conduct their job obligations at the RHCs and this may impose more stress on the RHW working in these RHCs than others.

The findings also indicated that type of employment (official vs. provisional) has an impact on RHW occupational stress. That is permanent or official employees had higher levels of stress than provisional employees did. One possible explanation for these findings is that the permanent employees feel to be tight up with limited income and little promotion for long time while, the provisional employees may not have such a feeling to their job. Landa et al. (16) also found that younger employees with shorter length of service experienced less stress.

The overall RHW occupational stress score fell within the normal range in this research. On "Role Overload" and "Role Ambiguity" dimensions, however, they showed to have moderate to severe levels of stress. These findings are important for planning to provide a stress free environment for RHW at the RHCs and improving the quality of their work life.

There was a relationship between RHW occupational stress and the 1) number and combination of RHW in a RHC, 2) type of employment, and 3) distance of the village from the nearest city. In conclusion, these findings can

be used for future planning to assist RHW and possibly to increase their job satisfaction.

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## **References**

1. Lindop E. A comparative study of stress between pre and post 2000 students. *J of Advanced Nursing*. 1999; **29**: 967-73.
2. Anson RH, Johnson B, Anson NW. Magnitude and Source of General and Occupational Specific Stress among Police and Correctional Officers. *J of Offender Rehabilitation*. 1997; **25**: 103-13.
3. Verhaeghe R, Vlerick P, DeBacker G, Van Maele G, Gemmel P. Recurrent changes in the work environment, job resources and distress among nurses: a comparative cross-sectional survey. *Int J of Nursing Studies*. 2008; **45(3)**:382-92.
4. Kornitzer M, DeSmet P, Sans S, Dramaix M, Boulenguez C, DeBacker G et al. Job stress and major coronary events: results from the job stress, absenteeism and coronary heart disease in Europe study. *Eur J Cardiac Pre Rehabil*. 2006; **135(5)**: 695-704.
5. Tennant C. Work-related stress and depressive disorders. *J of Psychosomatic Research*. 2001; **51(5)**: 697-704.
6. McGrath A, Reid N, Boore J. Occupational stress in nursing. *Int J of Nursing Studies*. 2003; **40(5)**: 555-65.
7. Wolf OT. HPA axis and memory. *Practi Res Clin Endocrinol Metab*. 2003; **17**: 287-99.
8. Qervain de DD, Roozendoal B, Nitsch RM. Acute cortisone Administration impairs retrieval of long-term declarative memory in humans. *Nat Neurosci*. 2000; **3**: 313-4.

9. Byrne DG. Occupational stress, occupational structure and occupational morbidity. *Int Congress Sries*. 2002; **1241**: 151-4.
10. Shader K, Broome ME, Broome CD, West ME, Nash M. Factors influencing satisfaction and anticipated turnover for nurses in an academic medical centre. *J of Nursing Administration*. 2001; **31(4)**: 201-16.
11. Tarnow-Mordi WO, Hau C, Warden A, Shearer AJ. Hospital mortality in relation to staff workload: a 4-year study in an adult intensive-care unit, *Lancet*. 2000; **356**: 185-9.
12. Giana Kos L. Predictors of coping with work stress: the influences of sex, gender role, social desirability, and locus of control. *Sex Roles*. 2002; **46**: 149-58.
13. Tenant C. Work-related stress and depressive disorders. *J of Psychosomatic Research*. 2001; **51**: 697-704.
14. Riedel JE, Lynch W, Baase C, Hymel P, Peterson KW. The effect of disease prevention and health promotion on workplace productivity: a literature review. *The American J of Health Promotion*. 2001; **15(3)**: 167-91.
15. Randolfi EA. Developing a stress management and relaxation centre for the worksite. *Worksite Health*. 1997; **4(3)**: 40-4.
16. Landa J MA, Esther L Z, Pilar Berrios Martos M, Maria del Carmen A L. The relationship between emotional intelligence, occupational stress and health nurses: a questionnaire survey. *Int J of Nursing Studies*. 2008; **45(6)**: 888-901.
17. Lu CQ, Siu OL, Cooper CL. Managers' occupational stress in China: the role of self-efficacy. *Personality and Individual Differences*, 2005; **38(3)**:569-78.
18. Tyson PD, Pongruengphant R. Five-year follow-up study of stress among nurses in public and private hospital in Thailand. *Int J of Nursing Studies*. 2004; **41(3)**: 247-54.
19. Soory H, Hatamy Saed Abad AR. Job stress among female employee of Ahwaz. *Hakim Medical J*. 2003; **6(1)**: 65-9.
20. Lee I, Wang HH. Perceived occupational stress and related factors in community nurses. *J of Nursing Research*. 2002; **10(4)**: 197-205.
21. Raeissi P, Monajemy F. A survey on job stress among medical records staff employees. *Andishe Va Raftar J*. 1999; **182(5)**: 45-54. [ Farsi ]
22. He N, Zhao J, Ren L. Do race and gender matter in police stress? A preliminary assessment of the interactive effects. *J of Criminal Justice*. 2005; **33(6)**: 533-47.
23. Botha C, Pienaar J. South African correctional official occupational stress: the role of psychological strengths. *J of Criminal Justice*. 2006; **34(1)**: 73-84.
24. Sveinsdottir H, Biering P, Alfons R. Occupational stress, job satisfaction, and working environment among Icelandic nurses: a cross-sectional questionnaire survey. *Int J of Nursing Studies*. 2006; **43(7)**: 875-89.
25. Adeb-Saeedi J. Stress among emergency nurses. *Australian Emergency Nursing J*. 2002; **5(2)**: 19-24.
26. Aetemady S. A comparative correlation between job stress and job satisfaction dimensions among CCU's nurses and others who work in parts of hospitals of Tehran and Iran University of Medical Sciences [MS thesis]. Al-Zahra University, Iran, 2004.
27. Rezaei S, Hoseiny MA. Impact of communication skills training on occupational stress on nursing personnel of Rehabilitation center of Ray province, Tehran and Shemiran in 2004 [MS thesis]. University of Rehabilitation and Social Welfare Sciences, Iran, 2004.



28. Raeissi P, Tavakoli G. Impact of occupational stress on mental health and job performance in hospital managers and matrons. *Hakim Medical J.* 2002; **5(4)**: 247-54.
29. Abdi H, Shahbazy L. Correlation between occupational stress in nurses at Intensive Care Units with job burnout. *J of Yazd University of Medical Sciences.* 2001; **9(3)**: 58-63.
30. Morgan DG, Stewart NJ, Darcy C, Forbes D, Lawson J. Work stress and physical assault of nursing aides in rural homes with and without dementia special care units. *J of Psychiatric and Mental Health Nursing.* 2005; **12**: 347-58.
31. Osipow SH, Spokane AR. *Manual for occupational stress inventory: research version.* Psychological Assessment Resources, Odessa, FL, USA, 1987.
32. Elovainio M, Kivimaki M. Personal need for structure and occupational strain: an investigation of structural models and interaction with job complexity. *Personality and Individual Differences.* 1998; **26(2)**: 209-22.