

Individual differences and mental health disorders among industrial workers A cross sectional survey of Hayatabad Industrial Estate Peshawar, Pakistan

Anwar Khan¹, Subhan Ullah², Kamran Azam³, Dr. Salim Khan⁴

Abstract

In order to trace out mental health problems among the workers of Hayatabad Industrial Estate, Peshawar in relation to the individual differences like, gender, age, marital status, parenthood, department, working hours and day/night shifts a cross sectional survey was conducted. A sample of 1153 industrial workers was drawn through multi stage sampling process from a total population of 2156 workers. A self administered Urdu version (G.H.Q-28) was used for data collection. Likert scoring procedure (1, 2, 3, 4) was applied. The total scale score ranged from 28 to 112. The scores for each type of mental health problem were computed by adding the weights assigned to each item. One-way ANOVA analysis (F tests) was used for finding relationship between individual differences and levels of mental health problems.

High levels of mental health disorders were present among the female workers (GHQ-28 score: 81). The workers in age group of 20 to 25 (GHQ-28 score: 80), working for 8 to 9 hours (GHQ-28 score: 80), and from production department (GHQ-28 score: 81), had high levels of mental health problems. Mental health disorders like anxiety & depression were more present among workers as compared to somatic complaints and social dysfunctions. Individual differences like age, gender, department, working hours and working shifts have been statistically found significant. This study suggests that awareness about individual differences in relation to mental health disorders is vital to any organization because mental health problems left unchecked often have devastating effects. Both the organizations as well as society can play vital roles in the control of mental health problems by setting proper structures and creation of awareness about mental health problems.

Field of Research: Human Resource Management

¹ Subhan Ullah is an MBA graduate in finance from the University of Peshawar, Pakistan. He is currently working as a lecturer at COMSATS Institute of information Technology Attock Campus. Email: subhan_ullah@comsats.edu.pk, s.ullah@lancaster.ac.uk

² Anwar Khan Marwat is Lecturer at COMSATS Institute of information Technology, Attock Campus. Email: anwar_khan@comsats.edu.pk, ak_pashtoon@yahoo.com

³ Kamran Azam is serving as a lecturer at the Department of Management Sciences, COMSATS Institute of Information Technology Attock Campus. Email: kamran_azam@comsats.edu.pk

⁴ Dr. Salim Khan, Senior medical officer, D.H.Q Hospital, Abbotabad, Pakistan, Email: dr_marwat@hotmail.com

1. Introduction

Mental illness is a psychological set of symptoms that is associated with subjective distress and/or objective impairment. The mental health disorders have been explored from different perspectives like from the psychological, sociological, and medical perspective. From the occupational perspective, the issue of mental health disorders means any behavioral or psychological problems caused by work related factors with relation to individual personal characteristics. Individual differences must be studied because they influence the reactions or evaluations of events which may cause a mental health disorder and in general perspective the individual differences are considered as vulnerability factors of any mental health disorder that has prevailed.

Unfortunately, in past very little research has been carried on the mental health of the workers of Hayatabad Industrial Estate, Peshawar, mainly because it is located in an underdeveloped area of Pakistan. However researchers have done a lot of work on mental health of workers of developed countries.

Studies show that the female managers are under more mental pressure at work as compared to male counterparts (Fotinos Ventouratos et al., 2005 & Irma Wright et al., 1994). Marital status and children are found to be significantly related to the occupational stress level perceived. Other factors like hierarchical level and department type are also found to be significantly related with mental health problems, because of the perceived stress in them (Nina Poloski Vokic et al., 2007 & Yoshihisa Fujino et al., 2001).

These findings show that mental health vary when the individual characteristics change and hence individual differences play significant role in assessing mental health problems among general workers population. In this study we have work on the mental health problems among the industrial workers of Hayatabad Industrial Estate, Peshawar in relation to the individual differences of workers.

2. Literature Review

Mental health disorders have been conceptualized in DSM-IV as clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with the present distress, (eg. a painful symptom) or disability, (i.e. impairment in one or more areas of functioning or with significantly increased risk of suffering death, pain, disability, or important loss of freedom (DSM-IV, 2000).

Mental health disorders among workers are most widely studied around world because of its devastating effects on organizational productivity. Several work related problems are associated with the mental illness of workers. Michael T. French et al., 1999, found that workers who report symptoms of psychological problems have higher absenteeism and lower earnings than otherwise similar coworkers. Carolyn S. Dewa et al., 2000 further states that workers may be concerned about being labeled as mentally ill by their employers and coworkers for fear of the ramifications. Some workers with mental illness often show aggression and violence at work place which can lead to physical assault. The mentally sick workers are de-moralized and de-motivated and they become not only a stigma for themselves but also for the organization. That is why Deborah R. Becker et al., 2004 states that for persons with psychiatric disabilities, maintaining a job is often more difficult than acquiring a job.

Workers from the underdeveloped world are hit harder by the mental illness as compared to the workers of a developed area, primarily due to lack of awareness about the problem of mental sickness and its management both among the employers as well as employees. Industrial work is globally known for its stressful environment, which often exert negative effects upon both physical and mental health of workers. Several studies in past have proved this claim. Les Worrall et al., 1995 conducted a survey in among the different industrial sectors of UK and found that the level of executive stress is significant with one respondent in six citing that executives in their businesses are subject to extreme levels of stress. The impact of stress is costly in terms of its personal, financial and organizational impact with over a third of stress illness episodes lasting over ten working days. In same way Madhu Rathore et al., 2009 found that job stress existed in the different selected industries of India and they pointed out that the causes of 'high stress' were the monotonous and uninteresting jobs being performed by the employees in the selected organizations. In another study Martin Loosemore et al., 2004 found that job stress in construction industry exists not only among the male employees but also among the female employees.

Researchers have used wide range of tools and techniques for assessing the mental health of the industrial workers. The most frequently used tool is self administered General Health Questionnaire, which comes in different versions. In Pakistan the Urdu version of G.H.Q-28 is most widely used for assessing the mental health, validity of which has already been proven (Syed Ahmer et al., 2007 & Haider Naqvi et al., 2005).

The researchers have found that the several individual characteristics along with work related characteristics have been associated with mental illness, and the G.H.Q-28 scores have been statistically found significant in relation to such like factors, as gender, age, marital status, type of job, years of experience, work load, social support, conflict at work, and psychological hardiness. Obdulia Moreno-Abril et al., 2007 found that the GHQ scores were significant in relation to individual factors like gender, age, marital status, member of a religious order, number of children and their ages. Same like finding have been given by Cindy L. Wall et al., 2006 in which it is stated that age, gender, work status, and personality traits were significantly related to the GHQ scores regarding the different mental illnesses like depression, anxiety, social dysfunction and somatic complaints.

3. Research Objective

The present study aims to trace out mental health problems among the industrial workers of Hayatabad Industrial Estate, Peshawar in relation to the individual differences like, gender, age, marital status, parenthood, department, working hours, and day night shifts.

4. Methodology

A cross sectional survey of 1153 industrial workers of Hayatabad Industrial Estate, Peshawar, was done. A multi stage sampling process was used for drawing sample from total population of 2156 industrial workers. In the first stage total 94 industries were divided into small, medium and large clusters. In the second stage random selection of industrial units was done from each cluster in such way that 22 out of 43 industries from

large cluster, 18 out of 36 industries from medium cluster, and 8 out of 15 industries from small cluster were randomly selected. Workers from each industry cluster wise were then randomly selected at 5% precision, 50% prevalence, and 95% confidence interval.

A self administered Urdu version General Health Questionnaire (G.H.Q-28) was filled by all selected workers. This process started during start of March 2008. Data was collected cluster wise in such way that 2 industries were survey per day. Data collection timings were also divided on shift basis. The data from morning shift workers was collected just after the starting of shift at 9 O clock AM till 5 O clock PM evening. The data from night shift workers was collected with in shifts of 6 O clock PM evening to 3 O clock PM night. The data from workers of marketing department was collected at day times only, because such workers had no night shifts. Due to logistic problems even sometimes only one industry was surveyed per day. The process of data collection ended in end of July 2008. In the General Health Questionnaire (G.H.Q-28) for each item four answer possibilities are available (1-not at all, 2-no more than usual, 3-rather more than usual, 4- much more than usual). In the study the Likert scoring procedure (1, 2, 3, 4) was applied and the total scale score ranged from 28 to 112 (Iveta Nagyova, et al., 2000). The higher the GHQ-28 score, mental health condition will be poor. Persons with 20 or above 20 score are considered to be mentally ill (Masud Yunesian et al., 2008 & Cindy L. Wall et al., 2006). The item: 1, "Been feeling perfectly well and in good health?", item: 17, " Felt on the whole you were doing things well?" ,item: 18, "Been satisfied with the way you've carried out your task?", item: 19, "Felt that you are playing a useful part in things?", item: 20, "Felt capable of making decisions about things?", and item: 21: "Been able to enjoy your normal day-to-day activities?" were coded in reverse manner by giving weight of 4 to "not at all" instead of weight of 1. This was done because a worker with mental illness was expected to mark the option "not at all" which has weight of 1, so there was a risk that the total score of such worker might have been misinterpreted.

The scores for each mental problem were then computed by adding the weights which have been assigned to each item. With help of descriptive statistics mean scores of each mental disorder were calculated for different categories of employees. One-way ANOVA analysis (F tests) was used for finding relationship between individual differences and levels of mental health problems.

5. Data

The study findings are presented in two sections. Firstly, the prevalent levels of mental health problems among different categories of workers of Hayatabad Industrial Estate Peshawar have been elaborated. Secondly, the relationship between individual differences and prevalent levels of mental health problems has been assessed by analysis of Variance (ANOVA).

Table: 1
Average scores of mental disorders among different categories of workers
(n=1153)

| Variables | n | Somatic | Anxiety/ Insomnia | Social Dysfunction | Depression | Total Score |
|-----------------------|----------|----------------|------------------------------|-------------------------------|-------------------|------------------------|
| Gender | | | | | | |
| Males | 1013 | 15 | 17 | 18 | 19 | 69 |
| Females | 140 | 18 | 22 | 21 | 20 | 81 |
| Age | | | | | | |
| <20 years | 148 | 16 | 17 | 18 | 16 | 67 |
| 20 to 25 years | 655 | 17 | 21 | 19 | 23 | 80 |
| 25-30 years | 350 | 14 | 20 | 19 | 18 | 71 |
| Marital status | | | | | | |
| Single | 517 | 16 | 20 | 19 | 23 | 78 |
| Married | 636 | 15 | 22 | 17 | 21 | 75 |
| Parenthood | | | | | | |
| Children | 776 | 15 | 19 | 17 | 17 | 69 |
| No Children | 377 | 15 | 18 | 17 | 20 | 71 |
| Department | | | | | | |
| Production | 906 | 17 | 22 | 20 | 22 | 81 |
| Marketing | 247 | 15 | 17 | 16 | 18 | 66 |
| Working hours | | | | | | |
| 8 to 9 | 988 | 17 | 22 | 19 | 22 | 80 |
| hours | | | | | | |
| < 8 hours | 165 | 15 | 19 | 16 | 17 | 67 |
| Shifts | | | | | | |
| Day/ Night | 1005 | 16 | 21 | 18 | 20 | 75 |
| Day | 148 | 15 | 18 | 17 | 17 | 67 |

It is clear from the table: 1 that the workers of Hayatabad Industrial Estate Peshawar have mental disorders and the intensity of these disorders is moderate high because the minimum total score is 66 and maximum total score is 81.

Among the 15 subgroups of the workers, the high level of mental health disorders are present among the female workers, with GHQ-28 score of 81 as compared to male workers, with GHQ-28 score of 69. The next sub groups with high level of mental health disorders are consisted of those workers which are in age group of 20 to 25 years, working for 8 to 9 hours and having both Day/Nigh shifts, with mean GHQ-28 score of 80. The single workers have suffered from high level of mental disorders, with total GHQ-28 score of 78 as compared to married with total GHQ-28 score of 75. The workers from the production department have high level of mental disorders, with total GHQ-28 score of 81 as compared to marketing department with total GHQ-28 score of 66. Workers with

children have low level of mental disorders, with total GHQ-28 score of 69 as compared to those who have no children, with total GHQ-28 score of 71.

So far as the types of mental disorders are concerned Anxiety/ Insomnia & depression are more prevailed with mean GHQ-28 score of 19.600 as compared to the social dysfunction and somatic problems with mean GHQ-28 score of 16.90. The Anxiety and depression problems have prevailed with high intensity among female workers with mean GHQ-28 score of 21.00, as compared to males with mean GHQ-28 score of 18.00. In same way, the intensity of anxiety and depression is high among those workers who are with in age group of 20 to 25 years, are single, from production department and have 8 to 9 working hours with mean GHQ-28 score of 21.875. It can be seen in the table: 1 that the workers have very low intensity of somatic problems with minimum 14 and maximum 18 GHQ-28 scores.

Table: 2
One-way ANOVA results for the relationship between individual differences & prevalent levels of mental health problems

| Individual differences | F-Ratios | Significance Levels |
|-------------------------------|-----------------|----------------------------|
| Gender | 6.17 | 0.048 |
| Age | 2.29 | 0.157 |
| Marital status | 0.12 | 0.744 |
| Parenthood | 0.14 | 0.718 |
| Department | 7.76 | 0.032 |
| Working hours | 4.74 | 0.072 |
| Shifts | 2.46 | 0.168 |

Table: 2 depict the seven individual characteristics significant for their level of mental health disorders. The ANVOA table shows that the gender, age, department, working hours and working shifts are individual characteristics that are significantly related to the level of mental health disorders among the workers.

Gender is the first individual characteristic that is significantly related to the level of mental health problems among the industrial workers of Hayatabad Industrial Estate Peshawar. The female workers are having high level of mental disorders with average GHQ-28 score of 81, as compared to male workers, who have average GHQ-28 score of 69. F ratio of 6.17 is statistically significant for difference at 0.048 significance level. Age wise those workers which are with in age range of 20 to 25 years have high level of mental disorders, with average GHQ-28 score of 80 as compared to age groups of <20 years and 25-30 years. Department wise the workers from production department have high level of mental disorders with average GHQ-28 score of 81 as compared to workers from marketing department. The F ratio of 7.76 is statistically significant for difference at 0.032 significance level. Those workers who have working hours of 8 to 9 hours and have both Day/Night shift have high level of mental disorders, with average GHQ-28 scores of 80 and 75, and having F ratios of 4.74 and 2.46 at 0.072 and 0.168 significance levels. These levels are statistically significant for difference.

On the whole, this study was cross sectional, so the cause-effect relationship between the individual factors and level of mental health disorders could not be established. However,

pointing out the fact that there is a linkage between individual differences and level of mental health problems can help the researchers to focus on such like factors that might merit closer inspection in longitudinal studies

6. Discussion on Findings

In many developing countries, rapid industrialization has occurred without adequate provision for the protection of workers. This has led to an increase in exposure to a wide range of occupational health hazards (Francoise Barten et al., 1996). Demands on employees to keep up with the ever quickening pace of change and to push levels of productivity and accuracy ever higher will stress some workers to the breaking point (Johnson, P. R., Indvik, 1996). In our study we found that the mental health problems vary by individual factors like gender, age, nature of department, working hours and working shifts. The female workers have experienced more mental health problems as compared to male workers, consistent with findings of other studies conducted on mental health of workers by Ardekani ZZ et al., 2008 & Pal Nystuen et al., 2001.

Workers which are 20 to 25 years old and work for 8 to 9 hours had high level of mental health problems. This age group has also been noticed for development of mental health problems according to BC Mental Health & Addiction Services [Online] 2006. The workers from production department have high level of mental health disorders. Such like findings mean that the young work force have developed mental health problems with high intensity because they work for longer hours in such like areas where machinery is fixed and production process is going on and the chances of exposure to occupational hazards like noise and heat is more. On other side such like workers have no such like choice that they work in one shift. They can be assigned either day shift or night shift and some time when there is labor shortage, both day/night shifts are assigned to them. Such like factors contribute to development of mental health problems, because of lack of rest, and working in noisy heated crowded areas. Jun Shigemi et al., 1997 also presented same like findings where the work load and long working hours have been associated with development of mental illness.

The present study reveals very interesting a finding. The workers scores for individual characteristics like marital status and parenthood are less statistically different as contrast to the findings of Fujino Yoshihisa et al., 2001 study who found that the married workers having children experiences less mental health problems because of family and social support. The possible explanation it is that majority of workers working in Hayatabad Industrial Estate Peshawar are Pathans and majority of Pathans have arranged family marriages as compared to single love marriages. On other side these people have social connections in form of friends and family members in shape of guardians and relatives which are strong sources of social satisfaction for them as compared to social connections with women either wife or friend.

This study has integrated a broader set of both individual (age, gender, marital status, and parenthood) as well as work related variables (department, working hours working shifts). A better understanding of the individual and work related factors which often lead to development of mental health problems can consequently help managers as well as health care professionals to better understand work related problems and help them better deal with such like problems. The understanding of factors which leads to

development of mental health problems among workers is also important because workers being un identified suffering from mental health disorder are in constant job jeopardy, partly because the supervisor and others in the workplace are uninformed about mental illness and thus are ineffective in supporting and accommodating workers (Sheila H. Akabas, 2009)

7. Conclusion

The mental health related disorders of workers working in an under developed industrial world is an important issue and need to be addressed by studying not only the occurrences of mental health illnesses but also searching the causes of mental illnesses because if this problem is not tackled down in the present era of global economic crisis then the economy of underdeveloped world would have nothing left for survival in future as the organization's most valued assets "the workers" would not be in position to work healthily as according to the needs of ever changing business environment of present times.

The mental health of workers can be improved by development of an organizational and societal structures and education in form of awareness among general public on how to support those employees which have developed mental health problems. Businesses need to create an environment in which people not only feel confident enough to discuss a mental health condition with a line manager or member of the HR team but in which they can also receive the support they need to continue making a valuable contribution

8. Future research

In the present study we have addressed the issue of mental health problem with in relation to the individual personal characteristics and some of the work related characteristics too, but there is a need of more in-depth study of wide range of issues like societal, cultural, religious issues where it has been found that in some cultures the mental illness has been considered as social stigma, which further worsen the position of patients. In some religions the mental illnesses are attributed to supernatural factors which lead to false diagnosis of such like sicknesses and worsen the sickness by leaving it untreated. The economic and political issues can also be studied in relation to prevalence of mental illnesses because the poor and political spoiled citizens of any country often are victimized by both physical as well as psychological illnesses, where some times it takes shape of an epidemic. The medical experts can study the biological and pathological causes of mental illnesses.

References

Fotinos Ventouratos, R, Cooper, C. 2005. "The role of gender and social class in work stress." *Journal of Managerial Psychology*, Vol. 20(1), pp. 14-23

Irma Wright, Calle Bengtsson, Ken Frankenberg.1994. "Aspects of Psychological Work Environment and Health among Male and Female White Collar and Blue Collar Workers in a Big Swedish Industry." *Journal of Organizational Behavior*, Vol. 15(2), pp. 181

Nina Poloski Vokic, Ana Bogdanic. 2007. "Individual differences and occupational stress perceived: a Croatian survey". *E.F.Z.G Working Papers Series*. Faculty of Economics and Business, University of Zagreb, Number. 0705. pp. 12

Yoshihisa Fujino, Tetsuya Mizoue, Hiroyuki Izumi, Masaharu Kumashiro, Tetsuya Hasegawa, Takesumi Yoshimura. 2001. "Job Stress and Mental Health among Permanent Night Workers. *Journal of Occupational Health*, Vol. 43 (6), pp. 301-306

Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR. 2000. "Mental disorders". *American Psychiatric Association Task Force on DSM-IV*. Edition: 4, Revised, illustrated & published by American Psychiatric Pub, ISBN: 0890420254

Michael T. French , Gary A. Zarkin. 1999. "Mental health, absenteeism and earnings at a large manufacturing worksite". *The Journal of Mental Health Policy and Economics*. Vol. 1(4), pp. 161-172

Carolyn S. Dewa, Elizabeth Lin. 2000. "Chronic physical illness, psychiatric disorder and disability in the workplace". *Social Science & Medicine*, Vol. 51, pp. 41-50

Becker DR, Drake RE, Bond GR, Xie H, Dain BJ, Harrison K .2004. "Job terminations among persons with severe mental illness participating in supported employment". *Journal of Community mental health*, Vol. 34(1) pp. 71-82

Les Worrall, Cary L. Cooper. 1995. "Executive stress in different industrial sectors, structures and sizes of business". *Personnel Review*, Vol. 24 (7), pp. 3-12

Madhu Rathore, Vandana Kaushik. 2009. "Stress Impact on Industrial Area of Indian Managers". *The Journal of Human Ecology*, Vol. 25(1), pp.37-40

Martin Loosemore, Tom waters. 2004. "Gender Differences in Occupational Stress among Professionals in the Construction Industry". *Journal of Management in Engineering*, Vol. 20 (3), pp. 126-132

Syed Ahmer, Rafey A Faruqui, Anita Aijaz. 2007. "Psychiatric rating scales in Urdu: A systematic review". *BMC Psychiatry*, Vol. 7, pp. 59

Haider Naqvi, Murad Moosa Khan. 2005. "Depression in primary care: Difficulties and paradoxes". *Journal of Pakistan Medical Association*, Vol.55 (9), pp: 393-8

Obdulia Moreno-Abril, Juan de Dios Luna-del-Castillo, Carmen Fernández-Molina, Dolores Jurado, Manuel Gurpegui, Pablo Lardelli-Claret, Ramón Gálvez-Vargas. 2007. "Factors associated with psychiatric morbidity in Spanish schoolteachers". *Journal of Occupational Medicine*, Vol.10 (1093), pp: 2-9

Cindy L Wall, James R. P Ogloff, Shirley A. Morrissey. 2006. "The psychology of injured workers: Health and cost of vocational rehabilitation". *Journal of occupational rehabilitation*.Vol.16 (4), pp: 513-28

Johnson, P. R., Indvik, J. 1996. "Stress and workplace violence: It takes two to tango". *Journal of Managerial Psychology*, Vol.11 (6), pp. 18-27

Francoise Barten, Suzanne Fustukian, Sylvia de Haan. 1996. "The occupational health needs of workers: the need for a new international approach". *Journal of Social Justice*, Vol.23, pp. 1-2

Ardekani ZZ, Kakooei H, Ayattollahi SM, Choobineh A, Seraji GN. 2008. "Prevalence of mental disorders among shift work hospital nurses in Shiraz, Iran". *Pakistan journal of biological sciences*, Vol. 11(12), pp. 1605-1609

Pal Nystuen, Kare B. Hagen, Jeph Herrin. 2001. "Mental health problems as a cause of long-term sick leave in the Norwegian workforce". *Scandinavian Journal of Public Health*; Vol.29 (3), pp. 175-182

BC Mental Health & Addiction Services [Online].2006. Available on: <http://www.bcmhas.ca/AboutUs/default.htm>

Jun Shigemi, Yoshio Mino, Toshihide Tsuda, Akira Babazono, Hideyasu Aoyama. 1997. "The Relationship between Job Stress and Mental Health at Work". *Journal of Industrial Health*, Vol. (35), pp. 29-35

Sheila H. Akabas. 2009. "Mental Health Disorders with Workplace Consequences". *The Centre for Psychiatric Rehabilitation* [Online] [cited 2009 February15]. Available from: URL: <http://www.bu.edu/cpr/reasaccom/employ-read-akabas.html>

Fujino Yoshihisa , Mizoue Tetsuya, Izumi Hiroyuki, Kumashiro Msaharu, Hasegawa Tetsuya, Yoshimura Takesumi. 2001. "Job Stress and Mental Health among Permanent Night Workers". *Journal of occupational health* Vol. 43(6), pp: 301-306

Iveta Nagyova, Boudien Krol, Angela Szilasiova, Roy E. Stewart, Jitse P. van Dijk, Wim J.A. van den Heuvel. 2000. "General Health Questionnaire-28: Psychometric evaluation of the Slovak version". *Studia Psychologica* Vol. 42 (4), pp: 351-61

Masud Yunesian, Afshin Aslani, Javad Homayoun Vash, Abbas Bagheri Yazdi. 2008. "Effects of Transcendental Meditation on mental health: a before-after study". *Clinical Practice and Epidemiology in Mental Health* Vol. 4, pp: 25

Cindy L. Wall, James R. P Ogloff, Shirley A Morrissey. 2006. "The psychology of injured workers: Health and cost of vocational rehabilitation". *Journal of occupational rehabilitation* Vol. 16(4), pp:513-28