

## Survey Mental Health Status and Related Factors among Food Industry Workers in a Province of Iran

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### Abstract

Most of the studies conducted on food workers were job-related physical illnesses and safety issues. Food industries workers may be exposed to mental disorders due to various work-related risk factors. Performing research in mental disorders is crucial because this factor has an important negative impact on job satisfaction and performance. This study was conducted among 636 workers of 11 food industries in Qom, a province of Iran, 2014. Data were collected using a general questionnaire for the demographic characteristic as well as general health questionnaire (GHQ-28). Data was analyzed by SPSS V20. All workers (except two point five percent) were males with a mean age of  $31.96 \pm 7.48$  years. The majorities (508; 79.9%) were married and others single. Based on the average scores released from GHQ ( $16.56 \pm 10.54$ ), general Psychological morbidity was 20%. As well as for components i.e. somatic symptoms, sleep disorders and anxiety, social dysfunction and depression with 16%, 25.80%, 35.80% and 11.80% of food workers had experienced respectively. Data revealed that demographics might play an important role in mental health: single workers and men seem to be more affected by psychological distress than married personnel and women ( $p < 0.05$ ). This relation between age and mental health were not significant ( $p > 0.05$ ). Studies have indicated tenuous links between working conditions, and health status. The mechanisms driving the association between work and health, however, remain uncertain and require further research. An intervention model for preventive efforts, regarding mental strain and mental ill-health in food industries is recommended.

**Key words:** Mental Health, Food Industries, GHQ-28, Workers, Iran

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## **Introduction**

Considering physical and mental health of employees as well as production and profitability by management is one of the characteristics of a healthy organization (Mohr et al 2003). Healthier work force would have more production and provides higher efficiency because of higher mental and physical capabilities (Amini and Hejazi 2007). There is various sorts of occupational hazards in the workplaces and industries that threaten the health of workers; and workers regards to type of work and their occupations conditions expose to a degree of risk factors in the workplace (Sadegi Naeini and Rismanchian 2007) that if not controlled, led to problems. Besides the harmful agents of physical, chemical, biological, ergonomic and mechanical, there are mental and psychological issues that for all workers must be managed and controlled in a highest importance. Because each person spent at least one third of his/her time in the workplace daily (Ahmadi 2002) directions consists of purifying the workplace and protecting the work force is critical (Tirgar et al 2010). Although the needs and expectations of the labor force in recent decades shifted from the physical to the psychological needs (Sutela 2007), but there are still industries that heavy physical labor is evident. Food industries are an example of this type. According to Statistics, 1-2% of the total workforces are employed in this industry category (Neupane et al 2013).

In addition the need to high concentration in the food industry, it is still involving a large number of activities such as lifting and carrying, repetitive movements and other heavy physical loads and therefore has been treated at the forefront of leading to disabilities (Salonen et al 2003). Work environment in food processing industries faces with some issues such as abnormal temperatures, noise, material handling, humidity, dust, unpleasant odors (Laaksonen et al 2010) and poor lighting that all of them are risk factors in workers disability (Salonen et al 2003). On this basis, though repetitive stress injuries are the most important occupational disorders in the food industry (Riihimäki et al 2014), but industrial workers often face with job tensions (Nicot 2007). These tensions are mainly due to workplace and resulting in the absence of workers (Lund et al 2006, Laaksonen et al 2010) and risk of disability would be increased (Sell 2009). It seems that negative changes in physical conditions of the work leads to increase in physical and mental tensions of employees, especially youngsters one. In a study on the psychological stress of 248 blue-collar workers during a period of 4 years it became clear that psychological tension among younger workers has risen 7% and these changes were along with changes in physical tension, consequently this was in turn by changes in physical circumstances of workers (Neupane et al 2014). In another study on food industry workers in Finland, it was found that workers leave work due to illness two times more than other workers, on average (Gimeno et al 2004). It is known that in the food industry, high levels of physical workload combined with weak social and psychological conditions such as low job control, affects workers' health strongly (Karlsson et al 2010, Virtanen et al 2010). Much evidence has shown that many psychosocial aspects of work, such as independence in decision-making, areas of authority, job control, job complexity, and lack of fairness or supervisor support affect workers' health and causes job leaving and/or the work absence (Hultin et al 2010). Relationship between the change in the perceived physical and psychosocial working conditions and changes in the days of absenteeism caused by the illness were studied in a study of 679 food industry workers on a four-year period of time and has been found that in this period, work absence was correlated with changes in working postures as well as changes in activity and team cohesion, particularly in those under 50 years of old (Siukola et al 2011). Undoubtedly, without the high level of general health, the working men and women and, as a result, the organization in which they work, will not be able to contribute to GDP and as well as protect the country's valuable human resources (Okwaraji and aguwa 2015). Due to the lack of information in the field of women's health, cross-organizations studies provide valuable information for managers to provide a comprehensive program for this effective part of the economy and culture of each district and improve their health level. clinical trials is one of the best ways to evaluate the psychological conditions of

individuals, but that is very expensive and time consuming and it is not possible to use them in large scale. Therefore, applying simple instruments that assess mental disorders epidemiologically instead of those tests is recommended (Daneshmandi et al 2013). Goldberg's General Health Questionnaire (GHQ) is one of the instruments (Daneshmandi et al 2013).

In order to improve the health of workers in the food industry in Qom province and considering the role of workers' general health (GH) to prevent occupational accidents and diseases, the present study has been developed in 2014 to evaluate the GH of workers in eleven food industries to promote the safety and health of employees through the health and management policy making and planning.

## **Research Methodology**

In this cross-sectional study, using Equation 1 type I error as 0.05 with respect to the questionnaire's range of scores (84), and considering  $S = (R/6)$  S was considered 14. The accuracy (d) was 2.2. Considering the possibility of lower rates of return, 650 questionnaires were randomly distributed among the available study population.

$$n = \frac{Z_{1-\alpha/2}^2 S^2}{d^2} = 158 \quad \text{Eq. 1}$$

The multi-stage sampling was used to select the samples. Taking into account the eleven companies in the food industry in Qom province as one of the central provinces of Iran (classes), samples were selected from each class in proportion to the total number of staff working in the class. The subjects of every industry were selected randomly.

To collect data, a demographic questionnaire to assess characteristics such as gender, marital status, age was used as well as Goldberg general health questionnaire including 28 questions (GHQ-28) with four subtests as somatic symptoms, anxiety, social dysfunction and depression. Likert scoring was for GHQ selected and scored each question in four degrees (0, 1, 2, 3). Lower score indicates better GH. Finally, each individual score would be between 0 and 84. Those gained score 23 or less were considered as healthy people and those with score 24 or higher were assumed with problems (Noorbala et al 2009). The cut-off point was 6 in the cases of four sub-factors. This means that people gain a score of 6 or less in each sub-factor, are known as healthy people and participants with a score higher than 6 are located in unacceptable level of the related sub-factor (Nastiezaie et al 2009). In each sub-scale minimum and maximum score of 0 and 21 could be obtained.

Personal information of workers was confidential in all stages of the study and subjects were ensured. Given that mental state profile for future decisions will be required, so no exclusion criteria were considered. The validity and reliability of GH was examined in various studies. Validity and reliability of this questionnaire was approved among Iranians (Taghavi 2001). After data collection, it was analyzed using independent t-test, ANOVA and Pearson correlation by SPSS version 20.

## **Research Findings**

From total distributed questionnaires, 636 completed questionnaires were returned (97.85%). Majority of participants in this study were men (620 or 97.5%). In general, 79.9% (508 persons) were married and others were single. Based on the obtained data, the average age of workers were 31.69 ( $\pm 7.48$ ) years.

*GH*

All delivered questionnaires (636) were acceptable. Our results showed that average GH scores of the studied people, was equals to 16.56 ( $\pm 10.54$ ) as well as with 0-61 interval. It can be stated that the GH assessment of the population was at an acceptable level. Among the four subscales depression with an average of 2.31 and social dysfunction with an average of 5.55 were best and worst conditions respectively. Table 1 provides additional information on the scores of each of the four components. With comparison of the four subscales scores as well as overall GH based on the cut-off points (6 and 23 respectively) it was found that among food industry workers, social dysfunction with 35.80% was more common. On the other hand, the lowest level of employees (11.80%) had experienced depression symptoms. In total, twenty percent of the population in terms of GH had unhealthy conditions (Table 2).

**Table 1: GH and Its Subscales Descriptions (n=636)**

| Factor    | GH     | Depression | Social dysfunction | Sleeplessness | Somatic symptoms |
|-----------|--------|------------|--------------------|---------------|------------------|
| parameter |        |            |                    |               |                  |
| Mean      | 16.56  | 2.31       | 5.55               | 4.50          | 3.87             |
| SD        | 10.536 | 3.437      | 2.823              | 3.929         | 3.105            |
| Max       | 61     | 19         | 20                 | 21            | 21               |
| Min       | 0      | 0          | 0                  | 0             | 0                |

**Table 2: Frequency (%) Unacceptable GH and Its Sub-factors Levels among Participants (n=636)**

| Somatic symptoms | Sleeplessness | Social dysfunction | Depression | GH       |
|------------------|---------------|--------------------|------------|----------|
| 102 (16)         | 164 (25.80)   | 228 (35.80)        | 75 (11.80) | 127 (20) |

#### *The relationship between the variables*

Difference of GH and its components between gender and marital status variables were analyzed using independent t-test. As seen in Table 3, difference between men and women about social dysfunction and depression symptoms was statistically significant ( $p < 0.05$ ). In both variables, the men scores were more than women. It means that men were in a worse situation. Also between married and single staff it is revealed that only in depressive symptoms were observed statistical significant difference ( $p < 0.05$ ). It means that married workers had better conditions.

**Table 3: Comparing GH and Its Scales Scores between Sex and Marital Status Groups (n=636)**

| Comparison group |                    | GH    | General health scales |               |                    |            |
|------------------|--------------------|-------|-----------------------|---------------|--------------------|------------|
|                  |                    |       | Somatic symptoms      | Sleeplessness | Social dysfunction | Depression |
| Sex              | Men                | 16.61 | 3.84                  | 4.51          | 5.92               | 2.34       |
|                  | Women              | 14.62 | 5.06                  | 4.12          | 4.50               | 0.94       |
|                  | P <sub>value</sub> | 0.347 | 0.200                 | 0.704         | *0.040             | **0.001    |
| Marital status   | Married            | 16.32 | 3.85                  | 4.50          | 5.84               | 2.13       |
|                  | Single             | 17.51 | 3.94                  | 4.53          | 6.04               | 3.00       |
|                  | P <sub>value</sub> | 0.303 | 0.804                 | 0.929         | 0.527              | *0.025     |

\*  $p < 0.05$ , \*\*  $p < 0.001$

Correlation of GH and its subscales with age was analyzed aided by Pearson correlation test. Results showed that there was no significant correlation ( $p > 0.05$ ). Correlation among subscales and total score of

GH was assessed finally. The resulting coefficients was desirable and calculated between 0.744 and 0.871 ( $p < 0.05$ ). Table 4 shows the results of applied tests in addition to internal relationship. Accordingly, the strongest relationship was between somatic symptoms and sleeplessness with coefficient of correlation equals to 0.592 and weakest relationship was between somatic symptoms and depression with coefficient equals to 0.370. Among subscales, sleeplessness had most correlation with other factors as well as GH.

**Table 4: Relationship between General Health, Its Sub-factors and Age Based on Pearson Correlation Coefficient (n=636)**

|                    | Somatic symptoms | Sleeplessness | Social dysfunction | Depression | GH     | Age |
|--------------------|------------------|---------------|--------------------|------------|--------|-----|
| Somatic symptoms   | 1                |               |                    |            |        |     |
| Sleeplessness      | 0.592*           | 1             |                    |            |        |     |
| Social dysfunction | 0.401*           | 0.522*        | 1                  |            |        |     |
| Depression         | 0.370*           | 0.564*        | 0.514*             | 1          |        |     |
| GH                 | 0.744*           | 0.871*        | 0.749*             | 0.873*     | 1      |     |
| Age                | -0.056           | -0.059        | -0.019             | -0.062     | -0.064 | 1   |

\*  $p < 0.05$

## Discussion

Nowadays, in order to improving welfare of the working environment, more emphasis was placed on the promotion and implementation of mental health standards. Mental disorders significantly were related to people and their jobs (Mucci et al 2014). People with unsupported mental health needs, due to the increasing rate of errors, poor decision making, lack of motivation or high stresses and conflicts between colleagues, can reduce the organization efficiency and productivity. Also occupational accidents and early retirement were increased (Giorgi et al 2014). Therefore, disorders evaluation and control in the work environments to promoting the health level of workers is necessary. In this regard, this study was conducted in the food industry in Qom province, Iran.

Based on the results of this project, out of every five people working in the food industry, a person suffered from mental disorders. Although it was less than some job groups (Giorgi et al 2014, Lotfalian et al 2012) but it was higher than some industrial groups (Amidi Mazaheri et al 2014). This situation in food sector industries could be important to policymakers in the mental health field. In this study, the majority of workers in the food industry were men. However based on scientific literatures majority of the food industry workers in developed countries were women (Eurofound 2012). It should be noted that because of the increasing industrialization of developing countries, lead to more women working in all work environments, it is predicted that present gender combination will change in future. Based on this fact and because of the more sensitivity of the women than men (Khamisa et al 2015, Li et al 2015), more care and control would be essential.

Subscales investigation in this study showed that most disorder was reported in social dysfunction. It seems that a major cause of uncertainty for workers in the field of team performance was the employment of temporary as well as job insecurity. Obviously, job security and full-time/permanent working, leading to growth turns positive health behaviors (Rosenthal et al 2012). In addition the lack of attention to incentive and motivation systems, aim-task system, participative leadership, team work, task value, exterior drives and the opportunity to influence on work are a number of psychological and social risk factors (Gavrilă-Ardeleana and Moldovana 2014). Rostami et al (2013) in their research on steel industry

workers proved that workplace noise can be considered a risk factor for psychiatric symptoms, particularly social dysfunction and depression. It can be concluded that without the development and implementation of a comprehensive program to improving the quality of the physical conditions of the workplace, cannot hope to improving mental conditions.

As shown in Table 2, anxiety and sleeplessness after the social dysfunction (228) had the maximum number of abnormalities (164). The results are also proven in other studies (Farrahi Moghaddam et al 2012). According to literatures, adequate sleeping hours and use of leave and rest time, can protect workers from exhaustion, anxiety and depression (Wisetborisut et al 2014). However, use of vacation days and also get enough rest during and after the work can help to solve this problem. Anxiety also has been reported among workers in this study. Anxiety closely relates with job stress, and stress is threatening the quality of working life (Mosadeghrad et al 2011). Stress and anxiety also causes aggressive behavior, absenteeism, leave the work and loss productivity. Sixteen percent of studied employees had reported somatic symptoms. The relationship between mental health problems and somatic symptoms are not well established in the scientific literature (Kim et al 2011). Results of a study on workers with high levels of burnout showed that high levels of burnout over time, lead to more physical complaints (Kim et al 2011). Also there is a correlation between stress levels and increasing the risk of disability over time (Rai et al 2012). Other study showed that employment conditions and job requirements had strong relationship with symptoms of mental as well as somatic symptoms (Cottini and Lucifora 2013)

A relationship between GH and demographic variables such as age, marital status and sex were investigated. Other studies have also focused on this issue. Shanbhag (2012) in India on 350 clothing industry workers did not find a statistically significant relationship between demographic variables and GH. However W.H. Ng in line with the results of our study, in a comprehensive study on the 229 independent studies and 146,251 workers to examine the relationship between age and GH, showed that there is no relationship between GH and age (Ng and Feldman 2013). Other studies also similar with this study, showed the difference between single and married people (Fujino et al 2001) and also the difference between gender and marital status was significant (Matsuzaki et al 2007, Bazazan et al 2014). It seems that the sense of family-friendly alongside partners empathy; it can alleviate the stress and depression level of the married workers. Michélsen et al (2014) explained an intervention process. On the basis of their process, accompanied with the continuous feedback to the relevant organizations, after the obtaining basic information about industry conditions, interviewing and intervention plan was designed, implemented and evaluated. Then after the re-acquisition of new information if it was necessary, subsequent corrective plan was designed. Therefore, with psychological support of the workers, it would be anticipated that the situation improve. Manocha et al (2011) in a randomized controlled trial on 178 workers showed that with application of comfort and relaxation methods could be found a reduction in workplace stresses. Fernández-Segovia et al (2014) with implementation of ISO-22000 in a food processing company found that this standard could be improved health behaviors and psychosocial factors at work. Based on their results, quality assurance for the products could lead to an increasing in the mental health status for studied.

## **Conclusion**

Workers in inappropriate GH status, in order to meet the requirements of their job, should spent excessive and unnecessary efforts hence to overcoming their occupational stress and anxiety, lead to negative behaviors. On the other hand, social support, application of incentive policies, enhancement of workers authority and power of decision-making as well as help to create positive attitudes to stress management and coping, could reduce part of mental health problems in the workplaces.

## **Practical suggestions**

The results have shown Tenuous links between working conditions, and health status. The mechanisms driving the association between work and health, however, remain uncertain and require further research. As well as in the food industry implementation of standards and quality assurance as well as intervention and psychological support program is recommended.

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