Chronıc dısease rısks of workers in a factory and theır tendency to practıce preventıve health behavıours

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ABSTRACT

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Aim: This study has been conducted to detect chronic disease risk of nut-factory workers and to identify their tendency to practice preventive health behaviours.
Materials and methods: Study universe is composed of 104 workers working at a hazelnut factory in Ordu, Turkey. Indicative characteristics survey form which is composed of 29 questions and prepared by the researcher, Multidimensional Health Locus of Control Scale B Form and Perception of Health Status Scale were used. In statistical evaluation fo data, percentage evaluation, arithmetic average, *t*-test, single factor analysis, ANOVA test were used.
Results: According to data obtained from the study, it was found that most of the participants are overweight and obese, and are hypertension patients. Score average of workers was good according to perception of health scale status was better. It was found that there is a statistical relation between gender, educational status, chronic disease status, preventive health behaivors, cancer screening status, tension, fasting blood glucose and body mass index and Multidimensional Health Locus of Control Scale scores (p<0.01, p<0.05). It was determined that there is a statistical relation between gender, educational status, chronic disease status, preventive health disease and tension measurement values of laborers and their Perception of Health Status Scale scores [p<0.01] [p<0.05].
Conclusion: This study shows that workers have risk in the sense of chronic diseases. Results attained and training to be carried out have great importance for early diagnosis, information and application and development of preventive health behaviors of chronic diseases of workers by the workplace nurse.
Keywords: Chronic disease, hazelnut workers, preventive health behaviors

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INTRODUCTION

International Labour Organization [ILO] and World Health Organization [WHO] provides the definition hereby to refer to occupational health; "In all professions regardless of the nature of work, occupational health should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities" [1].

All individuals value work as a necessity to meet their needs. Work not only satisfies one's and his/her families' needs but it also enormously contributes to the personal and social development of the concerned individual. In business life a person's physical and mental wellness is vulnerable against health risks triggered by the environmental conditions at workplace. Certain amount of such risks can be completely prevented whereas some can only be partially controlled via appropriate measures [2].

The preliminary step to protect human health is having awareness on the factors effective on health and deteriorating health condition. In designating health condition of an employee it is required to assess that person's age, gender, educational level, genetic composition in tandem with workplace conditions. Chronic diseases in particular remarkably impact any employee's health condition [3].

Chronic disease is defined as any case triggering permanent and increasingly-damaging health conditions and irreversible alterations necessitating long-term monitoring, guarding, rehabilitation and care-giving [4]. World Health Organization notes that in developed and developing countries the frequency of chronic diseases can be mitigated via changes in nutrition habits and lifestyles. As reported attaching importance to healthy nutrition habits and trainings can be effective in blocking certain chronic diseases [5].

Human health is vulnerable against a list of factors such as poor nutrition, environmental conditions and genetics. Workplace conditions are also among them. A number of factors in workplace have negative effects on human health [6]. There exists a bidirectional interaction between workers' health and work environment. Negative conditions in workplace are likely to increase the tendency to detect occupational diseases among workers, job accidents and a number of health issues related to outside-work life [7]. By means of the technological advancements and alternated life conditions of modern age people are mostly required to do their work related tasks simply on their desks [6]. In effect those who perform their works by sitting face body weight increase that might lead to obesity. United States based researches point out that a correlation is evident between obesity and work conditions. Particularly noting obesity is more prevalent among those who work overtime; work excessively, work in long-periods and work in shifts [8].

Workers employed in nut factories are also required to sit long terms during their work periods. Such industries are related to food business. Long-term immobility, due to its adverse effect on employees' health, has the potential to lay the foundation for several chronic diseases. Obesity in particular is likely to be detected among workers employed in analogous industries. Therefore it is of great importance to examine chronic disease risks of the workers in relevant industry to the end of protecting and improving workers' health.

This study has been conducted to detect chronic disease risks of nut-factory workers and to identify their tendency to practice preventive health behaviours.

MATERIALS AND METHODS

Setting and date of the research: This research was conducted in a nut factory in Ordu, Turkey between January-March 2015.

Research population and sampling: Research population consisted of workers employed in a nut factory in Ordu city. During the date of research, 120 workers were stationed in the factory. Of all the workers 104 workers having volunteered were included in the research. 16 non-consenting workers were excluded.

Data collection tools: Data were collected via a questionnaire form entailing 29 descriptive questions prepared by the researcher; Multidimensional Health Locus of Control Scale and Perception of Health Status Scale.

Multidimensional Health Locus of Control Scale: Developed by B.S.Wallston-K.A. the Likert type scale in B form of which language validity and reliability was tested contains 6 -choice and 18 items [9]. Cronbach's Alpha value of the scale is 0.72. In our study the scale's Cronbach's Alpha value was measured as 0.68. The scale entails 3 subdimensions termed as Internal Locus of Control, External Locus of Control and Chance Factor. Internal locus of health control measures the effect of personal values on their individual health. Strong Level of External Control designates to what extend external factors such as friends, health personnel and family members play role in a person's control over personal health. Chance Factor identifies to what extend factors such as fatalism, chance and resignation play role in a person's control over personal health. In the scale responses for each statement were numbered from 1 to 6. 'I totally disagree' response was scored 1, 'I mostly

disagree' response was scored 2, 'I partially disagree' response was scored 3, 'I partially agree' response was scored 4, 'I mostly agree' response was scored 5 and 'I totally agree' response was scored 6. Evaluation must be based on this scoring [10].

The Perception of Health Status Scale, This scale developed by Davis, Avery and Donald is used to designate an individual's perception of his/her personal health condition. The scale consists of one single item. The individual is asked to measure the question 'How do you perceive your current health condition?' and conduct a listing from 1 to 10 to indicate their perceived level of health condition. The scale is in the form of a 10 cm table starting with zero. Increase in numbers points to perceiving overall health condition as fine [10]. In addition the scale contains Body Mass Index [BMI] based on WHO's obesity classification to analyze obesity rates; hypertension classification based on European Society of Hypertension Association to analyze hypertension rates; and diagnosis criteria reset by American Diabetes Association (ADA) and European Diabetes Policy Group to analyze diabetes rates [11,12]

Data Collection: The workers were elaborately informed about the research and consenting participants were provided with a questionnaire. In a separate room within the facility, the forms were personally filled out by the workers. The researcher conducted blood pressure, blood sugar and height-weight checkup of the participants. Workers' fasting blood sugar levels were tested via a glucose meter. Completion of each form lasted circa 15-20 minutes. The procedure was explained to the workers and volunteering participants took part in the application of process.

Data assessment: Collected data were assessed on SPSS 15.0 software program. The data that provided normal distribution received t test, ANOVA and Pearson correlation analysis. The data that failed to provide normal distribution received one-factor variance analysis test (F test).

Prior to commencing the research the information form entailing the purpose and scope of study was presented to the approval of Ondokuz Mayıs University Faculty of Medicine Ethics Board (B.30.2.ODM.0.20.08./1444).

In addition, required approval was received from the factory in which the research would be conducted.

RESULTS

Defining features of workers

Mean age of participating workers is 39.9±9.7 (20-60). 81.7% of workers are female, 65.4% are elementary school graduates and 68.3% are married. Merely 10.6% of the workers are within normal weight range (Table 1).

Table 1. Defining features of workers

Features	n	%
Age 39.9±9.7 (min 20, max 60 age)		
Gender		
Female	85	81.7
Male	19	18.3
Education Level		
Illiterate	19	18.3
Elementary school graduate	68	65.4
High school and > graduate	17	16.4
Marital status		
Married	71	68.3
Single	33	31.7
Residence		
City	2	1.9
Town	102	98.1
Body Mass index values		
Normal BMI	11	10.6
Overweight	43	41.3
Class I obesity	36	34.6
Class II and > obesity	14	12.5
Blood pressure measurement values		
Optimal	25	24
Normal	19	18.3
Phase I hypertension	38	36.5
Phase II and > hypertension	22	21.2
Fasting blood sugar measurement values		
<126 mg/dL	90	86.5
>126 mg/dL	14	13.5
Any breast examination		
Yes	24	28.2
No	61	71.8
Any mammography test		
Yes	18	21.2
No	67	78.8
Any Smear test		
Yes	3	3.5
No	82	96.5

Of the workers, 24% had optimal blood pressure and 18.3% of workers had normal blood pressure. Fasting blood sugar level of workers revealed that 86.5% of workers had below 126mg/dL blood sugar level (Table 1). Of the participating workers 31.7% had a chronic illness, 51.5% chronic hypertension, 48.5% diabetes combined with

hypertension, and 62.5% reported to have chronic diseases in their family members.

Among the family members 46.2% had hypertension, 24.6% had diabetes, 20% had diabetes combined with hypertension, 3.1% had cancer and 6.1% had other chronic diseases [respiratory diseases, kidney failure, depression].

Of the workers; 79.8% are nonsmokers, 93.3% abstain alcohol drinks, 64.4% do not follow an exercise routine and 55.8% do not follow any diet program, 44.2% do not follow a weight control program, 41.3% reported not to monitor blood pressure. Merely 7.7% of workers reported to have their fasting blood sugar checked. 38.5% of workers reported not have regular health checkups.

Of the female workers: 78.8% reported not to have a mammography test, 28.2% reported to have a breast examination and only 3.5% reported to have a smear test. None of the male workers reported to have a testicular examination. Of all the workers 90.4% reported to have lung X-ray. Lung X-ray was taken not as a cancer screening procedure but as the requirement of routine health inspection conducted in their workplace (Table 1).

The relation between defining features of workers and MHLC (Multidimensional Health Locus of Control Scale)

Among the female workers the difference between MHLC and the mean score of external control level was found to be statistically significant(p<0.01) (Table 2). It was detected that education level of workers affected strong external control level. Illiterate workers received higher scores compared to the other groups and obtained finding proved to be statistically significant (p<0.01) (Table 2).

As regards exercising, the score difference between MHLC and mean score of strong external control level subgroup was found to be statistically significant (p<0.01) (p<0.05). The difference between preventive health behaviours such as nonsmoking, nondrinking, dieting and weight controlling habits and score average of scale dimensions was found to be statistically insignificant (p>0.05).

As regard the presence of a chronic disease among workers, the score difference between MHLC and mean score of scale's external control level subgroup was found to be statistically significant (p<0.01) (Table 2). We can reasonably argue that workers diagnosed with a chronic disease receive assistance from doctors, nurses or family members to protect their health.

The difference between blood pressure, monitoring fasting blood sugar level and regular health checkup prevalence among workers and mean score of scale's strong external control level subgroup was found to be statistically significant (p<0.01, p<0.05). Presence of chronic disease in

their family history could have played role in this finding. It was also seen that blood pressure measurement values affected external control level which is one subgroup of the scale, and that Phase 2 and> hypertension patients had higher external control level compared to the other groups (p<0.01) (Table 2). It was found out that body mass indexes of the workers affected external control level subgroup and that patients with class I obesity had higher external control level compared to the other groups (p<0.05) (Table 2). As regards fasting blood sugar values, the difference between MHLC and mean scores of subdimensions was found to be statistically insignificant (p>0.01) (Table 2).

Having breast examination affected external control level subgroup of the scale, and compared to the ones not having had any breast exam, women who had a breast exam had a higher external control level score (p<0.01) (Table 2).

The factors potentially played role in breast examination motive may be family members or other women having had the examination.

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The factors potentially played role in breast examination motive may be family members or other women having had the examination.

Table 2. Relation between defining features of workers and MHLC

Features	Strong external control level		Internal control		Chance factor		MHLC	
	X±SD	statistics	X±SD	statistics	X±SD	statistics	X±SD	statistics
Gender								
Female	27.5±0.4	**p=0.00**	30.3±0.4	p=0.2	19.1±0.5	p=0.053	76.9±0.7	**p=0.000**
Male	19.7±0.5	**t=-9.2**	29.1±1.4	t=-1.3	16.9±0.9	t=-1.96	65.6±1.4	**t=-6.9**
Education Level								
Illiterate	28.3±0.8		29.5±1.0	p=0.741 F=0.3	20.3±1.6	p=0.233 F=1.479	78.0±1.8	
Elementary school graduate	26.2±0.5	**p=0.001** **F=6.957**	30.1±1.1		18.5±0.5		75.0±0.9	**p=0.021** **F=4.038**
High school and > graduate	23.0±1.0		30.3±0.5		17.9±1.0		70.9±1.6	
Presence of a Chronic disease								
Yes	28.5±0.6	**p=0.001**	29.6±0.6	p=0.395	19.6±0.9	p=0.156	77.8±1.2	**p=0.009**
No	25.0±0.5	**t=4.029**	30.3±0.5	t=-0.855	18.3±0.5	t=1.429	73.6±1.0	**t=7.084**
Body Mass index values								
Normal BMI	23.7±1.2		29.4±1.3		17.4±1.2		70.5±2.0	
Overweight	25.8±0.7	**p=0.05** **F=2.6**	29.9±0.6	p=0.529 F=0.743	18.9±0.7	p=0.481 F=0.830	74.6±1.1	p=0.015 F=3.655
Class I obesity	27.5±0.7		30.9±0.7		19.4±0.7		77.7±1.2	
Class II and > obesity	25.1±1.8		29.4±1.1		17.6±1.9		72.1±2.5	
Blood pressure measurement values								
Optimal	23.8±**0.9**		29.0±1.1		18.4±0.8	p=0.884 F=0.289	71.2±1.6	
Normal	24.8±**1.2**	**p=0.002** **F=4.666**	30.8±0.6	p=0.594 F=0.700	18.4±1.0		74.0±1.8	**p=0.017** F=3.581
Phase I hypertension	27.0±**0.6**		30.2±0.7		19.1±0.8		76.2±1.1	
Phase II and > hypertension	28.9±**0.8**		30.5±1.0		18.4±1.7		77.7±1.6	
Fasting blood sugar measurement values								
<126mg/dL	26.1±0.5	p=0.708	30.4±0.4	p=0.107	18.6±0.5	p=0.356	74.9±0.8	p=0.951
>126mg/dL	26.5±1.3	t=-0.376	28.5±1.5	t=1.625	19.8±1.1	t=-0.927	74.8±2.7	F=0.004
Any mammography test								
Yes	28.4±0.6	p=0.206	31.2±0.6	p=0.296	17.6±1.3	p=0.133	77.2±1.5	p=0.889
No	27.2±0.4	t=1.275	30.0±0.4	t=1.051	19.5±0.5	t=-1.518	76.9±0.8	t=0.20
Any breast examination								
Yes	29.1±0.4	**p=0.0009**	31.2±0.6	p=0.107	18.7±1.1	p=0.632	70.1±1.3	p=0.059
No	26.9±0.5	**t=2.677**	30.0±0.4	t=1.627	19.3±0.6	t=-0.481	76.2±0.8	t=3.676
Any Smear test								
Yes	28.0±0.6	p=0.807	34.3±1.6	**p=0.03**	17.0±2.6	p=0.423	79.3±1.5	p=0.523
No	27.5±0.4	t=0.245	30.2±0.4	t=2.185	19.2±0.5	t=-0.805	76.9±0.7	t=0.412

The factors potentially played role in breast examination motive may be family members or other women having had the examination.

As regards exercising, the score difference between MHLC and mean score of strong external control level subgroup was found to be statistically significant (p<0.01) (p<0.05). The difference between preventive health behaviours such as nonsmoking, nondrinking, dieting and weight controlling habits, and score average of scale dimensions was found to be statistically insignificant (p>0.05).

As regards the presence of a chronic disease among workers, the score difference between MHLC and mean score of scale's external control level subgroup was found to be statistically significant (p<0.01) (Table 2). We can reasonably argue that workers diagnosed with a chronic disease receive assistance from doctors, nurses or family members to protect their health.

The difference between blood pressure, monitoring fasting blood sugar level and regular health checkup prevalence among workers and mean score of scale's strong external control level subgroup was found to be significant (p<0.01, p<0.05). Presence of chronic disease in their family history could have played role in this finding. It was also seen that blood pressure measurement values affected external control level which is one subgroup of the scale, and that Phase 2 and> hypertension patients had higher external control level compared to the other groups (p<0.01) (Table 2).

It was found out that body mass indexes of the workers affected external control level subgroup and that patients with class I obesity had higher external control level compared to the other groups (p<0.05) (Table 2). As regards fasting blood sugar values, the difference between MHLC and mean scores of subdimensions was found to be statistically insignificant (p>0.01) (Table 2).

Having breast examination affected external control level subgroup of the scale, and compared to the ones not having had any breast exam, women who had a breast exam had a higher external control level score (p<0.01) (Table 2). The factors potentially played role in breast examination motive may be family members or other women having had the examination.

The relation between PHS [Perception of Health Scale] and defining features of workers

Male workers, unlike female workers, reported to feel themselves more healthy and it was seen that their level of positive health perception increased in line with education level (p<0.01) (Table 3).

Table 3. Relation between defining features of workers and PHS

Variables	Perception of Health level	
	X±SD	statistic
Gender		
Male	86.8±2.3	p=0.000 t=4.3
Female	74.5±1.3	
Education Level		
Illiterate	73.2±2.5	p=0.009 t=4.984
Elementary school graduate	75.7±1.4	
High school and > graduate	84.1±3.4	
Presence of a Chronic disease		
Yes	72.1±1.9	p=0.008 t=-2.692
No	78.9±1.5	
Exercise habit		
Yes	86.7±2.6	p=0.01 F=4.787
No	75.5±1.5	
Occasionally	75.2±2.4	
Blood pressure monitoring		
Yes	71.3±1.8	p=0.002 F=6.883
No	81.4±1.7	
Occasionally	75.5±2.4	
Fasting blood sugar monitoring		
Yes	68.7±4.8	p=0.015 F=4.407
No	79.1±1.4	
Occasionally	73.2±2.1	
Regular health checkup		
Yes	72.6±2.1	p=0.013 F=4.571
No	81.0±1.7	
Occasionally	75.1±2.2	
Blood pressure measurement values		
Optimal	80.0±2.2	p=0.000 F=6.609
Normal	84.2±2.9	
Phase 1 HT	75.0±1.8	
Phase 2 and > hypertension	67.0±3.3	

Workers with no chronic diseases, unlike the ones with a chronic disease, perceived their health to be in a better condition (p<0.01) (Table 3).

The score difference between exercise habits of workers and their health perception was statistically significant. Exercising workers, unlike the rest, reported to have perceived their health to be in a better condition (p<0.01). The workers not having regular blood pressure and fasting blood sugar monitoring or regular health checkups reported to have perceived their health to be in a better

condition (p<0.01,p<0.05) (Table 3) when compared to the workers in remaining groups.

Health perception level score of workers with normal range blood pressure was higher than the rest of workers (p<0.01) (Table 3).

The mean score difference between marital status of workers, mammography test, breast examination, smear test and lung x-ray and their fasting sugar levels and body mass index values and health perception level was found to be statistically insignificant (p>0.01).

The relation between strong external control level which is a subdimension of MHLC and PHS was reverse and statistically significant (r=-0.320, p<0.001).

It is probable that as workers received external health assistance they felt insufficient and weak about their health.

Table 4. Correlation analysis of the scales

	PHS	
MHLC	**Pearson correlation**	**P value**
Strong external control level	-0.320	**0.001**
Internal control	0.080	0.419
Chance factor	0.005	0.960

DISCUSSION

The facts that workers in nut industry perform their job by sitting and that they entertain restricted mobility may account for the high frequency of obesity (Table 1). In a different study it was detected that 7.2% of female bank employees were overweight whilst 2.2% of male bank employees were overweight [6]. In a study conducted by Esin to analyze industry workers 31.8% of workers were found to be mildly overweight and 15.6% were overweight [7]. Pappas et al. in their study revealed that 36% of nurses were overweight and obese [13].

Skaal and Pengpid's research pointed that 73% of workers were overweight or obese [14]. In French et al.'s study it was indicated that 56% of workers were obese [15]. It was seen that overweight workers, compared to the others, engage in less physical activity but spend more time in front of TV [15]. In the study conducted by Choi et al. [16]] among workers doing sedentary jobs 55.5% were found to be obese.

Workers were diagnosed with phase 1 hypertension, phase 2 and higher level of hypertension problem (Table 1). Hartung et al. in their dated study revealed that compared to office employees chefs posed higher risks for cardiac

diseases and that both groups were overweight [17]. While office employees had high blood pressure their blood lipid levels were also higher [17]. In a study, conducted by Hazarika et al. hypertension prevalence among workers was measured as 60.8%, and in the study conducted by Lee *et al.* amongst industry workers 46% of workers were pre-hypertension patients and 15% were already hypertension patients [18,19]. The reason accounting for the high level of blood pressure among participating workers in our study could be linked to the high level of obesity. Additionally the presence of hypertension story in their family could also have triggered the emergence of this finding. Hence hypertension points to the presence of a chronic disease risk for the particular group.

In this study, some of female workers had a clinic breast examination (Table 1). In Gençtürk's study, entailing female health professionals 26.3% of women reported to have breast examination [20]. In Sönmez et al.'s research 67.7% of women reported to have breast examination and in Ertem and Ozan's study 42.3% of women from selected professions reported to have breast examination [21,22]. In Avci's study the frequency of having breast examination was found to be 22.3% among nut workers [23]. Besides Avci detected that those with a breast cancer story in their family were more inclined to have self- examination. In Azage et al.'s study the ratio of breast examination among health employees was 37.3%, and in Agboola et al.'s study among health employees the ratio of breast examination was 86.1% [24,25]. In our study the ratio of mammography test was 21.2%. In Gençtürk's research mammography test ratio was 13.2%. Among workers in our study the ratio of mammography test is higher compared to relevant studies [20]. In our study the fact that mean age is 40 and mammography is a free test in national cancer screening program and the fact that due to high frequency of obesity the perception of being in risk group is high could be effective in receiving such a high ratio. Also the reason why external control level of patients was high could be explained with their regular doctor or nurse visits due to high perception of risk.

Merely female workers reported to have a pap smear test. Ertem and Ozan in their study pointed that 8.8% of women reported to have one pap smear test at least [22]. Bekar et al. in their study indicated that 46.5% of academicians reported to have a pap smear test [26]. In the study of Uluocak and Bekar among health employees it was seen that 70.4% of women did not receive a pap smear test [27]. The lowness of pap smear test rate could be attributed to the lack of sufficient knowledge on cervix cancer. It is also probable that pap smear test frequency among female workers is low since workers fail to follow a periodic genealogical examination.

Relation between defining features of workers and MHLC

As regards strong external control level of scale the relation between workers' gender and MHLC was found to be statistically significant [p<0.01][Table 2]. Strong Level of External Control designates to what extend external factors such as friends, health personnel and family members play role in a person's control over personal health. Accordingly the finding obtained from this research reveals that female workers associate their health condition with uncontrollable external factors.

It is identified in present study that illiterate workers, compared to other groups, maintain a higher level of strong external control (p<0.01) (Table 2). This finding brings to mind that individuals with lower education level seek and receive assistance from others due to their lack of knowledge. A corresponding result was obtained in Esin's research as well [7]. In Kuru's research applied on individuals diagnosed with coronary artery disease it was identified that external control level is way higher among elementary and high school graduates [10]. These findings echo the results obtained in our study.

As regards the presence of a chronic disease among patients the difference of mean score between MHLC and strong external control level subgroup of scale was found to be statistically significant (p<0.01)(Table 2). This finding drives us to conclude that workers diagnosed with a chronic disease fail to cope with their adverse health and seek external assistance.

It was seen that blood pressure measurement values of workers affected MHLC and strong external control level subgroup (p<0.01) (Table 2). It is probable that workers with Phase 2 and higher level of hypertension, compared to the workers in remaining groups, might have been more affected from external factors. It is also likely that since they were diagnosed with advanced phase blood pressure, they resorted to seek further external assistance due to fearing that an improper practice could further negate their health condition.

It was identified that body mass indexes of workers impacted MHLC and strong external control level subgroup. Scale scores of workers diagnosed with 1st degree obesity were higher than the rest of workers (p<0.05) (Table 2).

Discussing the relation between defining features of workers and PHS

In present research mean score that workers retrieved from The Perception of Health Scale is 7.67±1.2 (min=4, max=10). Gülduran et al.'s study analyzing coal workers the mean score workers attached to their overall health condition was 3.65±0.64 [27]. In Kuru's study covering individuals diagnosed with coronary artery disease the mean score patients attached to their overall health condition was 5.89±1.41 [10]. It is possible that as workers in nut industry work in more favorable conditions they had a higher health perception.

It was identified that male workers perceived a better health condition compared to females (p<0.01) (Table 3). There could be a wide range of external factors affecting female health thus women, as laborers mothers and housewives, could have perceived their health condition to be in a worse condition.

Parallel to the rise in education level perception of health condition also followed a positive incline (p<0.01)(Table 3). It is probable that workers with higher education level might have possessed greater information to cope with their physical as well as mental health problems. Kuru's study also provided analogous results 41 [10].

Workers with no chronic disease, compared to the ones with a chronic disease, feel themselves much better (p<0.01) (Table 3) which is an expected finding. In Kuru's study it was reported that individuals who had chronic artery disease less than two years and with no other chronic disease perceived their condition to be in a better rank [10].

Workers with no regular monitoring of blood pressure, fasting blood sugar and regular health checkup reported to have perceived their health condition to be in a better rank (p<0.01, p<0.05) (Table 3) which is an interesting finding because it is normally expected that individuals who regularly monitor their health condition would have a better health perception. Nonetheless in this study individuals with no regular health control provided better health perception. This finding might be explained in such way that workers feel no anxiety for a condition they are unaware of. The workers could, regardless of the potential to have a disease, have felt themselves good since they were unaware of the sickness.

Discussing the relation between scales

The relation between MHLC's strong external control level and PHS was found to be an inverse and statistically significant one (p<0.001). The reason explaining workers' tendency to seek assistance for their individual health from family members, friends and health personnel could be bound to their lack of self adequacy on health issues. Workers on whose health condition other people play major role do not perceive their health positively [28]. This finding might drive one to argue that self control over one's health has a further positive effect on one's perception of personal health.

CONCLUSION

In this research conducted to analyze chronic disease risks of nut factory workers and identify preventive health behaviors of related

workers, it was found that workers perceived their health condition in a positive level and their health condition was, on a general scale, under the influence of external factors. It was also designated that more than half of the patients were overweight or obese, a vast majority was hypertension patients, and a wide portion of workers had no cancer screening.

RECOMMENDATIONS

In the light of all these findings;

- For the workers specifically, occupational health improvement programs such as well-balanced nutrition and exercise management could be prepared.
- Vital findings from workers could be evaluated periodically and those workers with higher than normal vital findings, if deemed necessary, could be encouraged to visit a higher level healthcare institute.
- Workers already diagnosed with a chronic disease could be monitored by the workplace physician and nurse and these workers could be educated on chronic diseases and preventive health behaviors.
- The research findings indicated that a majority of workers are overweight or obese. Nonetheless workers regard obesity not as a health problem. The workers could be educated on the health consequences of obesity that could lead to other diseases and they could be trained on the preventive ways against obesity and regular checkups could be followed to monitor workers' obesity level.
- Since workers' tasks demand no mobility they are engaged in limited physical activity. Thus they could be motivated to exercise more and enlightened about the benefits of physical training. If deemed necessary workplace nurse could be assigned to prepare an exercise program for the factory workers.
- The research findings also revealed that workers failed to go through cancer screening and neglect the issue. To that end, workplace physician and nurse could provide trainings on early diagnosis and practices and gain preventive health behaviors to the workers.

Clinical contribution

Based on the findings obtained from this research it is suggested that workplace physicians and nurses employed in food industries such as nut factories in which workers are engaged in long-term sedentary tasks they should perform health screening to detect chronic disease risks the most important and common of which is obesity.

Conflicts of interest

The authors declare that they have no conflicts interests.

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