Occupational Hazards: Prevention of Health Problems among Bakery Workers in Benha City

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Abstract: Workers in bakeries face many hazards in their work environment; hazards have the potential for causing injury or illness. They should be instructed on how to avoid or prevent potential health problems and be properly trained to follow recommended work safety. **The aim** of this study was to evaluate the effect of the occupational health program on prevention of health problems related to occupational hazards among bakery workers in Benha City. **Design**: A quasi experimental design was used. **Setting**: This study was conducted at bakeries in Benha City. **Sample**: All workers in the 10 bakeries randomly chosen out of 93 bakeries were included as study sample to collect data. **Tools**: Two tools were used for data collection I- **An interviewing questionnaire** designed to collect data about demographic characteristics of workers, self reported health problems of the workers during last 6 months, occupational health hazards facing the workers and the workers' knowledge about health problems related to occupational hazards and their prevention at bakeries. **II- Observational checklist** designed to evaluate **(a)** Bakeries environment, **(b)** Safety measures**,** and **(c)** Bakery workers' practices to provide first aid for emergency situation. **Results**: They revealed that the majority of bakery workers did not receive training courses about occupational safety, bakery workers had more than one health problems as common cold, eye inflammation back pain, and headache, most of them had poor knowledge regarding health problems and their prevention related to occupational hazards and were facing excessive heat and noise as regular problems. **Conclusion:** This study concluded that, the bakery workers had poor knowledge regarding health problems related to occupational hazards and their prevention before the program; however, their knowledge was improved after the program implementation. Statistically significant differences were detected regarding all items of first aid between before and after the program. **Recommendations:** Continues of occupational health program to all workers at bakeries to upgrade their knowledge and practice for prevention of health problems related to occupational hazards, it includes the following: Training courses about occupational hazards, health problems and their prevention, safety measure, using personal protective devices and first aid. In addition, regular periodic screening for all bakeries workers is very important.
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1. Introduction:

Work environment is an important determinant of health. It can influence heath positively or negatively. For most people, work is essential for economic, social as well as physical well-being. The bakery business can be enjoyable and rewarding profession, but some bakery processes can be a hazardous **(Agius, 2007& State Compensation Insurance Fund, 2010).**

The bakeries were categorized into four main groups: micro-bakeries (1–9 employees), small bakeries (10–49 employees), medium-sized bakeries (50–249 employees) and large bakeries (>250 employees) **(Elms *et al.*, 2004).**

There are many occupational hazards that may include physical, chemical, biological and psychological hazards. Physical hazards such as heat, cold, light, noise, vibration and ionizing radiation; chemical hazards such as inhalation to dust, gases, metal, ingestion to toxic effects and local effect such as dermatitis, ulcer and cancer; biological hazards such as viruses, bacteria, parasites that cause disease. Psychological hazards comes from harassment law enforcement such as stress and anxiety **(Sheha, 2009).**

Noise is a problem which may cause deafness among workers as they work continuously in an area where there is continuous mechanical sound for example – mixers, compressors, generators, and blowers of oven and vibratory sifters. The activities involved in a bakery are mainly storage of raw materials, mixing, fermentation, baking, sale and delivery of bread. Equipment used usually includes electrically driven oven, mixer, dough molder, divider, water cooler and stand-by generator **(Ministry of Environment and NDU Environmental, 2009).**

It was mentioned by **North Lanarkshire Council (2009)** that flour dust exposure is a major problem in the bakery industry causing asthma and

nose, throat, and eye disorders. The handling of dough and other ingredients can cause dermatitis. Forty percent of major accidents are due to slips on wet floors or spillage of dough or other wet ingredients. Uneven and obstructed floor surfaces also lead to tripping accidents. Many accidents occur when staff fall from a height e.g. when loading/unloading vehicles, or when accessing stores. **Agius (2009)** added that the heat associated with ovens in a bakery can be a hazard; the excessive heat can affect cardiovascular function for example, causing syncope (fainting) and other consequences.

Occupational health nursing is the specialty practice that focuses on the promotion, prevention and restoration of health within the context of safe and healthy environment. It delivers occupational and environmental health and safety services to workers, work populations and community groups **(Lundy & Janes, 2005).**

Magnitude of the problem

The age of workers in Egypt ranges between 15 to 64 years, the labor force increased in 2005 to (198768) workers, an estimated 22570 occupational injuries, resulted in 127 fatalities, 366 cases of handicapped and 56 disability that lead to 459779 days of absenteeism **(Central Agency for Public Mobilization and Statistics, 2005)**

Occupational accidents cause serious consequences, providing first aid in the workplace can reverse unpleasant results. First aid provision at the workplace during or after work accidents can reverse unpleasant consequences on the worker's health and life. Advising and educating workers in first aid is an important norm of prevention for health and safety in workplace **(Hatzakis *et al.*, 2005).**

Occupational health nurses can play a major role in protecting, preventing and improving the health of the working population. They can also make a major contribution to the sustainable development, improved competitiveness, job security and increased profitability in enterprises and communities by addressing those factors which are related to the health of the working population **(WHO, 2001).**

Aim of the study:

The aim of this study is to evaluate the effect of the occupational health program on prevention of health problems related to occupational hazards among bakery workers in Benha city

Hypothesis:

The occupational health program will improve the workers' knowledge and practices for prevention of health problems related to occupational hazards among bakery workers in Benha city

2. Subjects and Methods

Design: A quasi – experimental design was utilized to conduct the study.

Setting: This study was conducted at bakeries in Benha City, (93 bakeries) each bakery consists of a storage room, a mixing room, oven place, bread selling place, changing room, toilet and an office for responsible supervisor was present in one bakery only.

Sample

Convenient sample was used in this study. The total number of bakeries at Benha City was 93 bakeries, 10 of bakeries were chosen randomly, each bakery has 5-7 workers with average 6 workers, and all workers were included in this study (50 workers).

Tools of the study:

This study consisted of two tools the first tool is:

1- **Interviewing questionnaire:** It is designed to collect data, it consists of four parts:

The first part includes demographic characteristics of workers as age, educational level, working hours, types of work, previous workers training as occupational hazards, knowledge of work requirement, how to use self protective devices, practice at emergency for safety, first aid, and medical services as regular checkup and health insurance.

The second part includes self reported health problems of the workers during last 6 months which include respiratory problems, musculoskeletal problems, vision problems, varicose veins, headache and teeth ache.

The third part includes occupational health hazards facing the workers as stroke, excessive heat, burn, falling, wound or trauma, moving things, machine, noise, lifting heavy things and poor position.

The fourth part includes the workers' knowledge about health problems related to occupational hazards and their prevention at bakeries as respiratory problems, musculoskeletal problems and cardiovascular problems.

Scoring system: For knowledge, the correct answer (good) was given 2, the correct and incomplete answer (average) was given 1, while the unknown or wrong answer (poor) was given 0.

2- **An observational checklist:** It is designed to evaluate **(a) Bakeries' environment** as general cleanliness, ventilation and lightning, health measure, and fire protection. (**b) Safety measures** as personal hygiene and protective device. **(c) Bakery workers' practices to provide first aid** for emergency situations which may occur at bakeries to safe life of

the workers as wound care, burn, fainting, fracture and epistaxis.

Scoring system: For practices, the done completely (good) was given 2, the done and incomplete (average) was given 1, while the unknown or not done (poor) was given 0.

Field work:

- An official letters from the Faculty of Nursing, Benha University was forwarded to the Ministry of Health to obtain their permission to visit the bakeries.
- An official letters were available with the approval of the Ministry of Health addressing the directors of the bakeries. Each director was informed about the time and date of data collection.
- Each bakery worker was interviewed individually after explaining the purpose and method of the study and obtaining his/her approval to participate in the study with confidentiality.
- Content validity of the tools was tested by a panel of five experts in Community Health Nursing field and the modifications were done accordingly based on their responses.
- A pilot study was conducted on 5 bakery workers, who were excluded from the main study sample; test the applicability of the tools. The necessary modifications were done accordingly.
- An occupational health program was developed by the researchers based on review of related literature.
- The time planed for the program was from September 2010 to April 2011.
- The researchers visited the bakeries during working times (5.00 a.m. to 3.00 p.m.) twice per week.

Ethical considerations:

- Consent to participate in the study was obtained from each bakery director.
- Confidentiality was assured to all bakery workers of the study

Occupational health program construction:

The program was conducted at four phases:

1- Preparatory phase: A review of recent, current, national and international literature in various aspects of the problem. The tools questionnaire was designed to assess the bakery workers health problems and needs before implementing the program.

2- The assessment phase: The pre test questionnaire was designed and implemented to identify the health problems as self reported by the workers, occupational health hazards, workers' knowledge about health problems related to occupational hazards and their prevention and workers' practice about first aid.

3- The planning and implementing phase:

The intervention program was designed, with general objective was to improve the bakery workers' knowledge and practices for prevention of health problems related to occupational hazards.

The program content included:

- Health problems related to occupational hazards and their prevention among bakery workers
- Safety measures for bakery workers
- First aid practices as burn, wound, fracture, fainting and epistaxis.

The workers in every bakery were interviewed and observed individually (the researchers couldn't divide the workers into groups to prevent work interruption) to implement the program in their work place. Each worker attended 5 sessions (two for theory and three for practice). The duration of each session was 15-20 minutes according to the presented item.

The teaching methods used were discussions, brainstorming, demonstration and re-demonstration. Booklets with pictures were distributed as teaching media.

The fourth: Evaluating phase

To evaluate the effect of the occupational health program in improving the bakery workers' knowledge and practices about prevention of health problems related to occupational hazards through using post test that similar to the pre test was applied.

Statistical analysis

All results were analyzed using SPSS which includes student's paired t-test and chi square. A change was defined as significant if the difference between variables' reached at $P < 0.05$.

3. Results

Figure (1) illustrates the frequency distribution of the study sample regarding their educational level. It shows that 54% of studied sample were highly educated while, 28% had low education and 18% had intermediate education.

Table (1) reveals that 40% of studied sample, their age was <20, while 16% aged more than 40 years; although 76.0% of them worked in bakery full time while 24% worked part time. Regarding working hours, 72.0% work from 6 to 12 hours/ day. As regard work experience, 60% of workers had past experience more than 5 years. In relation to workers

training, 82.0 % of bakery workers did not receive any training courses, while 18% of them received training courses about practice at emergency for safety. Regarding medical services, all workers had no regular checkup and only 20% of workers had health insurance.

Figure (2) illustrates that 90.0% of workers were facing excessive heat, 88.0% of them were facing noise, and 74.0% had poor positioning during work, while 14% exposed to burn as regular problems. Minorities (2.0%) represent falling, wound or trauma, and moving things as health hazards inside bakeries facing the workers regularly.

Table (2) shows that the relation between self reported health problems of the workers during last 6 months and hazards inside the bakery, 72% of bakery workers had common cold, followed by headache (62%), while 12% had varicose vein problem.

Table (3) reveals that there were highly statistically significant differences in bakery workers' knowledge about health problems related to occupational hazards (respiratory, musculoskeletal& cardiopulmonary) and their prevention between before and after program.

Table (4) displays the relation between self reported health problems of the workers during last 6 months and types of bakery work. It reveals that 72.0% of workers had common cold, followed by eye inflammation (62%) and back pain (32%), while the minor frequency distribution (4.0%) of workers had joint pain and vision problems. A statistically significant difference was present between musculoskeletal problems and type of work.

Table (5) reveals the distribution of bakeries regarding their level of environmental condition. It shows that general cleanliness were mainly poor as regard things easy to fall (unorganized) (80%) and floor smooth to slip(90%). Regarding ventilation all items were poor. Considering health measures an equal percentage of 90% of bakeries had no adequacy of first-aid supplies and first –aid box. However, good bakeries' environment 30% was observed for adequacy of lightening, and 40% of bakeries had good fire extinguishers.

Data in table (6) shows that all of studied sample had poor score in all items regarding using of protective devices and personal hygiene; except for hand washing before beginning work, hand washing after defecation and cleanliness, where they had average score.

Table (7) indicates that statistically significant differences, regarding all items of first aid, between before and after the program implementation; wound care, the mean was 11.380 ± 4.965 after the program compared by 5.400 ± 5.379 before the program; while regarding epistaxis, it was 5.900 ±2.589 after the program compared by 2.760 ±2.987 before the program.

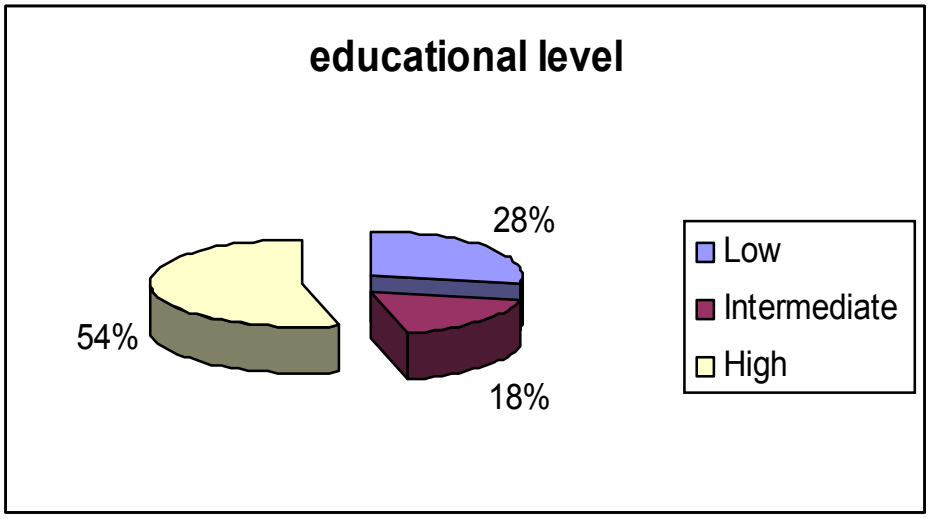

Figure (1): Frequency distribution of educational level of study sample

Table (1): Frequency distribution of demographic characteristics of study sample.

Item	No	%
Age		
<20	**20**	**40.0**
20-	**10**	**20.0**
30-	**12**	**24.0**
40-	**8**	**16.0**
Types of work		
Full time	**38**	**76.0**
Part time	**12**	**24.0**
Working hours		
<6	**13**	**26.0**
6-	**36**	**72.0**
12-	**1**	**2.0**
Work experience (in years)		
<3	**15**	**30.0**
3-	**5**	**10.0**
5-	**30**	**60.0**
Workers training		
No Training	**41**	**82.0**
Occupational hazards	**0**	**0.0**
Knowledge of work requirement	**0**	**0.0**
practice at emergency for safety	**9**	**18.0**
How to use self protective devices	**0**	**0.0**
First aid	**0**	**0.0**
Medical services		
Regular checkup	**0**	**0.0**
Health insurance	**10**	**20.0**

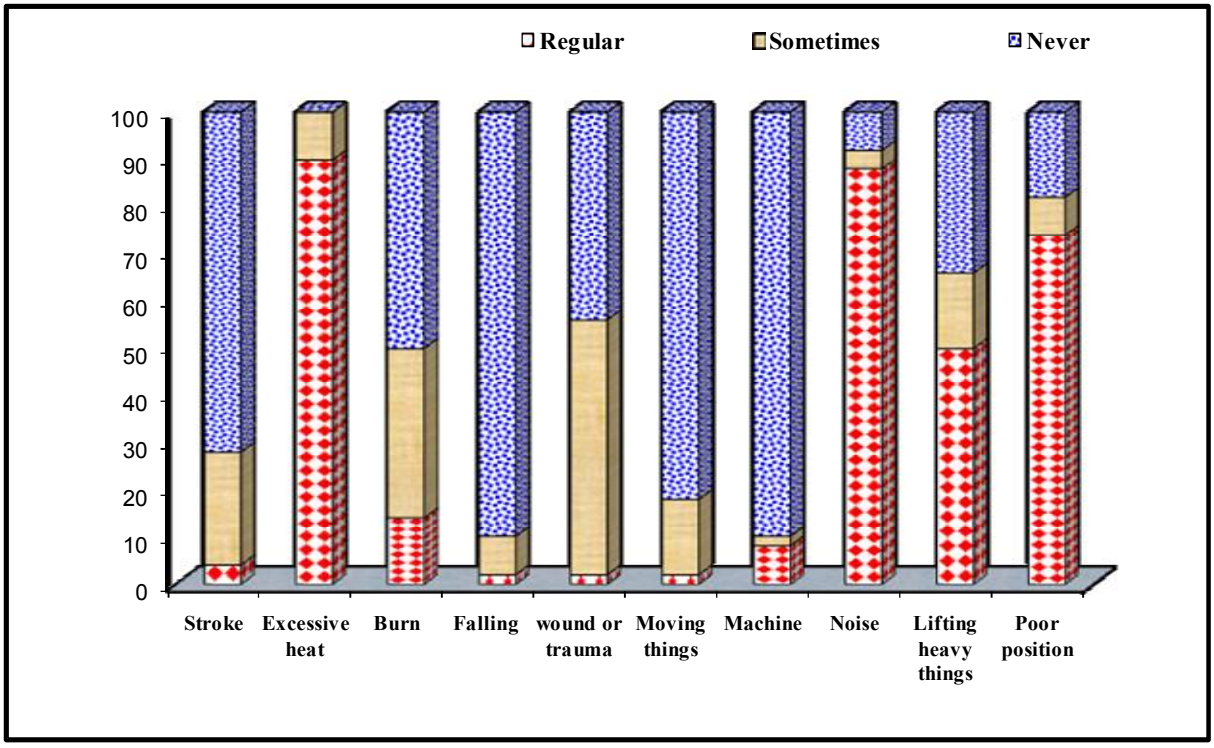

Figure (2): Frequency distribution of hazards inside bakery

Table (2): Relation between self reported health problems of the workers during last 6 months and hazards inside the bakery

Health problems		Hazards facing the workers at work place					
		Simple		Moderate		Total	
Respiratory	None	7	14.0	4	8.0	11	22.0
	Common cold	17	34.0	19	38.0	36	72.0
	Chest tightness	2	4.0	1	2.0	3	6.0
Musculoskeletal	None	10	20.0	12	24.0	22	44.0
	Back pain	12	24.0	7	14.0	16	32.0
	Fracture	1	2.0	0	0.0	1	2.0
	Joint pain	0	0.0	2	4.0	2	4.0
	Muscle spasm	3	6.0	2	4.0	4	8.0
Vision	None	12	24.0	15	30.0	27	52.0
	Eye inflammation	12	24.0	9	18.0	21	42.0
	Poor vision	2	4.0	0	0.0	1	2.0
Varicose veins	Varicose veins	4	8.0	2	4.0	6	12.0
Headache	Headache	17	34.0	14	28.0	31	62.0
Teeth ache	Teeth ache	6	12.0	7	14.0	13	26.0

Table (3): According to research hypothesis workers' knowledge about health problems related to occupational hazards and their prevention before and after program

Health problems knowledge		Before program		After program		Chi-square	
		No	%	No	%	X2	P-value
Respiratory	Poor	22	44.0	5	10.00	24.155	<0.001*
	Average	20	40.0	15	30.00		
	Good	8	16.0	30	60.00		
Musculoskeletal	Poor	34	68.0	8	16.00	40.515	<0.001*
	Average	13	26.0	10	20.00		
	Good	3	6.0	32	64.00		
Cardiopulmonary	Poor	43	86.0	3	6.00	68.894	<0.001*
	Average	6	12.0	12	24.00		
	Good	1	2.0	35	70.00		
Prevention for all health problems	Poor	48	96.0	9	18.00	62.625	<0.001*
	Average	2	4.0	15	30.00		
	Good	0	0.0	26	52.00		

Table (4): Relation between self reported health problems of the workers during last 6 months and types of work

Health problems		Types of work						Chi-square	
		Full time		Part time		Total		X2	P-value
		N	%	N	%	N	%		
Respiratory	None	8	16.0	3	6.0	11	22.0	2.990	>0.05
	common cold	27	54.0	9	18.0	36	72.0		
	Chest tightness	3	6.0		0.0	3	6.0		
Musculoskeletal	None	17	34.0	5	10.0	22	44.0	14.573	<0.05
	back pain	13	26.0	3	6.0	16	32.0		
	Fracture	2	2.0	1	0.0	3	6.0		
	joint pain	2	4.0		0.0	2	4.0		
	Muscle spasm	4	8.0	3	4.0	7	14.0		
Vision	None	23	46.0	4	8.0	27	54.0	2.706	>0.05
	Eye inflammation	13	26.0	8	16.0	21	42.0		
	poor vision	2	4.0		0.0	2	4.0		
Varicose veins	Varicose veins	4	8.0	2	4.0	6	12.0		
Headache	Headache	24	48.0	7	14.0	31	62.0		
Teeth ache	Teeth ache	12	24.0	1	2.0	13	26.0		

Table (5): Distribution of bakeries regarding their level of environmental condition (n=10)

Items	Poor		Average		Good		Chi-square	
	No	%	No	%	No	%	X2	P-value
General cleanliness								
Wall and floor	4	40.0	5	50.0	1	10.0	2.600	0.273
Equipment Cleanliness	2	20.0	7	70.0	1	10.0	6.200	0.045
Environment around bakery	2	20.0	4	40.0	4	40.0	0.800	0.670
Things easy to fall (unorganized)	8	80.0	1	10.0	1	10.0	9.800	0.007
Floor smooth to slip	6	60.0	4	40.0	0	0.0	0.400	0.527
Ventilation								
Adequacy of ventilation opening	6	60.0	1	10.0	3	30.0	3.800	0.150
Windows opened all times	7	70.0	1	10.0	2	20.0	6.200	0.045
Adequacy of fans	9	90.0	1	10.0	0	0.0	6.400	0.011
Fans working all times	8	80.0	1	10.0	1	10.0	9.800	0.007
Lightening								
Adequate lightening	2	20.0	5	50.0	3	30.0	1.400	0. 497
Health measure								
first-aid box	9	90.0	0	0.0	1	10.0	6.400	0. 011
Adequacy of first-aid supplies	9	90.0	0	0.0	1	10.0	6.400	0.011
Fire protection								
Presence of fire extinguishers	2	20.0	4	40.0	4	40.0	0.800	0.670

Table (6): Frequency distribution for safety measures of bakery workers

Safety measures	Poor		Average		Good		Chi-square	
	No	%	No	%	No	%	X2	P-value
Protective device								
Presence of mask	10	100.0	0	0.0	0	0.0	-	-
Use of mask	10	100.0	0	0.0	0	0.0	-	-
Presence of head cap	9	90.0	1	10.0	0	0.0	6.400	0.011
Head cap used	9	90.0	1	10.0	0	0.0	3.600	0.058
Presence of apron	8	80.0	2	20.0	0	0.0	3.600	0.058
Apron used	10	100.0	0	0.0	0	0.0	-	-
Wearing special choose	9	90.0	0	0.0	1	10.0	6.400	0.011
Personal hygiene								
Hand washing before beginning work	4	40.0	6	60.0	0	0.0	0.400	0.527
Hand washing after defecation	2	20.0	6	60.0	2	20.0	3.200	0.202
Cleanliness of face, hair and nails	2	20.0	6	60.0	2	20.0	3.200	0.202
Using hand kerchief	8		2	20.0	0	0.0	3.600	0.058

Table (7): Mean practice score of bakery workers about first aid before and after program

First aid items	Practice score			
	Before program		After program	
	Mean	±SD	Mean	±SD
Wound	5.400	5.379	11.380	4.965
	T = 8.732	p < 0.05		
Burn	4.480	4.432	9.880	4.008
	T = 9.989	p<0.05		
Fainting	3.380	3.664	7.060	2.986
	T = 7.981	p<0.05		
Fracture	2.220	2.444	4.440	2.012
	T = 6.656	p<0.05		
Epistaxis	2.760	2.987	5.900	2.589
	T = 6.713	p<0.05		

4. Discussion

Work is viewed as important ones of life experience, most of adult spend one third of their time at work. No work is completely risk free and all workers should have some basic knowledge about

work force populations, work related hazards **(Stanhope& Lancaster, 2008).**

Regarding to the demographic characteristics of workers, more than half of studied sample were highly educated while, more than one quarter had low education and less than one fifth had intermediate education (figure1).This results disagreed with **Hatzakis *et al.* (2005)** who reported that the majority of workers had a first or secondary educational level, while more than one fifth were graduates of a higher-education institute. The highly educational level of workers may contribute to improve their knowledge.

In this study two fifth of studied sample, their age was <20, while less than one sixth aged more than 40 years, the majority of them worked in bakery full time, while less than one quarter worked part time. Regarding working hours, the majority of them worked 6 - 12 hours/ day. As regard work experience, 60% of workers had past experience more than 5 years (table 1).This study agreed with **Clark (2008)** who reported that younger workers are more likely to be injured on the job than older ones; young people also need the opportunity to learn and practice general health and safety skills. This study also in accordance with **Ghamari *et al.* (2009)** who reported that prolonged work duration leading, ultimately, to disorders ranging from mild low back pain to severe disabilities.

The majority of bakery workers did not receive any training courses about occupational hazards, knowledge of work requirement, how to use self protective devices, and first aid while less than one fifth of them received training courses about practice at emergency for safety. Regarding medical services, all workers had no regular checkup and only one fifth of them had health insurance. (table1). The present study was in agreement with **Cohen and Colligan, (1998),** who reported that training is increasing worker knowledge of job hazards, and in effecting safer work practices and other positive actions in a wide array of worksites. Lack of training is a contributing factor to the mishaps. Workplace training devoted to first aid instruction showed linkage to reduced worker injury rates, suggesting that even this kind of training has benefits to job safety overall. The present study disagreed with **Alexopoulos *et al.* (2009)** who reported in his study in Britain that the British bakery provided training for employees on health and safety rules. Workers' training about occupational safety is seen as critical part of human resources management to perform their work efficiently and help them to make the work environment enjoyable and safe for the workers. Workers' regular checkup is very important to early detecting of any health problems and providing management.

According to the hazards inside bakery, the majority of workers were facing excessive heat, and noise as regular problems, while less than three quarters had poor positioning during work and for the minority of them falling from above, wound or trauma, and moving things as health hazards facing the workers regularly (figure2) . This study results were in agreement with **Alexopoulos *et al.* (2009)** who reported that the most important occupational hazards in the bakery industry involve handling heavy loads, repetitiveness, high temperatures, high rate of work, and noise. Also this study was in agreement with **Thompson (2008)** who reported that there was more and more of workers having accidents at work

In the current study the relation between health problems and hazards, revealed that more than one third complained from simple and moderate common cold and headache, while slightly less than one quarter complained from back pain and eye inflammation, and a minority had varicose vein problems (table 2). This study was in agreement with **Ahmed *et al.* (2009)** who reported in his study that bakery workers in Khartoum State complained from respiratory symptoms. This is related to excessive heat. Also in accordance with **Ghamari *et al.* (2009)** who reported that work-related musculoskeletal disorders is one of the most important occupational health problems in developing countries. These problems may be due to risk factors such as poor work postures, excessive force applied, repetitive movements and vibration.

After program implementation highly statistically significant differences were detected in bakery workers' knowledge about health problems related to occupational hazards (respiratory, musculoskeletal& cardiopulmonary) and their prevention between before and after program. (table3). The present study disagreed with **Alexopoulos *et al.* (2009),** who reported in his study that employees were aware of problems due to company health and safety

Results of the relation between self reported health problems of the workers during last 6 months and types of work in this study showed that, less than three quarters of workers had common cold as respiratory problems however; the minor frequency distribution had joint pain as musculoskeletal problems and vision problems. A statistically significant difference was detected between musculoskeletal problems and types of work (table 4). The present study was in agreement with **Ghamari *et al.* (2009)** who reported that there is a positive association between type of occupation and musculoskeletal disorders. These workers' health

problems may be increased if the duration of exposure to working hazards increased.

Concerning the distribution of bakeries regarding their level of environmental condition in this study showed that, general cleanliness were mainly poor as regard things easy to fall (unorganized) and floor smooth to slip. Regarding ventilation all items were poor. Considering health measures, most of bakeries had no adequacy of first-aid supplies and first –aid box. However, regarding good bakeries environment less than one third was observed for adequacy of lighting and two fifths of bakeries had good fire extinguishers (table5). This study agreed with **e Book (2010)**, reported that adequate ventilation of workrooms must be secured by the circulation of fresh air. There must be sufficient and suitable lighting in every part of the bakery in which persons are working or passing. Also in accordance with **Vermont Department of Health (2005),** which reported that every bakery shall be maintained in a clean and sanitary condition, shall have plumbing and drainage facilities, together with suitable wash basins, wash sinks and toilets or water closets, which shall be kept in a clean and sanitary condition

Regarding using protective device all studied sample had poor score in all items of protective device, personal hygiene; except hand washing before beginning work, hand washing after defecation and cleanliness, had average score(table 6). Protective devices are very important to protect the workers from occupational hazards. Workers are required to maintain good personal hygiene. Facilities that process food are regularly inspected to ensure that equipment and employee comply with health and sanitation regulations. In every bakery there must be provided a first-aid box or cupboard, containing first-aid supplies.

The implementation of the occupational health program in the current study, showed statistically significant differences, regarding all items of first aid, between before and after the program; as shown in wound care, the mean became 11.380 ± 4.965 after the program compared by 5.400 ± 5.379 before the program; while regarding epistaxis, it became 5.900 ±2.589 after the program compared by 2.760 ±2.987 before the program (table7). The study was in agreement with **Safety Resource Centre (2010),** which stated that the persons who work in bakery should be instructed in how to avoid or prevent potential hazards and be properly trained to follow recommended safe work places. This study also was in agreement with **Lingard (2002),** who found that first aid training increased participants' perception of the probability that they would suffer a work related injury or illness and they also expressed greater concern about taking risks at work after receiving first aid training. It therefore appears that first aid training enhanced participants' motivation to avoid occupational injuries and illnesses.

Conclusion

According to the findings and research hypothesis the study approved that, the bakery workers had poor knowledge about health problems related to occupational hazards and their prevention before program; however, their knowledge was improved after the program implementation. Statistically significant differences were detected regarding all items of first aid between before and after the program**.** Most of bakeries workers had more than one health problems as back pain, vision problems, and headache

Recommendations

In the light of the finding of the current study the following recommendations are suggested:

1-Continues of occupational health program to all workers at bakeries to upgrade their knowledge and practice for prevention of health problems related to occupational hazards, it includes the following training for:

- Occupational hazards.
- Safety measures.
- Health problems and their prevention.
- Using personal protective devices.
- First aid.

2- Regular periodic screening for all bakeries workers is very important to early detecting of any health problems and providing management.

3- First aid facilities and personal protective devices should be available in all bakeries.

4- The bakery environment needs more attention to be suitable for work.

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