

Health Promoting Lifestyle among Sugar Factory Worker regarding Occupational Health Hazards

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Abstract

Background: The workers are exposed to workplace hazards arising from various activities involved in sugar Production. **Aim of study:** Was to assess health promoting lifestyle among sugar factory workers regarding occupational health hazards. **Research design:** A descriptive research design. **Setting:** This study was conducted at El-Hawamdia Sugar Factory. **Sample:** Simple random sample was used, included 280 workers were chosen randomly. **Tools:** Three tools were used. **Tool (1):** Structured interviewing questionnaire, this tool is consisted of three parts I:-Demographic characteristics of workers. II: Medical history, previous occupational health hazards and using protective measures. III: Workers knowledge about occupational health hazards. **Tool (2):** Health promoting lifestyle profile. **Tool (3):** An observation checklist to assess the workplace environment. **Results:** 48.2 % of the studied workers their age ranged between 30>40. 32.9% of studied workers suffering from inflammation in the ear. 91.1% of the studied workers exposure to health problem. 94.3% of the studied workers wear work uniform. 60.7% of them have average level of knowledge regarding occupational health hazards and 42.1% of studied workers have poor level of total health promoting lifestyle. 66.7% of environmental sugar factories had safe environment, while 33.6% of them had unsafe environment regarding total environmental safety. **Conclusion:** There was statistically significant positive correlation between total knowledge and total lifestyle. There was a statistically significant relation between total health promoting lifestyle level and exposure to health hazards among studied workers. **Recommendations:** Periodic health educational programs should be developed and implemented for Sugar Factory workers, includes training for prevention of occupational hazards and education about healthy lifestyle.

Key words: Health Promoting Lifestyle, Occupational Health Hazards, Sugar Factory.

Introduction:

Occupational health hazards are considered all over the world approximately 30% to 50% of workers expose to occupational health hazards due to biological, chemical, and physical agent and as estimated by 120 million of occupational injuries resulting in 200,000 fatalities occur annually (**World Health Organization (WHO),**

2019). Workplace safety is very important for each and every employee in the industry , and it is the key factor for all the Industries to promote the wellness of both employees and employers, and It is a duty and moral responsibility of the company to look after the employee's protection (**Saeed, 2020**).

Workers are exposed to chemical, physical, and biological hazards at work which lead to occupational illness. Hazardous

substance exposure routes include inhalation and dermal exposure and ingestion, depending on the route dose and duration of exposure, and chemical properties of the hazardous substance, exposure symptoms may range from mild discomfort to debilitating conditions or even death. Sudden exposure to large amounts of a toxic compound may lead to acute poisoning, causing life-threatening symptoms. Chronic exposure to even trace amounts of certain substances may cause serious health effects such as cancer or reproductive and teratogenic effects years after the exposure has ceased (**Biswas et al., 2016**).

The hazards among workers in sugar mills resulted in lack of safety measures, no education program and no proper training, safety covers were not provided to the vibrating machines, noise in the factory could lead occupational hearing loss while extreme temperatures from boilers and evaporators are likely serious burns and high levels of dehydration, poor ventilation and lighting during working hours, other hazards include falls from tall buildings, electric shocks, burns from steam used to drive turbines, burgusse fires in the dry season and gases from the lagoons which can cause skin diseases. There was no facility for the workers to drink clean and pour water, lubricant dropped on the passage of the workers, there was no facility of first-aid and preventive maintenance staff was no appointed at the sensitive sections of sugar mills (**Hamza, 2016**).

Health promoting lifestyle profile measures health promoting lifestyles as health promoting behavior by focusing on self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization and fulfillment of the individual. It is composed of six subscales including health responsibility, nutrition, physical activity, stress management,

interpersonal relations and spiritual growth (**Rathnayake et al., 2020**).

Occupational health nurse has an important role in preventing occupational hazards which includes determining workers health problems, identify occupational health hazards and dangerous conditions to health, plan and promote workers health by providing appropriate treatment. The nurse participates in implementing a safety plan to prevent or minimize accidents and injuries that occur during daily activities. In educational program, and assesses worker's needs, develops appropriate educational program, by using formal and informal presentation, also training workers to use protective measures during working, encourages workers to use health services, evaluates effectiveness of workers response to nursing actions, and control of environmental factors that cause a disease are the basic role of occupational nurse (**Bijayalaskhmi, 2017**).

Significant of the study:

The global burden of diseases associated with occupational factors was estimated as 4-10 million cases per year, with approximately 3-9 million in several developing countries per year. The International Labor Association, the United Nations Agency, has estimated that industrial workers, on a global scale suffer around hundred and sixty million occupational diseases and two million deaths per year, fatalities due to respiratory diseases represent around 140,000 of these. An estimated 12% of chronic obstructive respiratory diseases deaths are from occupational exposure to airborne particulates (**Ahmad et al., 2016**).

Sugar cane workers have a high level of occupational accidents and are exposed to the high toxicity of pesticides. They may also have an increased risk of lung cancer, possibly mesothelioma. This may be related to the practice of burning foliage at the time

of cane-cutting. Bagassosis is also a problem specific to the industry as it may follow exposure to bagasse (a by-product of sugar cane). The workers may also be affected by chronic infections which reduce their productivity. The legal framework for their protection is often inadequate (Bener et al., 2018).

Aim of the study:

This study aimed to assess health promoting lifestyle among sugar factory workers regarding occupational health hazards.

Research questions:

- 1-To what extent the workers using personal-protective equipment in sugar factory?
- 2-What are the worker's knowledge regarding occupational health hazards in sugar factory?
- 3- What is the effect of health promoting lifestyle on occupational health hazards?
- 4- Is there a relation between socio demographic characteristics of workers and their knowledge and health promoting lifestyle?

Subjects and Method:

Research Design: Descriptive design was used to fulfill this study.

Research setting:

The study was conducted at El-Hawamdia Sugar Factory in Giza governorate.

Sampling:

Sample type: Simple random sample was used. which include 280 workers were chosen randomly from 1000 workers from the previously mentioned setting after excluding engineers, technicians, supervisors and office workers according equation $n = \frac{N}{1+N(e)^2}$

n=sample size, N=total workers, (e)= 0,05.

Tools of data collection:

Three tools were used for collecting data.

Tool I: An interviewing questionnaire: This tool was designed by the researcher after

reviewing the relative literature. It was designed in Arabic language, it consist of three parts as follow:

Part (1): Socio demographic data such as: (age, education, gender, family members, occupation, marital status, residence and income).

Part (2): A- Work characteristics of studied workers which consisted 4 items (years of experience, work hours, work nature requirement and training courses during work). B- Medical history of studied workers which consisted of 2 items (disease history and health problems). C- Using protective measures which consisted of 8 items (wear a work uniform, wear a head covering, wear a glass face shield, wear eye glasses, wear gloves, wear safety shoes, wear a face mask and wear ear protectors).

Part (3): Included questionnaire to assess workers' knowledge regarding : A- Occupational health hazards which consisted of 4 items. B- First aid which consisted of 4 items.

Knowledge scoring system: It was calculated as follows (2) score for correct and complete answer, while (1) score for correct and incomplete answer and (0) score for incorrect and incomplete answer. These scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a present score. Workers total knowledge score was classified as the following: Total scores of knowledge = 16 points.

- Good when the total score was 75% to 100% (> 12 points).
- Average when the total score was 50 to less than 75% (8-12 points).
- Poor when the total score was less than 50 % (< 8 points).

Tool II: Health Promoting Lifestyle Profile- II (HPLP-II): it is a 48- items

questionnaire adapted from. It is composed of six subscales) including (Health responsibility which consist of 7 items , physical activity which consist of 6 items, nutrition which consists of 9 items, spiritual growth which consists of 9 items, interpersonal relation which consists of 9 items, stress management which consists of 8 items).

Scoring system : Items of (HPLP-II) scale were based on a 4-point Likert scale with four possible responses: 1 =never, 2 =sometimes, 3 =often, and 4 =routinely. The total score of health-promoting lifestyle was obtained by calculating the mean of responses to all the 48 items. In addition, the total score of each subscale was computed by calculating the mean of responses to that subscale's items. Overall, HPLP-II scores calculated as follow: Good when the total score was $\geq 75\%$ (≥ 144).

- Fair when the total score was ranged from 50% -75% (96-144) - Poor when the total score was $< 50\%$ (< 96).

Tool III: An observation checklist to assess the workplace environment adapted from (Shafik & Abd-Elmohsen, 2018). It was consisted of Environment safety consisted of 2 items (work environment and Employee facilities).

Scoring system:

The scoring system for the factory environment was scored as following: 1= Present - 0= Not present .The total environment score = 17. The total factory environment score was considered sanitary if the score $\geq 90\%$ (≥ 16 points) and considered unsanitary if it was $< 90\%$ (< 16 points).

Tools validity:

It was checked and revised by panel of five experts from Community Health Nursing Department, Faculty of Nursing in Benha University who reviewed the tool for clarity, relevance, comprehensiveness, understanding

and applicability and the modifications were done accordingly based on their responses.

Tools Reliability:

Reliability of tools was applied for testing the internal consistency of the tools by Cronbach's Alpha test and resulted. Reliability for knowledge was 0.76, for health promoting lifestyle was 0.85.

Ethical consideration:

The aim of the study was explained to each worker before applying the tools to gain their confidences and trust. An oral consent was obtained from each worker to participate in the study and withdrawal when he needs. The study was not having any physical, social, or psychological risk on the participant. The data collected and treated confidentially. Each will be informed about time throughout the study.

Pilot study:

A pilot study was carried out on 10% (28 workers) from the total sample, no modification were done so the pilot study were included in the total number of study sample. The aim of pilot study was to test the applicability and clarity of the tools and estimate the time for tool data collection.

Field work:

Data were collected over 6 months from the middle of April of 2021 to the middle of October 2021; the investigator visited the Sugar Factory for 3 days/week (Saturdays / Mondays / Tuesdays) from 9:00 am to 2:00 pm. The investigator explained the purpose and importance of the study to the workers and obtained their consent. The investigator collected data from the workers and observed the workplace environment and filled the observational checklist. The average number of interviewed workers was between 3-5 workers/day depending on their response to the interviewers, each interviewed worker takes about 30 to 40 minutes to collect the needed data depending upon their understanding and response.

Statistical analysis:

All data were organized, tabulated and analyzed by using the Statistical Package for Social Science (SPSS), version (20). Descriptive statistics were first applied (frequency, percentage) then other statistical

Results:

Table (1): Shows that, 48.2 % of the studied workers their age ranged between 30 >40 with Mean \pm SD= 38.51 \pm 5.10, and 85.4% of them were male. Regarding to educational level 63.2% of the studied workers were secondary education, 72.1% of them were government employee, 73.9% of them were married and 58.9% of them were from rural area. Also, 53.6% of the studied workers have less than 3 members in their family and 67.9% of them have enough income.

Table (2): Shows that, 50 % of the studied workers their experience ranges from 5-10 years, 68.2% of them work 6-8 hours/day, 69.3% of them standing long time during their work and 37.9% of them take course about the risks that can occur while operating machinery.

Table (3): Shows that, 94.3% of the studied workers wear work uniform and 59.6% wear safety shoes. While 85% don't wear eye glasses during their work and 82.1% not wear a glass face shield.

Figure (1): Illustrates that, 91.1% of the studied workers were exposed to health problem and only 8.9% of them unexposed to any health problem.

test such as, Chi-Square and using mean and stander deviation. Statistical significance was considered at: Non-significant relation obtained at $P > 0.05$. Significant relation obtained at $P < 0.05$. High significant relation obtained at $P < 0.001$.

Figure (2): Illustrates that, 60.7% of the studied workers have average level of knowledge regarding occupational health hazards , 27.5% of them have poor level of knowledge. While only 11.8% of them have good level of knowledge regarding occupational health hazards.

Figure (3) Illustrates that, 42.1% of the studied workers have poor level of total health promoting lifestyle, while 37.5% of them have fair level of total health promoting lifestyle and 20.4% of then have good level of total health promoting lifestyle.

Table (4): Shows that, 42.5% of the studied workers have a good level of health promotion lifestyle regarding interpersonal relation, 53.2% of them have fair level of health promoting lifestyle regarding stress management and 71.1% of them have poor level of health promoting lifestyle.

Table (5): Shows that, there were a statistically significant relation between total health promoting lifestyle level and exposure to health hazards among studied workers ($p = 0.033^*$).

Figure (4): Illustrates that, 66.7% of environmental sugar factories had safe environment, while 33.6% of them had unsafe environment.

Table (1): Frequency distribution of studied workers regarding their demographic characteristics (n=280).

Demographic characteristics	No	%
Age		
20 -> 30	51	18.2
30 - >40	135	48.2
> 50	94	33.6
Min- max	27-55	
Mean \pm SD	38.51\pm5.10	
Gender		
Male	239	85.4
Female	41	14.6
Level of education		
Not read and write	10	3.6
Basic education	72	25.7
Secondary education	177	63.2
University education	21	7.5
Occupation		
Government employee	202	72.1
Retired employee	78	27.9
Marital status		
Married	207	73.9
Divorced	35	12.5
Widow	10	3.6
Single	28	10.0
Residence		
Rural	165	58.9
Urban	115	41.1
Family members		
<3	150	53.6
3-5	107	38.2
>5	12	4.3
Alone	11	3.9
Income		
Enough and saved	54	19.3
Enough	190	67.9
Not enough	36	12.9

Table (2): Frequency distribution of studied workers regarding work characteristics (n=280).

Work characteristics	No	%
Years of experience		
<5	64	22.9
5-10	140	50.0
>10	76	27.1
Min- max	3-25	
Mean ±SD	9.71±2.31	
Work hours/day		
6-8	191	68.2
>8	89	31.8
Work nature requirement		
Standing long time	194	69.3
Sit-down long time	46	16.4
Exposure to excessive noise	80	28.6
Attending training courses during work about occupational health hazards		
No receiving any training courses	60	21.4
A course on the risks that can occur while operating machinery	106	37.9
A course on how to use personal protective equipment (PPE)	81	28.9
A course on how to deal in an emergency situation for occupational safety	84	30.0
First aid course	53	18.9
A course on knowledge of business needs and requirements	27	9.6

Table (3): Frequency distribution of studied workers regarding using personal protective equipment (n=280).

Personal protective equipment Wear by workers	Used		Not used	
	No	%	No	%
A work uniform	264	94.3	16	5.7
A head covering	60	21.4	220	78.6
A glass face shield	50	17.9	230	82.1
Eye glasses	42	15.0	238	85.0
Gloves	94	33.6	186	66.4
Safety shoes	167	59.6	113	40.4
A face mask	52	18.6	228	81.4
Ear protectors	82	29.3	198	70.7

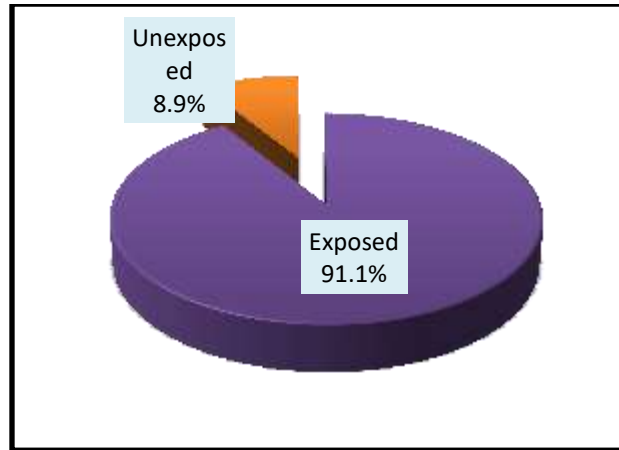


Figure (1): Percentage distribution of studied workers regarding health problem exposure (n=280).

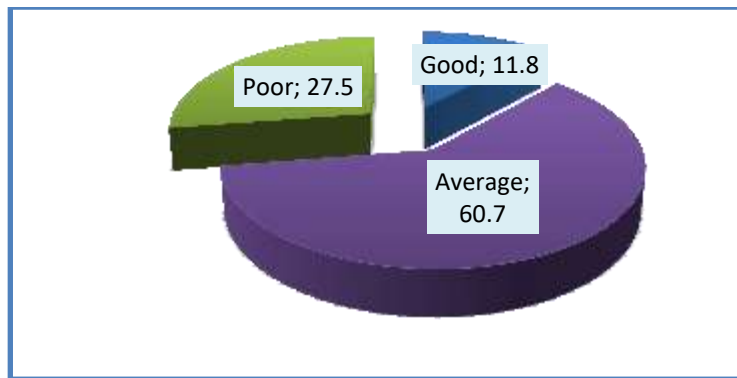


Figure (2): Percentage distribution of studied workers of their total knowledge level regarding occupational health hazards (n=280).

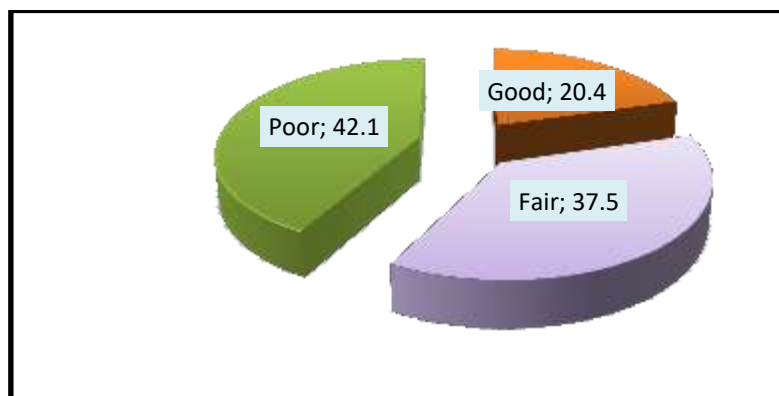


Figure (3): Percentage distribution of studied workers regarding their total health promoting lifestyle level (n=280).

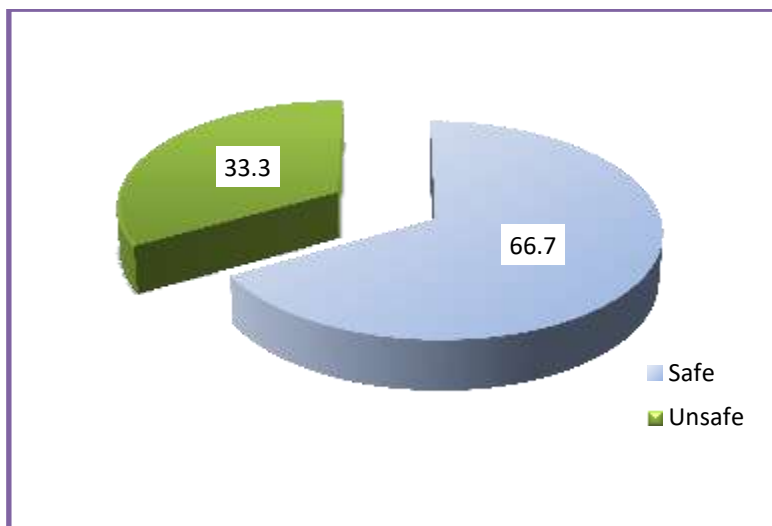


Figure (4): Percentage distribution of studied factories regarding its environmental safety.

Table (4): Frequency distribution of studied workers about total health promoting lifestyle items (n=280).

Items	Good		Fair		Poor	
	No	%	No	%	No	%
Health responsibility	24	8.6	63	22.5	193	68.9
Physical activity	46	16.4	35	12.5	199	71.1
Nutrition	59	21.1	98	35.0	123	43.9
Spiritual growth	55	19.6	104	37.1	121	43.3
Interpersonal relation	119	42.5	105	37.5	56	20.0
Stress management	41	14.6	149	53.2	90	32.2

Table (5): Statistically relation between total health promoting lifestyle level and exposure to health hazards among studied workers (n=280)

Exposure to health hazards	Total health promoting lifestyle						X ²	p-value
	Low (n=118)		Moderate (n=105)		Good (n=57)			
	No	%	No	%	No	%		
Unexposed	5	4.2	11	10.5	9	15.8	6.803	.033*
Exposed	113	95.8	94	89.5	48	84.2		

* Statistical significant $p \leq 0.05$.

Discussion:

Occupational health is the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations by preventing departures from health controlling risks and adaption of work to people. Occupational health services include the three public health practice priorities, health promotion, prevention and health protection (WHO, 2019).

A lifestyle is a way of living that could be considered either healthy or un healthy depending on personal behavioral choices. Health-promoting lifestyle is a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization and fulfillment of the individual. Health promoting behaviors include healthy responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. A health promoting lifestyle is an important determinant of health status and is recognized as a major factor for the maintenance and improvement of health (Masoudi et al., 2020).

According to demographic characteristics of studied workers, the current study showed that less than half of the studied workers aged ranged between 30 to less than 40 years with Mean \pm SD=38.51 \pm 5.10, and most of them were male, more than three fifths of studied workers were secondary education and less than three quarters of them were governmental employee, and concerning on marital status and residence of studied workers, the current study showed that less than three quarters of studied workers were married and less than three fifths of them

were from rural area. As regard to family members and income of studied workers, the present study revealed that, more than half of the studied workers have less than 3 members in their family and more than two thirds of them have enough income.

According to workplace characteristics related to years of experience, the present study described that half of the studied workers had experience ranges from 5-10 years. This finding in contrast with El-Moselhy et al., (2017), who studied "Some of the non-auditory effects of noise among exposed workers in Abou-Qurkas sugar factory, El-Minia governorate, Egypt" and reported that more than two thirds of the studied workers had experience ranges from 10-20 years. This might be due to work in early age to increase income.

According to workplace characteristics related work hours and work nature requirement, the current study showed that more than two thirds of studied workers work 6-8 hours and standing long time during their work. These findings in the same line with Bonsa et al., (2019), who studied "Magnitude of occupational exposure to bagasse dust and associated factors among Metehara Sugarcane Factory workers, east Shoa, Ethiopia" and reported that more than two thirds (68%) of studied workers work 6-8 hours and standing long time during their work. This might be due to the policy of factory and the nature of work which requires standing long time for preparation of sugar.

Also current study illustrated that, more than one third of studied workers take course about the risks that can occur while operating machinery. This finding in disagreed with Maharani et al., (2020), who studied "Measurement of the

performance of the sugar cane grinding machine at the Madukismo Sugar Factory, Japan" and reported that more than two thirds (67%) of studied workers take course about the risks that can occur while operating machinery. This might be due to interested in increase awareness about risks that can occur while operating machinery and the importance of training course before using any machines or equipment's and the importance of using safety equipment in the factory.

According to occupational hazard the current study illustrated that most of the studied workers exposed to health problem and few of them unexposed to any health problem (figure 1). These findings in agreed with **Saravanan et al., (2020)**, who studied "Occupational problem and pulmonary function among workers of sugar factory in Villupuram, India" and found that more than three quarters(79%) of the studied workers exposure to health problem and more than one fifth(21%) of them unexposed to any health problem. This might be due to increased risks in this work, improper use of personal protective equipment's, there's no periodic checking of PPE and no periodic training on occupational safety.

Regarding to using protective equipment's by studied workers, the current study showed that most of the studied workers wear overall uniform while majority of them don't wear eye glasses during their work. This might be due believes that eye glasses not important or might be due to program of training course not focused on importance of personal protective equipment. These findings in the same line with **Basuki et al., (2021)**, who studied "Performance and added value of brown sugar production in Rembang Regency, Indonesia" and reported

that the most(87%) of the studied workers wear work uniform. This might be due to over constriction and rules to wear overall uniform or this might be due to the use of uniform by workers at workplace is believed to minimize their exposure to work hazard and injuries. While the current study in contrast with **Maharani et al., (2020)**, and reported that more than three quarters (79%) of them wear eye glasses during their work.

According to the studied workers total knowledge level regarding occupational health hazards, the current study cleared that more than one tenths of the studied workers had a good total knowledge level regarding occupational health hazards, while three fifths of them had average total knowledge level regarding occupational health hazards and more than one quarter of them have poor level of knowledge regarding occupational health hazards. These findings in the same line with **Ahmed & Alam-Eldin, (2019)**, who studied "An assessment of knowledge of the worker in Sudan–The case of Sennar Sugar Factory, Sudan" and reported that more than one fifth (21%) of the studied workers had a good total knowledge level regarding occupational health hazards, while three fifths(60%) of them had average total knowledge level and less than one fifth (19%) of them have poor level of knowledge regarding occupational health hazards. This might be due to decrease level of education.

According to studied workers total health promoting lifestyle items, the present study described that more than two fifths of the studied workers have a good level of health promoting lifestyle regarding interpersonal relation; more than half of them have moderate level of health promoting lifestyle regarding stress management. These findings in disagreed with **Syed, (2020)**, who studied

"Diet, physical activity, and emotional health: What works, what doesn't, and why we need integrated solutions for total worker health, Ontario, Canada" and reported that more than half (54%) of the studied workers have a good level of health promoting lifestyle regarding interpersonal relation; more than two fifths (43%) of them have moderate level of health promotion lifestyle regarding stress management. This might be due to good relation and interaction between workers.

As regard relation between total health promoting lifestyle level and exposure to health hazards among studied workers, the present study illustrated that, there were statistically significant differences between total health promoting lifestyle level and exposure to health hazards among studied workers. This finding in the same line with **Tolera, (2018)**, who studied "Effects of employee's commitment on organizational performance sugar factory, Ghana" and reported that there were statistically significant differences between total health promoting lifestyle level and exposure to health hazards among studied workers. This might be due to lack of mechanisms to regulate occupational safety and health standards.

Regarding work environmental safety, the current study showed that more than two third of environmental sugar factories had safe environment and less than one third of them had unsafe environment. These findings disagreed with **Karkousha, & Elhafeza,(2017)**,who studied" Relation between the prevalence of work-related musculoskeletal disorders and years of job experience among workers of Nag Hammadi Sugar Factory in Egypt" and found that majority(90%) of the environmental

condition had unsafe environment. This finding might be due to new improvement of the structure and building in the factory to keep workplace free from hazards and increase safety of workers.

Conclusion:

The majority of the studied workers wear work uniform while most of them don't wear eye glasses during their work. Few of the studied workers had a good level of knowledge regarding occupational health hazards, more than three fifths of them had average level of knowledge and more than one quarter of them had poor level of knowledge regarding occupational health hazards. Approximately two fifth of the studied workers have poor level of total health promoting lifestyle, while more than one third of them have fair level of total health promoting lifestyle and one fifth of them have good level of total health promoting lifestyle. There was statistically significant positive correlation between total know ledge and total life style. There was a statistically significant difference between total health promoting lifestyle level and exposure to health hazards among studied workers.

Recommendations:

1- Periodic health educational programs for Sugar Factory workers, includes training for prevention of occupational hazards, safety measures, using personal protective devices and training for first aid measure , education about healthy lifestyle and its effect on health promotion.

2- A simplified and comprehensive booklet should be available for all workers which include a clear, brief and simple explanation about occupational health

hazards, first aid and risks of unhealthy lifestyle practices .

3- Orientation program for newly workers before starting the work on PPE, types of machines, types of occupational hazards and emergency plan.

4- First aid facilities and personal protective devices should be available in all Sugar Factory.

5- Further studies are needed based on effect of educational health promoting lifestyle program for workers at sugar factories.

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تعزيز نمط الحياة الصحي بين عمال مصنع السكر فيما يتعلق بمخاطر الصحة المهنية

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تعتبر مخاطر الصحة المهنية في جميع أنحاء العالم ما يقرب من ٣٠٪ إلى ٥٠٪ من العمال معرضين لمخاطر الصحة المهنية بسبب العوامل البيولوجية والكيميائية والفيزيائية وكما يقدر بـ ١٢٠ مليون من الإصابات المهنية التي تؤدي إلى ٢٠٠٠٠٠ حالة وفاة تحدث سنويًا. لذلك هدفت هذه الدراسة الى تقييم نمط الحياة المعزز للصحة بين عمال مصانع السكر فيما يتعلق بمخاطر الصحة المهنية. وقد أجريت الدراسة في مصنع سكر الحوامدية بمحافظة الجيزة على ٢٨٠ عاملاً تم اختيارهم بشكل عشوائي من ١٠٠٠ عاملاً. حيث اسفرت نتائج الدراسة أن أقل من ثلث العمال الخاضعين للدراسة يعانون من التهاب في الأذن. تعرض غالبية العمال الخاضعين للدراسة لمشاكل صحية. يرتدي غالبية العاملين زي العمل. أكثر من ثلاثة أخماس العمال الخاضعين للدراسة لديهم مستوى متوسط من المعرفة فيما يتعلق بمخاطر الصحة المهنية، وحوالي خمسي العمال الخاضعين للدراسة لديهم مستوى ضعيف فيما يتعلق بنمط الحياة المعزز للصحة. أكثر من ثلثي بيئة العمل للمصانع التي خضعت للدراسة لديهم بيئة آمنة. توجد علاقة ارتباط موجبة ذات دلالة إحصائية بين مجموع المعرفة ونمط الحياة الكلي. كان هناك فرق معتد به إحصائيًا بين إجمالي مستوى نمط حياة تعزيز الصحة والتعرض للمخاطر الصحية بين العاملين الخاضعين للدراسة. كما أوصت الدراسة بان هناك حاجة الي توفير برامج التنقيف الصحي الدورية للعاملين في مصنع السكر، وتشمل التدريب على الوقاية من المخاطر المهنية، وإجراءات السلامة، واستخدام أجهزة الحماية الشخصية والتدريب على إجراءات الإسعافات الأولية، وتنقيف العمال عن نمط الحياة الصحي واثره في تعزيز الصحة.