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First aid program for high way car drivers about road injuries

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***Abstract*---**Road injuries are a major public health problem that increases every day causing more deaths and disabilities each year. Aim of this study is to: assess Knowledge, practice of high way car drivers and their life style related to road injuries. Design: A quasi-experimental design. Setting: The study was conducted on Assuit governorate at south Assuit of high way car drivers. Sampling: Purposive sample of 140 high way car drivers. Tools: Two tools were used; Tool (1). Part I: Sample sociolect-demographic data for highway cars; Part II: Questions to assess driver knowledge of road injuries; Part III: Lifestyle assessment for highway vehicle drivers. Tool (2) Observational Check List also included questions to assess drivers' backgrounds. Results: Almost all high way car drivers studied had UN satisfactory level of knowledge related to road injuries before the program conduction. However, there was a significant improvement in Knowledge, Practice and Life Style for high-way car drivers after the program. The total of knowledge, practice and life style were highly statistically significant (p-value <0.001). Conclusion: The implemented program for high way car drivers related to road injuries have a good impact on high way car drivers` knowledge, practice and life style. Recommendation: High way car drivers should be required to take first aid training and avoid risky behaviors before getting their driving

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license and refresher courses for first aid before renewing their license.

Keywords---First aid program, High way car drivers, Road injuries, Drivers, Knowledge.

1 Introduction

Injury is Latin word for "not right". It`s mean hurt, harm, loss or wrong (Jone et al., 2015). It is a physical injury or damage brought on by contact with kinetic energy and is brought on by collisions, falls, and burns. (Gopalakrishnan, 2016). For people of all ages, traffic accidents are the eighth most common cause of mortality. The number of fatalities on the roads is still high and is expected to rise in 2018 to more than 1 million. (WHO, 2018).

In Egypt, road injuries are the 6th leading cause of death accounting 11.07% and injuries for accounting 3.58% of caused of disabilities and account one quarter (25%) of all outpatient visits (National Center for Biotechnology Information NCBI,2020). Road safety has severe economic repercussions as well. Each year, traffic-related deaths and injuries cost the global economy $518 billion. Additionally, COVID-19 has added to the load on cities and their transportation systems.The use of cars increased somewhat while the use of public transportation decreased in many places. Walking and cycling, two safer modes of transportation, have grown in popularity at the same time. As the COVID-19 pandemic continues to spread over the world, creating safe streets for bikes and pedestrians is crucial to "building back better." In order to restore the trust of the populace, cities must also modernize their public transportation networks. Car-oriented communities experience higher traffic fatality rates than cities with strong public transportation ridership (United Nations Global Road Safety week organization, 2021).

Road injuries in LMICs continue to be disproportionately high despite global efforts to reduce them, and progress toward meeting global road safety indicators remains gradual.(Imran et al., 2021). By delivering health care in accordance with health approaches, we may help people live healthier lives and overcome one of the biggest difficulties facing the world today: helping people adopt healthy lifestyles. To protect people against serious health risks throughout their lives, these habits should be implemented from an early age and maintained throughout life. Bio-psychological wellness is significantly influenced by lifestyle. There was a connection between lifestyle choices and health issues. (Golmakani et al., 2018).

A healthy lifestyle is promoted and high way road injuries (HWRI) are prevented and controlled in part by community health nurses (CHN). In addition to improving data collection, contributing to the creation of policies, developing prevention initiatives, engaging in advocacy, and participating in the implementation and evaluation of interventions, this role entails providing prehospital and hospital care as well as victim rehabilitation. (Gopalakrishnan, 2016).

Significance of the study

The absence of speed limits and high blood alcohol content among drivers are the main contributors to highway road injuries, according to a 2018 World Health Organization report on road safety in Egypt. Additionally, there is not enough infrastructure in the country to support non-motorized modes of transportation. One of the ten nations engaged in the WHO Road Safety (RS10) initiative is Egypt. The project will be carried out over five years by a group of six international partners. (WHO, 2018).

In Egypt, a high road fatality rate of 42 deaths per 100,000 Egyptians is seen. Additionally, it has some of the highest rates of road accidents in the Eastern Mediterranean. Traffic-related injuries account for 1.8% of all fatalities and 2.4% of all years of life lost due to disability in the United States. There are few studies on this subject, and there is a dearth of trustworthy information. (WHO, 2018). High-speed traffic accidents are the six most common causes of death in Egypt, accounting for 11.07% of injuries and 3.85% of causes of death. They also account for at least 25% of all outpatient visits..(Ministry of health and Population Occupational health Department and injury Surveillance report, MHPODIC, 2016)

Aim of the study

The aim of this study is to measure the effect of a first aid training program for highway car drivers on road injuries through

- Assessing knowledge of high-way car drivers about road injuries and first aid related to high-way road injuries.
- Assessing highway car driver's lifestyle
- Assessing the practice of highway car drivers about first aid related to highway road injuries.

Research Hypothesis:
The first aid program would improve highway car drivers' knowledge, practice, and lifestyle regarding road injuries.

2 Materials and Methods

Research Design: A quasi-experimental design was used to meet the study aims.
Research setting: The research was carried out in Assuit governorate, to the south of Assuit highway drivers.
Sampling: A purposive sample of 140 highway car drivers was selected. This sample has the following criteria: -Age range: 18 to 60 years; free from any chronic diseases or any disability.
Tools of data collection: Two tools were used for data collection:
Tool (1): A structured interviewing questionnaire sheet is the first tool. After reviewing the literature available, the researcher created the questionnaire, which was then written in straightforward Arabic in order to collect the following information.
Part I: (A) The socio-demographic characteristics of high-way car drivers include age, marital status, education level, years of experience, daily working hours, place of life, and type of license. It includes 7 closed-end questions from Q1 to

Q7. (B) high way car drivers' history of exposure to high way road accidents, which includes previous exposure to high way road accidents and if you have taken first aid courses before, if you have given first aid measures to injured victims such as first aid for bleeding, wounds, fractures, etc., If you have been exposed to a high-way car accident before, what type of first aid was given to you? What's the time you take for treatment? If the accident leaves deformity after treatment. It includes 13 closed-end questions from Q8 to Q20.

The scoring system

It contained 20 questions; each question had two or more answers. The correct and complete answer was scored two, the correct and incomplete answer was scored one, and the incorrect answer was scored zero. The response (Don't know) was considered as an incorrect answer during the collection of the total answer scores and took zero. The answers to open-ended questions were graded as correct, incorrect, or incomplete in the same way that the answers to multiple choice questions were. The scoring system was followed to the outcome of the high way car driver's response to the question. Total correct and complete answers were 40 points, equal to 100%, and according to the highway car driver's responses, the knowledge satisfaction level was categorized as satisfactory level for 50% or more of the total correct answers and UN satisfactory level for less than 50% of the total correct and complete answers.

Part II: (A) high-way car driver's knowledge of road injuries It includes the meaning of road injuries, people who are the most exposed to road injuries, the consequence of road injuries, factors that lead to road injuries, types of road injuries, causes of road injuries, how to avoid road injuries; Egypt's role in avoiding road injuries; It includes questions (Q21 to Q28). (B) a high-way car driver's knowledge of first aid related to road injuries. It includes the meaning of first aid, the importance of first aid, principles of first aid, characteristics of first aider, components of a first aid kit, methods of self-protection during first aid measures, role of first aider in highway road injuries. meaning of CPR, when we stop CPR, shock, causes of shock, signs of shock, wound, types of wound, bleeding definition, types of bleeding, signs of internal bleeding, fracture, types of fracture, signs and symptoms of fracture, burn, burn degrees, signs of superficial burn, signs of second and third degree burns, and signs of serious burns. It includes questions (Q29 to Q54).

The scoring system:

It contains 34 questions and questions number (Q24 has three levels in their answers, level one and level two have three levels, and Q26 has two levels in their answers), so we add 7 questions to total questions to become 41 questions. Each of these questions has three or more responses. The correct and complete answer was scored two, the correct and incomplete answer was scored one, and the incorrect answer was scored zero. The response (don't know) was considered an incorrect answer during collecting the total answer scores and took score zero. The high way driver's responses to questions were scored using the scoring system. The total correct responses to questions was 82 points, equal to 100%, according to the high way driver's responses. The knowledge satisfaction level was

categorized as satisfactory level for 50% or more of the total correct answers and UN satisfactory level for less than 50% of the total correct answers.

Part III: The Highway Car Drivers' Lifestyle Assessment Related to Road Injuries The scale consists of 53 items measuring seven dimensions. Nutrition (7 items): eating breakfast daily, choosing foods that don't contain protective substances, taking three meals regularly, etc. Exercised (5 items): walked at least three times per week; participated in light to moderate physical activity (such as 20-30 minutes of sustained walking three or more times per week), and so on. Health (10 items) Report any unusual signs and symptoms to a physician or other health professional in order to understand their instructions, read health-related books and magazines, and so on. Stress (7 items) Take some time for relaxation each day. Feel content and at peace with yourself. Know the reasons for stress in your life. Practice relaxation or meditation for 15-20 minutes daily. Interpersonal support (7 items) includes discussing your problems and concerns with people close to you, easily praising others for their accomplishments, and spending time with people close to you. Self-actualization (13 items) is defined as feeling satisfied with yourself, believing you are growing and changing in positive ways during this period, feeling happy and satisfied, and being aware of your character's strengths and weaknesses. Other habits (4 items): as if you are a smoker or exposed to second-hand smoke, taking sedative medications such as tamol, and taking narcotic herbs.

The Scoring System:

The responses to items are on a four-point liker scale from never (1) to always (4). The total of each sub scale is scored separately by summing up the responses. The total scale ranged from 53 to 212, with the higher scale indicating more frequently performing healthy behaviors. The alpha coefficient reliability of the sub scale was 0.92 and the alpha coefficient reliability of the sub scales varied from 0.70 to 0.90.

Tool (2): An Observational Check List was used to observe high way drivers' practice level regarding first aid. CPR (13 items), fracture (10 items), wound and bleeding (13 items), shock (11 items), burn (10 items), pulse rate (8 items), and respiration rate (6 items) are all included on the scale.

The Scoring System:

The scoring system for drivers' practice was scored as follows: 1 = Done, 0 = Not done. The total practice score was 71. The total practice score was considered satisfactory if it was 60% (43 points) or UN satisfactory if it was 60% (43 points).

Validity and reliability:

Content validity was ascertained by three experts from the community health nursing department (faculty of nursing) at Assuit University, to test its content validity.

The content reliability was done by Cronbachs Alpha co-efficient test, which revealed that the tools consisted of relatively homogenous items, as indicated by moderate to high reliability of each tool. The questionnaire was tested to be reliable with a Cronbachs Alpha Co-efficient of 0.79 for items, showing the tool proved to be strongly reliable.

Administrative Design

The nursing faculty of Ain Shams University granted the director of the Assuit Governorate Station official clearance. The study was carried out after receiving the required consent from the director of Assuit Governorate Stations. The study's goal and key data points were illustrated.

Pilot Study

A pilot study involving fourteen drivers was conducted. 10% of the sample is presented. The entire sample size does not include these highway motorists. The pilot study was carried out at the Assuit governance's south station. The purpose of the performed pilot study was to evaluate the usefulness of the tools, programs, and questions contained in relation to high-way car injuries among high-way car drivers.

Field Work

The fieldwork Data collection began in June 2021 and lasted until the end of December 2021. Before the first session, the evaluation phase (pretest) was conducted, and oral agreement was obtained following a description of the study's objectives. For each group, the researcher allots 4 days in the first week and 3 days in the second week. The average amount of time needed to complete the tools was 30 to 45 minutes for the questionnaire and 15-20 minutes for the checklist. We took 2.5 hours on the first day for data collection and the first session, then one hour per day until the last session. On the last day, we took 2.5 hours to evaluate the program. Pretesting for the assessment phase took place in the general cafeteria.

Ethical Consideration:-

The director of the Assuit governorate Stations was given official consent by the nursing faculty at Ain Shams University. Before beginning the study, each driver gave their verbal consent. Each driver was given a brief description of the study's purpose and the value of their involvement. promote data privacy and drivers' unrestricted ability to drop out of the study at any moment.

Program Construction:

Assessment phase: In this phase the researcher collected the following data:
Assessment of driver sociolinguistics and demographic information, assessment of driver first aid knowledge and skills, and assessment of driver performance towards a healthy lifestyle (pretest program), as reported. The assessment phase (pretest) was completed before the start of the first session for each group of high-

way car drivers (14 groups). The assessment phase (pretest) was completed to evaluate the baseline data for drivers' knowledge, skills, and way of life in order to identify their needs by gathering information from them. The purpose of the study was explained to the highway automobile drivers, who were then given questionnaires to complete; on average, the questionnaire took 30–45 minutes to complete, while the checklist took 15-20 minutes.

Planning Phase: The researcher created a program based on earlier research as well as information from books, journals, and the internet relevant to this study. The supervisors amended and validated the program. The overall objective of the program was to improve high way car drivers' knowledge of road injuries, knowledge and practice related to first aid for road injuries, and improve their lifestyle that effects their driving. Program Booklet: A booklet including all content of the program was designed and given to high way car drivers as a reference during the program implementation. It`s aim was providing accurate knowledge and practice about first aid for high way road injuries and drivers healthy life style.

Implementation Phase: There were seven sessions during the implementation phase, lasting 45 to 60 minutes each. For each group of drivers, there were a total of 6.17 hours of theoretical sessions and 0.83 hours of practice sessions (50 minutes). Each group's total program time was 7 hours, and the overall program time for the entire sample (14 groups) was 98 hours. While the medium used for instruction comprised handouts (booklets), pictures, real objects, data shows, and presentations, the instructional methods used were lecture, discussion, demonstration, and re-demonstration. At the end of each session, a summary was made and extra time was allocated for each question and answers, as well as plans for the next session were made.

Evaluation Phase: This phase aimed to evaluate the level of improvement in highway car drivers' knowledge and practices related to first aid and knowledge related to highway car drivers' lifestyle that affects driving by implementing a post test immediately at the end of the program.

Statistical Design:

Data collected from the studied sample was revised, coded, and entered by using computerized data entry. Statistical analysis was fulfilled by using the statistical package for social science (SPSS), version 24 as; Quantitative data was expressed as mean standard deviation (SD), the range (maximum-minimum).Qualitative data was expressed as frequencies and percentages. For qualitative continuous data, an independent samples t-test was used for comparing the means of two groups. One-way analysis of variance (ANOVA) was used for comparing the means of more than two groups. The Pearson correlation coefficient was used to determine the correlation of two continuous variables. The Chi square test (x2) was used for categorical variables. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So the significance level is considered at - P-value > 0.05, which was considered insignificant (NS). p-value 0.05 was considered significant (S).

Obstacles of the study: Difficulty to get a quiet, clean and wide place to conduct the program especially data collection done in corona epidemic. Difficulty to get strict time to every session because drivers have different shifts of working.

3 Results and Discussions

Table (1): reveals that 53.6% of the studied sample was between the ages of 35 and 45, with a mean age of 21.27 ±5.43, and that 67.1% were married, while 17.9% were single. In addition to their education was basic education (42.9%), while (23 %),(20%) were read and write and illiterate in sequence. This table also shows that (71.4%) of them come from rural areas, with 48.6% of the studied sample having experience ranging between 1–5 years, and (35.7%) of them having experience of more than 5 years.

Table (2) and Figure (1) : They show that (71.4%) of the studied sample witnessed road injuries before and (5.7%) of them only took previous courses about first aid. In addition, 20.7% of the studied sample have exposure to road injuries, and (48.3%) of them are cured during the first month, and (65.5%) of them have no consequences. This table also shows that (62.1%) of drivers who are exposed to road injuries are not given first aid during their accident.

Table (3) and figure (2) show that the total mean scores of knowledge, practice, and lifestyle related to road injuries in the pre-training program as (2.9%), (1.4%), and 18.6% for satisfactory scores to be improved and reach (95.7%), (100%), and (100%) in the post program with a highly significant statistical level (P. value <0.001).

Table (4): demonstrates a relation between a driver's age and knowledge, practice, and lifestyle means with (21.37±7.3), (23.84±4.35) and (94.72±10.25) in the age group (35-45 years) in pre-training program to be (61.33±4.3), (54.53±2.71) and (160.81±6.65) in post training program respectively.

Also, this table shows that there is a relation between drivers' marital status and their knowledge, practice, and lifestyle means related to road injuries with (20.87±6.14), (23.84±4.81)and (95.78±10.46) in married group in the pre-training program to be reached to (61.06±4.54), (53.83±2.59) and (160.71±7.17) in the post-training program respectively.

Also, this table shows that there is a relation between drivers' education and their knowledge, practice, and lifestyle related to road injuries with (18.88±3.56), (22.23±5.73) and (92.36 ± 7.86) for the basic education group in pre-training program to be (59.42±3.74), (53.87±2.64) and (158.87±6.64) in post-training program respectively.

Also, this table shows a relation between drivers' experience and knowledge, practice, and lifestyle, with (21.19±6.52), (23.32±4.54) and (98.21±10.76) in (1–5) years of experience in pre-training program to be reached at (60.38±4.32), (53.82±2.68) and (159.69±6.95) in post-training program respectively.
Also, this table shows a relation between drivers' residence with knowledge, practice, and lifestyle means related to road injuries with (21.15±6.75), (23.5±5.2)

and (94.61±10.27) for rural drivers residence in pre-training program to be (61.23±4.63), (54.89±2.41) and (161.51±7.44) in post training program respectively.

Table (5): This table shows that there is a relation between the number of witnesses of road injuries before and the mean of knowledge, practice, and lifestyle related to road injuries with (21.71±6.52), (23.83±4.44) and (93.81±10.46) in pre-training program to be reached to(59.39±4.71), (54.07±2.62) and (161.66±7.05) in the post training program, respectively.

Also, this table demonstrates that there is a relation between exposures of drivers to road injuries before with knowledge, practice, and lifestyle mean in pre-training programs with (21.31±5.74), (24.31±4.45) and (94.97±10.08) to be reached to (62.66±4.38),(54.31±2.35) and (94.97±10.08) post training program respectively.

Also, this table illustrates there is a relation between previous first aid training courses with knowledge, practice and life style mean in pre-training program with (41.5±3.42), (24.25±3.69) and (106.88±10.33) to be reached to (69.63±3.34), (54.38±2.33) and (169.75±8.17) in post-training program respective

Table 1: Demographic Characteristics of the Sample under Study (N = 140)

Demographic characteristics	N	%
Age/years		
<35	38	27.1
35-45	75	53.6
>45	27	19.3
Mean ±SD 21.27±5.53		
Marital Status		
Single	25	17.9
Married	94	67.1
Divorced	13	9.4
Widow	8	5.7
Education		
Illiterate	28	20.0
read and write	33	23.6
Basic education	60	42.9
University	19	13.5
Years of experience		
<1year	22	15.7
1 – 5 years	68	48.6
>5 years	50	35.7
Mean ±SD 21.06 ± 6.69		
Residence		
Rural	100	71.4
Urban	40	28.6
Car Type		
Taxi bus	55	39.3

Government bus	35	25.0
Special car	50	35.7

Table (2):-Distribution of Highway Car Drivers Related to their History of Road Injuries and First Aid (N=140)

History Items	N	%
Witness of road accident before		
Yes	100	71.4
NO	40	28.6
First aid training courses		
Yes	8	5.7
No	132	94.3
Training courses Numbers		
One	1	12.5
Two	2	25
Three	3	37.5
More than three	2	25
If you Introduced first aid during road injuries		
Yes	23	16.4
No	117	83.6
Exposure to road injuries		
Yes	29	20.7
No	111	79.3
Time of treatment		
1month	14	48.3
2month	5	17.2
3months	6	20.7
More than 3 months	4	13.8
Accident consequence		
Yes	10	34.5
No	19	65.5
Bone deformity	3	30
Skin deformity	3	30
Maxillofacial defect	4	40
Income during accident treatment		
Yes	7	24.1
No	22	75.9
If first aid introduced to you during your accident		
Yes	11	37.9
No	18	62.1

Table (3): Relationship between high way car drivers' scores of knowledge, practice, and lifestyle related to road injury in pre and post training program (N = 140)

Items	Pre- program		Post-program		P. value
	Satisfactory (%)	Unsatisfactory (%)	Satisfactory (%)	Unsatisfactory (%)	
Knowledge about road injury	2.9	97.1	95.7	4.3	<0.001
Mean ± SD	21.29±6.57		60.46±6.24		
Practice about road injury	1.4	98.6	100	0.0	
Mean ± SD	23.34±4.99		54.12±2.63		
Life style about road injury	18.6	81.4	100	0.0	
Mean ± SD	95.49±1052		161.18±7.11		
Max Score	≥ 50%	<50%	≥ 50%	<50%	

Table (4): Relation between socio-demographic characteristics and the mean of knowledge, practice, and lifestyle of high-way car drivers related to road injuries (N = 140)

Demographic items	N	Mean of Knowledge about Road Injury		Mean of Practice about Road Injury		Mean of Life Style about Road Injury	
		Pre-Program	Post-Program	Pre-Program	Post-Program	Pre-Program	Post-Program
Age							
<35	38	21.6±6.9	59.4±4.7	20.5±5.3	53.5±2.6	99.9±10.6	159.7±7.7
35-45	75	21.4±7.3	61.3±4.3	23.8±4.4	54.5±2.7	94.7±10.3	160.8±6.6
>45	27	20.7±3.6	63.1±4.1	25.9±4.6	53.8±2.5	91.41±9.1	167.3±6.7
P. value		0.868	0.004	0.001	0.126	0.003	0.031
Marital Status							
Single	25	21.9±7.6	60.4±4.9	20.5±5.7	54±2.6	98.2±11.0	161.8±7.5
Married	94	20.8±6.2	61.1±4.6	23.8±4.8	53.8±2.6	95.8±10.5	160.7±7.2
Divorced	13	22.2±7.7	61.6±4.0	25±3.37	55.5±2.9	90.2±10.2	161.6±6.3
Widow	8	23±6.78	63.6±3.6	23.5±4.5	55.8±1.8	92.3±7.57	163.8±6.9
P. value		0.722	0.349	0.014	0.052	0.116	0.634
Education							
Illiterate	28	19.9±3.7	62.1±4.1	25.1±4.8	53.9±2.2	87.36±9	162.5±6.6
Read and write	33	20.5±4.6	61.2±3.9	24.3±3.9	54.5±2.8	92.3±7.86	161.2±6.6
Basic Education	60	18.88±3.56	59.42±3.74	22.23±5.73	53.87±2.64	96.68±8.41	158.87±6.64
University	19	32.5±8.7	65.2±5.5	22.6±3.6	54.5±2.95	109.2±8.3	166.6±7.2
P. value		0.001	0.001	0.045	0.632	0.001	0.001
Years of Experience							
<1years	22	20±7.15	59.1±4.9	19.6±5.5	53.68±2.6	97.8±10.9	159±8.09
1-5 years	68	21.2±6.5	60.4±4.3	23.3±4.5	53.8±2.68	98.2±10.8	159.6±6.9
>5years	50	22±6.41	63.2±3.9	24.9±4.8	54.7±2.49	90.8±8.33	163.8±6.2
P. value		0.488	<0.001	0.001	0.131	0.001	<0.004

Residence							
Rural	100	21.2±6.8	61.2±4.6	23.5±5.2	54.89±2.4	94.6±10.3	161.5±7.4
Urban	40	21.6±6.6	60.9±4.9	22.9±4.7	54.7±3.08	97.7±10.9	160.3±7.9
P. value		0.686	0.742	0.540	0.001	0.117	0.466

Table (5) the relationship between previous history and mean knowledge, practice, and lifestyle of highway car drivers and road injuries (N = 140)

History items	N	Mean of Knowledge about Road Injury		Mean of Practice about Road Injury		Mean of Life Style about Road Injury	
		Pre-Program	Post-Program	Pre-Program	Post-Program	Pre-Program	Post-Program
Witness of road accident before							
Yes	100	21.7±6.52	59.4±4.71	23.8±4.44	54.07±2.6	93.81±10.4	161.66±7.05
No	40	20.25±6.6	59.68±4.6	22.1±6.05	54.25±2.7	99.7±9.55	159.98±7.21
P. value		0.236	0.014	0.064	0.716	0.002	0.206
First aid training courses							
Yes	8	41.5±3.42	69.63±3.3	24.25±3.6	54.38±2.3	106.88±10.33	169.75±8.17
No	132	20.07±4.3	60.64±4.1	23.28±5.1	54.11±2.6	94.8±10.17	160.66±6.73
P. value		0.001	0.001	0.596	0.780	0.001**	<0.001**
Training courses number							
One	1	40±0	71±0	20±0	57±0	124±0	155±0
Two	2	38.5±0.71	68±0	24.5±7.78	55.5±0.71	105±11.31	169±4.24
Three	3	46±1.41	70±5.57	24.67±2.1	53.33±3.1	109.33±6.51	173.33±9.29
Above three	2	0.107	70±2.83	25.5±2.12	53.5±2.12	96.5±0.71	172.5±2.12
P. value		0.107	0.001	0.764	0.555	0.137	0.277
Exposure to road injuries							
Yes	29	21.31±5.7	62.66±4.3	24.31±4.5	54.31±2.5	94.97±10.08	94.97±10.08
No	111	21.29±6.7	60.76±4.5	23.08±5.1	54.07±2.7	95.63±10.67	95.63±10.67
P. value		0.987	0.044	0.239	0.666	0.763	0.763
If you introduced first aid during road injuries							
Yes	23	27.43±9.4	54.57±2.2	25.26±4.2	54.57±2.2	94.48±11.08	166.52±7.24
No	117	20.09±5.1	54.03±2.7	22.96±5.1	54.03±2.7	95.69±10.34	95.63 ± 6.62
P. value		0.001	0.378	0.043*	0.378	0.615	<0.001**
Time of treatment							
1 month	14	19.86±4.2	61.43±2.8	25.43±4.9	54.14±2.1	95.29±10.76	162.14±3.32
2 month	5	19.8±3.96	61.8±4.02	24±3.08	54.2±3.27	91.6±8.56	163.4±5.37
3 month	6	26.33±9.2	66.67±5.2	23±5.29	55±1.41	99.17±9.83	165.67±10.58
More than 3	4	20.75±1.7	62±5.83	22.75±2.6	54±3.56	91.75±10.97	164.75±7.41
P. value		0.111	0.085	0.612	0.892	0.592	0.679
Accident consequence							
Yes	10	23.3±7.94	64.6±5.19	23.2±2.2	54.9±2.85	96.4±10.66	164.7±8.64
No	19	20.26±4.0	61.63±3.6	24.89±5.2	54±2.05	94.21±9.98	162.79±4.39
P. value		0.180	0.082	0.339	0.335	0.588	0.433
Income during accident treatment							
Yes	7	24.4±10.1	64.29±5.8	24.14±5.5	55±2.58	98.86±12.71	164.29±8.01
No	22	20.41±3.3	62.14±3.8	24.36±4.2	54.09±2.3	93.73±9.1	163.18±5.57
P. value		0.136	0.265	0.911	0.382	0.248	0.685
If first aid introduced to you during your accident							
Yes	11	22.09±4.3	63.73±3.7	23.18±4.3	54.64±2.3	93.45±8.05	164.09±5.34
No	18	20.83±6.5	62±4.69	25±4.47	54.11±2.4	95.89±11.27	163.06±6.65
P. value		0.576	0.311	0.294	0.568	0.538	0.666

Table (6):-Correlation Co-efficient between Knowledge Score about Road Injuries with Lifestyle Related to Road Injuries and Practice of First Aid for Road Injuries. (N = 140)

Correlations	Knowledge Score About Road Injuries			
	Pre-training		Post-training	
	R	P	R	P
Life Style related to Road injury	0.311	<0.001**	0.705	<0.001**
Practice of first aid of road injury	0.089	0.293	0.517	<0.001**

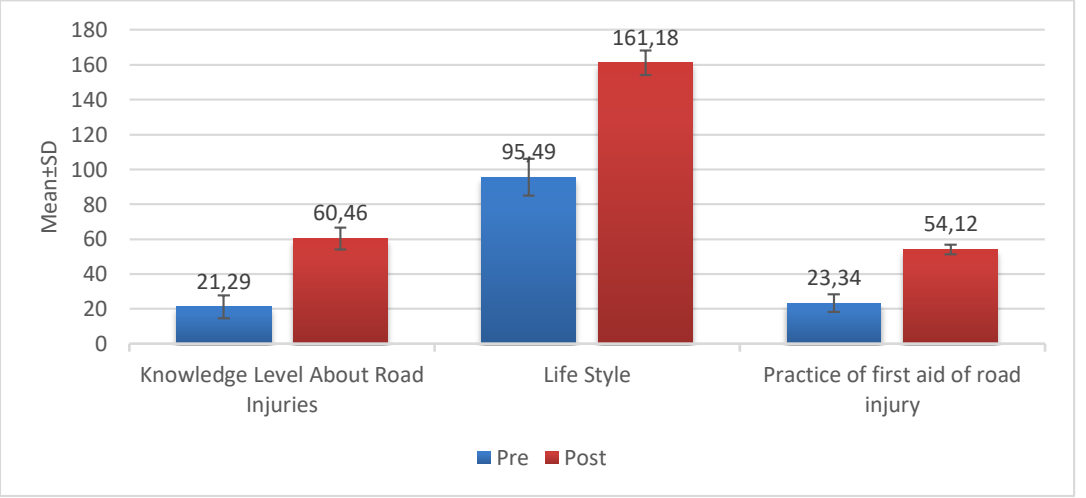

Figure 1: Correlation between total knowledge level, lifestyle, and practice of first aid related road injuries for highway car drivers at Assuit South Station (N = 140)

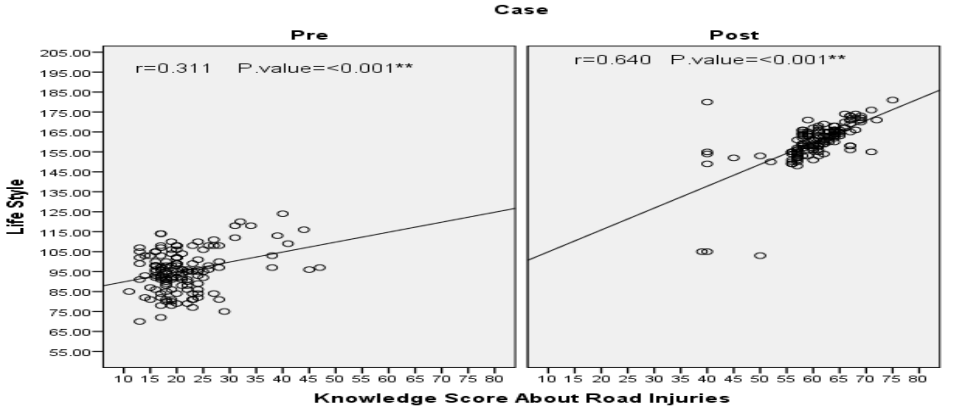

Figure (2): Correlation between lifestyle and knowledge-related road injuries for high-way car drivers at Assuit South Station (N = 140)

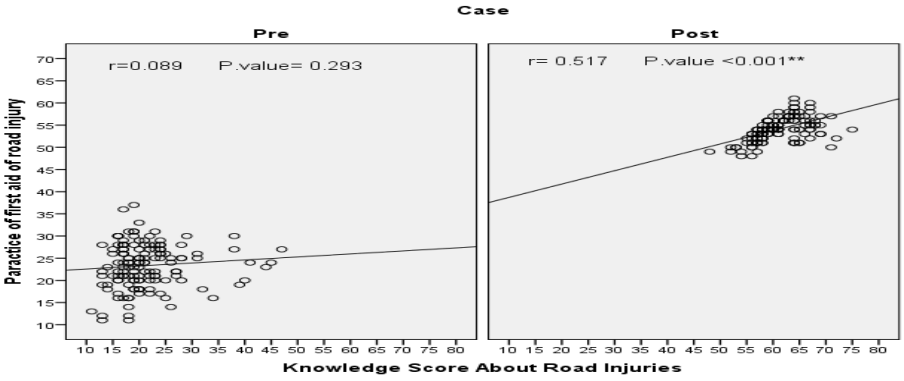

Figure (3): Correlation between practice of first aid and knowledge related road injuries for high way car drivers at Assuit south station (N=140)

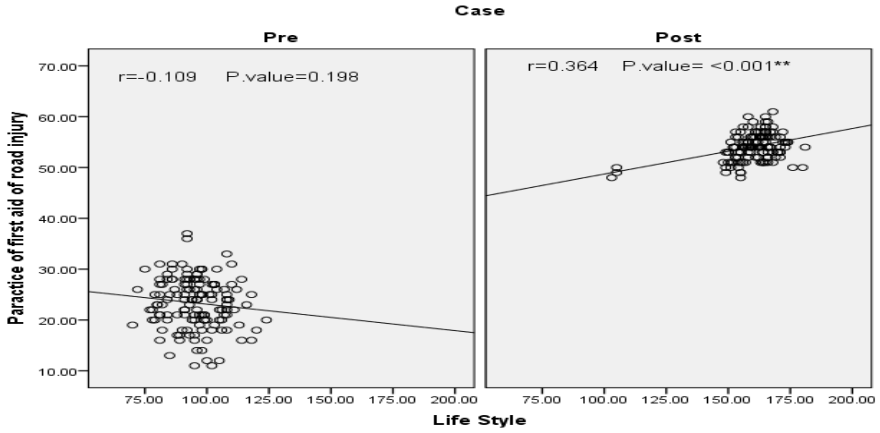

Figure (4): Relationship between first-aid practice and lifestyle-related road injuries among high-way car drivers at Assuit South Station (N = 140)

Discussions

The main concern of this study was improving high way car drivers knowledge, practice and life style related to road injuries. Regarding the sociolect-demographic characteristics of high-way car drivers, this study discovered that more than half of the studied sample was between the ages of 35 and 45, with a mean age of (21.27±5.53) (Table 1). This finding is in agreement with Cheroks, (2014) who made a study on "Assessment of Knowledge, Attitude, and Practice toward First Aid Related to Road Traffic Accidents Among Traffic Police in Lideta, Kirkos, and Arada Sub Cities of Addis Ababa, Ethiopia" and found that the average age of the study participants was (27±7.42) with a range of (28–50) years. This study finding was contradicted by Vakil et al. (2014), who performed a study on "The efficiency of first aid training courses for drivers: an experience from northern Iran" and reported the mean age of drivers was (39.84±9.75) years.

Regarding marital status, this study's results present that more than two thirds were married (Table 1). This result was in agreement with Madkour et al. (2020), who performed a study on "Car-drivers' knowledge and practice regarding

first aid of road traffic accidents at Sohag University" and reported that 83.9% of study participants were married.

The current study found that more than half of the drivers had a basic education and that nearly three-quarters of the participants lived in rural areas (Table 1). This result was in agreement with Abd El-rahman et al. (2018), who performed a study in Benha, Egypt about first aid training programs for drivers regarding road traffic injuries and reported that more than a third of the participants have basic education and more than half come from rural areas. This study's results were in contrast with Sunday et al., (2014), who studied "knowledge, attitude, and practice (KAP) of first aid treatment of road crash victims among commercial intercity drivers and its implications in Nigeria" and reported that the education level was secondary education for 44.5% of the drivers. This result was in disagreement with Rebak et al., (2015), who reported that 65% of respondents lived in town in their study about "Knowledge of first aid in road traffic accidents among drivers from the Staszow country in Poland". This low level of education comes from the fact that more than half come from rural areas.

Regarding years of experience, this study revealed that nearly half of the participants have an experience range of between 1–5 years and more than a third have experience over five years, with a mean of experience years (21.06 ± 6.69) (Table1). This result is in agreement with Olugbenga-Bello et al. (2012), who studied "first aid knowledge and application among commercial inter-city drivers in Nigeria." and reported that the mean driving experience of participants was 26.1 years. This study was nearly related to Abd El-Rahman et al. (2018) and Madkour et al. (2020). They reported that the mean of experience years was (19.06±5.5), (19.54±8.72) respectively.

Regarding having witnessed road accidents before, the result of this study revealed that nearly three-quarters of the studied sample had witnessed road accidents before **(Table 2).** This result was in agreement with Abd. El-rahman et al., (2018) and Madkour, (2020). They reported that (80%), (93%) have witnessed accidents before, respectively. Also, this result was in disagreement with Getahun, (2015), who studied "Assessment of knowledge, attitude, and practice of first aid services provision associated with road traffic accidents among taxi drivers in Addis Ababa, Ethiopia." and reported that 39.5% of study participants had witnessed road traffic accidents. This may be due to the different geography of each country.

Regarding obtaining previous first aid training courses, the present study revealed that nearly all of the drivers hadn't received previous first aid training courses **(Table2).** This finding was consistent with Abd. El-rahman et al., (2018), who reported that all of the drivers participants had not previously received first aid training courses; Madkour et al., (2020), who reported that 92% of drivers had not previously received first aid training courses; and El-sharkasy et al., (2015), who reported that 95% of all drivers had not previously received first aid training courses. Also, these results disagree with Tashale & Alemu (2017), who report that 74% of the taxi drivers had previous first aid training courses.

According to the research hypothesis about drivers' total knowledge score regarding road injuries and first aid, this study found that the majority of drivers had inadequate knowledge in the pre-training program.However, this result is improved to be nearly all of them have knowledge about road injuries and first aid with a significant difference P-value < 0.001 **(Table3, figure 1) .**

This study revealed that the majority of drivers have inadequate practice in pre-training programs, according to the research hypothesis about drivers' total practice score regarding first aid for road injuries. However, this result is improved to be all of them becoming practical about first aid related to road injuries with a significant difference P-value < 0.001 **(Table 3, figure 1).**

According to the research hypothesis related to total lifestyle score for drivers in pre-training program, this study revealed that the majority of them were unsatisfactory before program implementation and then improved to be all of them became knowledgeable with a highly significant level (p 0.01) (Table 3, figure 1).This might be a result of drivers spending days on the street and not having time or place to choose the best diet or exercise or take care of their health. This leads to an increase in stress level, decreased sleeping hours, and an increase in caffeine consumption that may contribute to an increase in high-way road injuries.

In terms of the relationship between socio-demographic characteristics and drivers total knowledge mean scores, the current study found statistically significant relationships in both pre-program implementation and post-program implementation for age, marital status, education, years of experience, and residence (Table 4). This finding is in agreement with El-Sharkasy et al. (2015). They stated that there were statistically significant relations in pre-program and post-program implementation for drivers about total knowledge score, car driver education, and number of training courses. This study is also, supported by Abd, El-rahman et al. (2018), who reported that there was a statistical relation between drivers' total knowledge score and years of experience in pre-program and post-program implementation.
Also, this result is associated with Nayak et al. (2014), who reported a significant association between knowledge and socio-demographic variables such as age, education, membership in any social organization, and place of living. This might be when the driver's age; years of experience increase. This may have a good effect on a question of knowledge.

In terms of the relationship between socio-demographic characteristics and drivers total practice mean scores, the current study found highly statistically significant relationships in both pre-program implementation and post-program implementation for age, marital status, education, years of experience, and residence (Table 4). This finding is in agreement with El-Sharkasy et al. (2015). They stated that there were statistically significant relations in pre-program and post-program implementation for drivers about total practice score, car driver education, and number of training courses. This study is also, supported by Abd, El-rahman et al. (2018), who reported that there was a statistical relation between drivers' total practice score and years of experience in pre-program and post-program implementation. This result is in disagreement with Alnour et al. (2022),

who reported that the relationship between the demographic characteristics of the driver such as education, place of getting a driver's license, and participating in first aid courses and their practice was found statistically insignificant (p>0.05).

In terms of the relationship between socio-demographic characteristics and drivers' total life style scores, the current study found that there were highly statistically significant pre-program and post-program implementation relationships between drivers' total life style scores and age, marital status, education, years of experience, and residence (P 0.05, P 0.01).This result is in agreement with Carballo et al. (2020), who found that lifestyle was high in people who were primary school and lower in university graduates. Also, this result is supported by Kaboudi et al. (2017), who stated that more than half (53.58%) of people who had lifestyles at a moderate level.

Regarding a relation between witnesses of road accidents before, the result of this study revealed that nearly three-quarters of the studied sample have witnessed road accidents before and have a statistical relationship with drivers' knowledge, practice, and lifestyle related to road injury **(Table 5).** This result was in agreement with Abd. El-rahman et al., (2018) and Madkour, (2020). They reported that (80%), (93%) have witnessed accidents before, respectively. Also, this result was in disagreement with Getahun (2015), who studied "Assessment of knowledge, attitude, and practice of first aid services provision associated with road traffic accidents among taxi drivers in Addis Ababa, Ethiopia." and reported that 39.5% of study participants had witnessed road traffic accidents.

Regarding the relation of obtaining previous first aid training courses, the present study revealed that nearly all drivers hadn't received previous first aid training courses and had a statistical relationship with knowledge, practice, and lifestyle **(Table5).** This finding was in agreement with Abd. El-rahman et al., (2018) who reported that all of the drivers' participants hadn't received previous first aid training courses and also, in agreement with El-sharkasy et al., (2015) who reported that 95% of all drivers hadn't received previous first aid training courses. Also, these results disagree with Tashale & Alemu, (2017), who report that 74% of the taxi drivers had previous first aid training courses.

There was a positive correlation between total knowledge score, total practice score, and lifestyle score in the current study's pre and post training program conduction (r = 0.517, p 0.001) (Table 6).This result was in agreement with El-Sharkasy et al., (2015) and Abd El-rahman et al., (2018) and Madkour et al., (2020). They conducted studies in Port Saied, Benha, and Sohag in Egypt, respectively, and reported that there was a positive correlation between total knowledge score and total practice score in pre and post training programs. This study is in agreement with Leyton et al. (2021), who conducted a study in Brazil and Tashale and Alemu (2019). They found a significant positive correlation between the knowledge score and practice score of first aid and factors associated with practice among taxi drivers (r = 0.350, p = 0.05).

4 Conclusion

This study concluded that there is a lack of knowledge, practice, and lifestyle about road injuries in pre-program implementation that is improved after program implementation. To improve their knowledge and practice, highway car drivers must participate in ongoing first aid training programs related to road injuries.Increasing health education programs educate highway drivers on how to maintain health, achieve maximum well-being, and avoid risky behaviors.First aid measures and lifestyle programs should be planned, implemented and directed to be included among all health programs a

Simple language is used on radio and television to assist both educated and uneducated citizens on the road. Obligate high way car drivers to take first aid training courses before getting a license and refresher courses for first aid before renewing this license. Set legislation to ensure that each car contains a first aid kit and a fire extinguisher increase public awareness about first aid measures.

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