

Assessment of Knowledge, Attitudes, and Perceptions of Safety and Prevention Procedures among Butchers in Derna and Neighboring Areas / Libya

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ABSTRACT : This study assessed the knowledge attitude and practice of butchers in Derna City and nearby areas \ of Libya, aimed to gain Knowledge on meat handling of slaughterhouse workers in Derna, & the factors related to the knowledge, attitude and practices of slaughterhouse butchers in the Derna, Material & Methods: this was a descriptive cross-sectional study design that involved the use of quantitative methods. The study was conducted from different through personal interviews with butchers in the city of Derna and its suburbs, (Karssa, Martouba) and collecting questionnaires from them was completed from June 2021 to October 2021, Result: It is noticeable the percent of knowledge answered for Butcher, which receives vaccination (60%), which using PPE 58%, which check regally (66.7%), which know the discarded methods of wastes, (52.7%), which know the diseases which transmitted by meat (59.3%), which receive education program the control and prevention (44%). Conclusion: The results indicate that the study found no relationship between the extent of awareness of butchers and their practices in some questions and in some other questions there is no relationship between the level of education and awareness. Therefore, it is recommended to increase and intensify awareness lectures on prevention and control

Keywords: Assessment, Knowledge, Safety, Prevention, Butchers, Libya

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INTRODUCTION

Globally, the demand for beef is continually on the rise, providing a highly desirable eating experience, even in developing countries (Okpala et al., 2021a), Recreational (catch-and-release (henceforth C&R)) fishing, defined as “a noncommercial activity that captures fishes for purposes other than nutritional needs” (Gupta et al., 2015), “Cleanliness in the butchery” and “Trust in butcher” while “Presence of flies in butchery”, “Age of the animal”, “Pest animals in butchery” and “Fat layer of meat” were the least significant qualities (Figure 3). Others varied in-between such as “Price”, “Color of meat”, “Bony meat”, “Butcher wearing coat”, “Type of building structure” and “Butchery close to main road”.(Heilmann et al., 2015), Meat is the most perishable of all staple foods since it contains sufficient nutrients needed to support the growth of microorganisms (Ribah et al., 2021), This attitude-behavior gap has been attributed to the duality consumer/citizen, the scarcity of information about animal welfare, the high prices of products, the low availability of this type of product and low confidence in their labeling system (Miranda-de la Lama et al., 2013), In both developing and developed countries, emergence of new zoonosis might be the result of either newly identified pathogens or agents that are already known, usually appearing in animal species in which the disease had not formerly been detected (Prabhakar et al., 2017), Leptospirosis is an important occupational hazard to butchers, animal handlers, agriculture manual laborers, sewage workers, forestry workers and other outdoor workers who work in wet conditions. The disease has a cosmopolitan distribution. Epidemiological studies have shown a clear predominance of this infection in low remuneration professions (Brown et al., 2011), Contaminated meat is one of the major causes of the global burden of foodborne diseases.

According to the World Health Organization (Khanal & Poudel, 2017), the inadequately of the knowledge of the butchers of Rafsanjan city about Crimean-Congo fever disease, hence, for enhancing their level of knowledge it is suggested that training sessions should be held continuously regarding Crimean-Congo hemorrhagic fever for butchers. (Asadpour et al., 2020), For CCHF, it is suggested that more studies conducted on other risk groups such as farmers, health personnel, and people living in this area also other endemic areas (Gorouhi et al., 2020a), A gross lack of awareness about the disease is one of the prime factors that leads to under-reporting of human mortality due to rabies (Tiwari et al., 2019), the latter obtained similar odds ratios trends based on the butchers’ years of work experience. The butchers’ acceptance of negative meat inspection outcomes can improve if veterinarians engage more effectively. (Okpala et al., 2021b), the sample considered all the small business butcher shops from a single municipality in the North of Portugal. This study excluded all

medium to large business or those integrated into retailing chains. Butchers managing or owning the small business butcher shops answered to face-to-face interviews which took place to apply TPB questionnaires, following an informed consent (Ramalho et al., 2015)

THEORETICAL REVIEW

Rayees Ahmed Bafanda et al, study the Perceived Training Needs of Butchers and Meat Retailers Regarding Meat Handling Practices in Jammu District of Jammu and Kashmir, in 2017, **aimed to**: enhance the viability and safety of current consumer protection systems in the region, a significant increase of investment by abattoir/meat business operators in suitable equipment for hygienic slaughtering and proper meat inspection as well as in waste treatment facilities is an urgent requirement. to enhance the viability and safety of current consumer protection systems in the region, a significant increase of investment by abattoir/meat business operators in suitable equipment for hygienic slaughtering and proper meat inspection as well as in waste treatment facilities is an urgent requirement. **Results:** Frequencies, percentage, mean and standard deviation were worked out for meaningful interpretation. It was found that all meat handlers (100%) emphasized about the need of basic training provided through either family members or colleagues, whereas 78.33% meat handlers also felt the need for formal training provided through an institutions. Efficient slaughtering, cutting of carcasses, display of carcass/meat, proper packaging of meat and preparing different meat products were the specific area where the majority of meat handlers perceive the need for trainings. **Conclusion:** Few meat handlers were also willing to receive training about meat associated disease identification and reporting of animal diseases respectively. Result also revealed that majority of meat handlers were willing to undergo short duration training at their own workplace and funded by government.(Bafanda et al., 2018)

In the Tamale Metropolis in the Northern Region of Ghana. The study investigated meat handling hygienic knowledge, attitude, and practices among slaughterhouse workers in the Tamale Metropolis. In 2020,

SOLOMON OSSOM ASARE, this study was therefore to assess the meat handling hygiene knowledge, attitudes and practices of slaughterhouse workers and to identify the determinants of the knowledge, attitudes and practices of the butchers. **Result:** Male (95%) and female (4.5%) respondents had no formal education. The level of high hygiene knowledge and cross contamination knowledge of the slaughterhouse workers were found to be 23% and 30% respectively. 28% and 25% of the butchers also respectively had high desirable meat handling attitude and high recommended meat handling practices. After

controlling for other explanatory variables, absence of functional waste bins for solid waste management (AOR: 2.844, 95%, CI: 0.918 - 8.810, $p=0.070$) and non-availability of separate areas demarcated for slaughtering and skinning processes (AOR: 14.126, 95%, CI: 2.994 - 66.645, $p<0.01$) as operational challenges were both found to be strong predictors of meat handling hygiene knowledge of the slaughterhouse workers. Meanwhile, the level of recommended hygienic practices of the slaughterhouse operators were found to be independently related to non-availability of drains for liquid waste management in the slaughterhouse as an operational challenge [(AOR: 42.845, 95%, CI: 4.757 - 385.915, $p<0.01$)]. **Conclusion:** The knowledge, attitudes and practices of the slaughterhouse workers were low and largely predicted by operational challenges (Asare, 2020). In 2020, in Nigeria, in Kerman City, **Okpala, et al**, study, towards delineating butchers' knowledge base, challenges encountered, and enhancement prospects of meat inspection processes. This study **aimed** towards delineating the butchers' knowledge base, challenges encountered, and enhancement prospects of meat inspection processes via case analysis of a cattle slaughterhouse at Nsukka urban, considered representative of many others in Nigeria. **Result:** The butchers, all male (Freq.=100.0%, $n=54$), largely secondary school educated, most with >5 years of work experience and delivering ≥ 5 days/week work patterns, were very familiar with slaughterhouse components, clearly understood what meat inspection is and appeared always prepared for the worst outcomes.

Butchers (Freq.=98.15%, $n=53$) considered meat inspection important ($p<0.0001$, H-adj.=99.22) to increasingly priorities beef meat and consumer safety. Butchers' challenges in the meat inspection process include the fear of losing the beef meat, or entire cattle carcass and the financial implications of any loss. Despite some positively ($p<0.05$) correlated variables, **Conclusion:** obtained similar odds ratios trends based on the butchers' years of work experience. The butchers' acceptance of negative meat inspection outcomes can improve if veterinarians engage more effectively. (Gorouhi et al., 2020b). In December 16, 2018, in Jammu District of Jammu and Kashmir, In Nigeria, in 2021, **Charles Odilichukwu R. Okpala, et al**, study Assessing Nigerian Butchers' Knowledge and Perception of Good Hygiene and Storage Practices. **Aimed to:** the continuity of hygiene activities within the storage stages. Relevant literature about butchers' knowledge and perception of good hygiene and storage practices within Nigeria slaughterhouses remains scant.

This current study, therefore, assessed butchers' knowledge and perception of good hygiene and storage practices through a cattle slaughterhouse case analysis. The selected cattle slaughterhouse serves the increasingly thriving Nsukka beef market in Enugu State, Nigeria **The results:** showed that the butchers were male (Freq. = 100%, $n = 50$), acquired their knowledge informally

(Freq. = 88%, n = 44), were largely with more than 5 years of slaughterhouse experience (Freq. = 82%, n = 41), and were strongly ($p < 0.0001$) familiar with good hygiene (Freq. = 96%, n = 48) and storage (Freq. = 98%, n = 49) practices. **Conclusion:** The butchers provided examples that demonstrated knowledge and perception aspects of GHP and GSP. The perception aspects of GHP and GSP were correlated more, compared to knowledge and knowledge versus perception. Very conscious of their knowledge and perception of good hygiene and storage practices, the butchers herein have to strive for continuous improvement in their slaughterhouse activities to assure beef quality and consumer safety. (Okpala et al., 2021c)

In 2021, in Kenya, **Marie-Françoise Mwabonimana, et al**, study, porcine cysticercoids risks: awareness, attitudes and perceptions on safety practices among farmers, butcher-owners and consumers in western Kenya, The demand for pork is increasing in Africa with the increasing need for animal protein in the household diets. But pork safety and quality remains a pervasive concern that needs intervention to assure consumers of protection from Porcine Cysticercosis (PC) contamination.

This study assessed among farmers, butcher-owners and consumers in Western Kenya about their awareness, attitudes and perceptions about safety practices regarding risk of PC. **Results:** Only two in ten farmers had knowledge of *Taenia solium* parasite (24.1%), risk factors in PC transmission (21.6%) and could associate pig management system with PC (17.3%). A larger proportion ($p < 0.01$) of the butcher owners perceived pork from slaughter slabs (76.9%) and home slaughters (73.1%) as presenting high risks but considered pork from the butcheries (69.1%) and eateries (61.5%) as presenting no risks. Among the consumers, majority strongly agreed ($p < 0.05$) that pork in the market (85.9%), from slaughter slabs (92.4%) and butchery (81.5%) was safe but a larger proportion strongly disagreed that pork from the eateries exposed them to cysticercosis (64.1%). **Conclusion:** The awareness about risks of PC was low among farmers. Butcher-owners and consumers perceived pork safety differently along the value chain. Strengthening public education about PC risks and pork safety among all actors in the pork value chain in Western Kenya is recommended. (Mwabonimana et al., 2020).

In Iran, 2021, **Davoud Adham, et al**, study Pattern of Crimean-Congo hemorrhagic fever related high risk behaviors among Iranian butchers and its relation to perceived self-efficacy, Background: Crimean-Congo hemorrhagic fever (CCHF) is highly fatal to humans and an acute viral disease. The CCHF disease has been reported in occupations such as butchers, slaughterhouse butchers and workers. **The aim** of this study was to investigate the pattern of CCHF related high risk behaviors among butchers and determine the effects of

perceived self-efficacy of the participants on their membership in latent classes. **Results:** The statistical significance level was assigned at P-value < 0.05 in all the analyses. Three latent classes were identified; namely, 1) low risk (16.1%), 2) high risk (53.6%), and 3) very high risk (30.2%). After adjusting for other possible confounders higher score of perceived self-efficacy significantly decrease the odds of membership in high risk class (OR = 0.74) and very high risk class (OR = 0.62) compared to the low risk class. Also, age (OR = 1.07) and experience (OR = 0.91) associate with very high risk class. **Conclusions:** This study revealed the co-occurrence of CCHF related high risk behaviors in the majority of workers in the livestock and meat industry. It is necessary to provide butchers and slaughterhouse workers with general education, force them to use protective equipment and investigate the rate of tick bites in risky occupations (Adham et al., 2021).

There is a dearth of relevant literature and research on what Libyan butchers know and the challenges they have faced, especially during inspections of livestock meat. Butchers, if encouraged to provide their suggestions for improving meat inspection previous studies also agree with the current study in that butchers have no awareness that in terms of protection and prevention and control & disposal of meat residues and they need awareness programs about protection to change practices and awareness to be applied in butcher shops and public health

METHODOLOGY

Aim of the work

Main Research Objectives

- 1) What is the level of Knowledge on meat handling of slaughterhouse workers in the Derna?
- 2) What is the meat handling attitudes and practices of slaughterhouse workers in the Derna?
- 3) What are the operational challenges of the slaughterhouse butchers in the Derna?
- 4) What are the factors related to the knowledge, attitude and practices of slaughterhouse butchers in the Derna.

Significance of the Study

- 1) The study will contribute to knowledge especially in the dimension of Public Health.
- 2) It will also provide foundation for proper and strict implementation of Derna \ Libya occupational health and safety laws and guidelines

- 3) The findings of this research will provide a source for informed decision for government organizations and departments responsible for formulating health and sanitary policies on Derna`s abattoirs and meat handling regulations.
- 4) The research will also serve as a base for further research and study into the general sanitary conditions in Derna`s abattoirs.
- 5) It will bring to bear the awareness that is required to ensure the much-needed corrective actions and commitment towards ensuring appropriate operations of abattoirs.

Material & Methods

Study design

This was a descriptive cross-sectional study design that involved the use of quantitative methods. The study data collection with interview was conducted from June 2021 to October 2021.

Study area

The study was conducted from different Through personal interviews with butchers in the city of Derna and its suburbs, (Karssa, Martouba) and collecting questionnaires from them.

Statistical analysis

Data were analyzed using IBM SPSS software version 26.0, Use of analytical processes frequency, percent, p-value, chi Squair and cross tabs

RESULTS

Table 1 : Show the Demographic Characteristics for Butchers

Demographic Characteristics		Number of participants (%)		
		N (%)	Mean	S.D
Gender	Male	150(100)	1.00	0.00
	Female	0(0.00)		
Age (Year)	15-25	23(15.3)	2.7	1.2
	26-35	38(25.3)		
	36-45	62(41.3)		
	46-55	17(11.3)		
	56-65	7(2.0)		
	66-75	3(2.0)		
Education	Secondary	63(42.0)	2.8	0.91
	University	5(3.3)		
	Middle Diploma	45(30.0)		
	High diploma	35(23.3)		
Job	Butcher	76(50.7)	1.5	0.50
	Others	74(49.0)		
Total	150(100)			

Table 2 : Frequency & percent of equation answer for Butcher

Question		Answer		
		Not yet N(%)	Yes N(%)	No N(%)
1	Have you receive vaccinations?	0.00	60(40.0)	40(60.0)
2	Do you using PPE?	1(0.7)	87(58.0)	63(41.3)
3	Do you do regular checkup?	0(0.0)	100(66.0)	50(33.3)
4	Do you have permit to practice professional?	0(0.0)	115(76.7)	35(23.3)
5	Do you suffer from chronic disease?	0(0.0)	2(1.3)	148(98.7)
6	Do you suffer from infectious disease?	0(0.0)	11(7.3)	139(92.7)
7	Do you have healthy card?	1(0.7)	102(68.0)	47(31.3)
8	Do you know how the methods of meat wastes?	0(0.0)	79(52.7)	71(47.3)
9	Do you know the disease which transmitted though meat?	0(0.0)	89(59.0)	61(40.7)
10	Are you received education programmed about the risk and security?	0(0.0)	66(44.0)	84(56.0)

Table 3 : The frequency & percent of Massacre west disposal methods.

Massacre west disposal methods	Frequency	Percent %
Throwing in the beaches near the city	61	40.7
Burning	89	59.3
Total	150	100.0

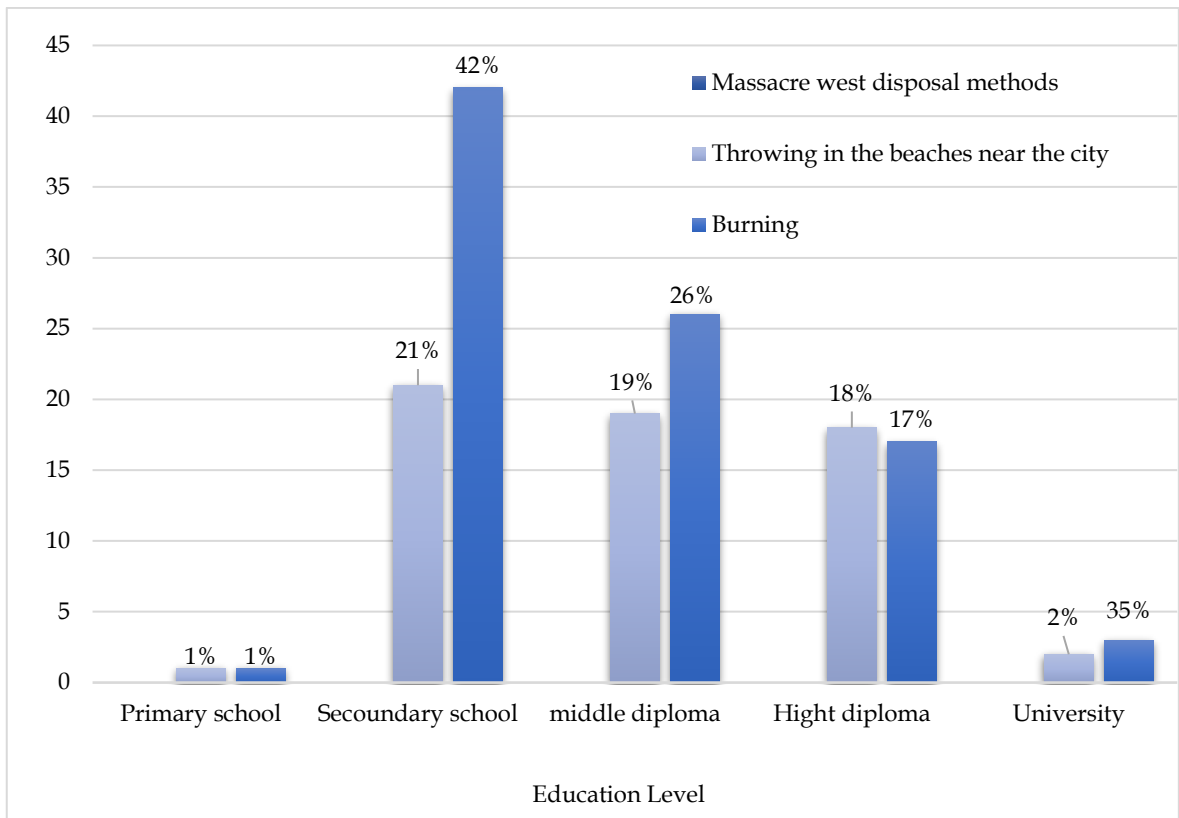


Figure 1 : the percent of Massacre west disposal methods

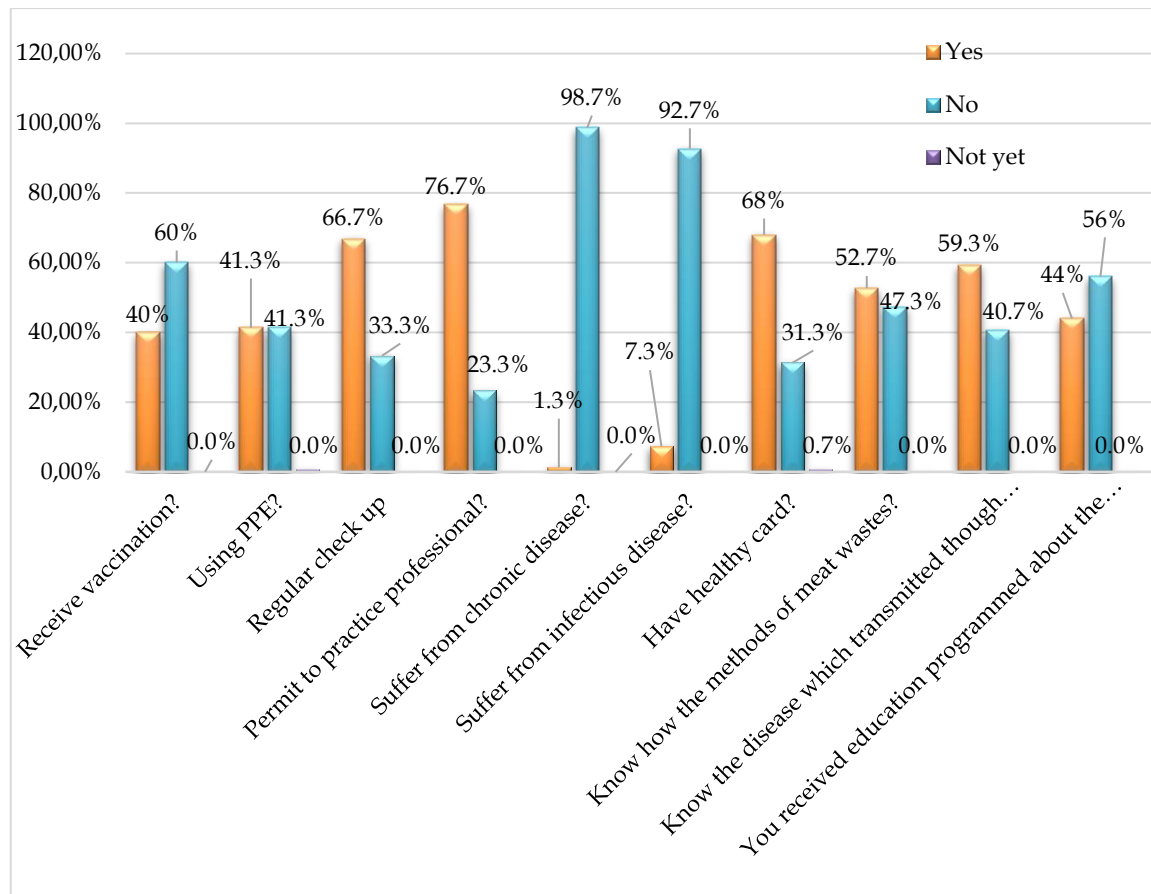


Figure 2 : percent of knowledge answer for Butcher

Table 4 : The relationship between butcher answer and them knowledge

Question	X ²	P-Value	Mean	S.D
1 Have you receive vaccinations?	3.604	0.462	2.4	0.49
2 Do you using PPE?	35.532	0.000	2.6	0.51
3 Do you do regular checkup?	5.629	0.229	2.7	0.47
4 Do you have permit to practice professional?	4.383	0.357	2.1	0.12
5 Do you suffer from chronic disease?	0.869	0.929	2.3	0.52
6 Do you suffer from infectious disease?	4.807	0.308	2.1	0.61
7 Do you have healthy card?	8.275	0.407	2.6	0.49
8 Do you know how the methods of meat wastes?	6.563	0.161	2.5	0.50
9 Do you know the disease which transmitted through meat?	7.939	0.094	2.6	0.49
10 Are you received education programmed about the risk and security?	3.202	0.525	2.4	0.50

DISCUSSION

In this study, in which we collected data through a questionnaire from workers in the butchers of the city of Derna in Libya, and their number was 150 butchers. From this collected data, The results show that, in table (1) illustrated the Demographic Characteristics for Butchers, as for gender, they were all male (150), Mean & stander deviation as followed (1.00, 0.00), Ag 2.7, 1.2), Education (2.8, 0.91), and Job (1.5, 0.50), The obtained results in in table (4) prove that the relationship between butcher answer and them knowledge, **Q1** (Have you receive vaccinations?) $X^2(3.604)$, P-Value (0.462), Mean (2.4), S.D (2.4), **Q2**(Do you using PPE?), $X^2(35.532)$, P-Value was (0.000) less than 0.05 that`s mean that there is relationship between butcher knowledge and them using personal protective equipment (PPE) , Mean (2.6), S.D(0.51), **Q3**(Do you do regular checkup?), $X^2(5.629)$, P-Value (0.229), Mean (2.7), S.D(0.47), **Q4**, (Do you have permit to practice professional?) $X^2(4.383)$, P-Value (0.357), Mean (2.1), S.D (0.12), Mean (2.1), S.D (0.12), **Q5**, (Do you suffer from chronic disease?) $X^2(0.869)$, P-Value (0.929), Mean (2.3), S.D (0.52), **Q6**, (Do you suffer from infectious disease?) $X^2(4.807)$, P-Value (0.308), Mean (2.1), S.D (0.61), **Q7**, (Do you have healthy card?) $X^2(8.275)$, P-Value (0.407), Mean (2.6), S.D (0.49), **Q8**, (Do you know how the methods of meat wastes?) $X^2(6.563)$, P-Value (0.161), Mean (2.5), S.D (0.50), **Q9**, (Do you know the disease which transmitted though meat?) $X^2(7.939)$, P-Value (0.094), Mean (2.6), S.D (0.49), **Q10**, (Are you received education programmed about the risk and security?) $X^2(3.202)$, P-Value (0.525), Mean (2.4), S.D (0.50).

It is apparent from the results in table (3) & Figure 1 that the frequency & percent of Massacre west disposal methods, was for Throwing in the beaches near the city, 61(40.7), for about the last question (11) Burning was 89(59.3), $X^2(3.202)$, p-value (0.525), in figure (2) It is noticeable the percent of knowledge answer for Butcher, which receive vaccination (60%), which using PPE 58%, which check regally (66.7%), which know the discarded methods of wastes , (52.7%), which know the diseases which transmitted by meat (59.3%), which receive education program the control and prevention (44%)

The results indicate that the study find that in a relationship between the extent of awareness of butchers and their practices in some questions and some other questions there is no relationship between the level of education and awareness. Therefore, it is recommended to increase awareness lectures about prevention and control. The study agree with previous study as (Okpala et al., 2021b), (Gorouhi et al., 2020), (Asare, 2020), (Adham et al., 2021), (Asadpour et al., 2020), (Ribah et al., 2021), (Stokes et al., 2020), (Okpala et al., 2021a). And disagree with (Prabhakar et al., 2017), (Ekanem et al., 2020)

CONCLUSIONS AND RECOMMENDATIONS

The results indicate that the study find that in a relationship between the extent of awareness of butchers and their practices in some questions and some other questions there is no relationship between the level of education and awareness. Therefore, it is recommended to increase awareness lectures about prevention and control.

FURTHER STUDY

The establishment of periodic studies on the extent of the butchers' awareness and the extent to which their awareness has developed.

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