

AWARENESS OF CONSUMERS ABOUT MILK ADULTERATION IN THE UNIVERSITY CAMPUS IN PESHAWAR

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ABSTRACT

Objectives: To assess the awareness of the consumers about milk adulteration in University Campus Peshawar and to determine the attitude and practice of consumers in University Campus Peshawar about milk adulteration.

Materials and Methods: This cross-sectional descriptive study was conducted through nonprobability convenience sampling on milk consumers in University Campus Peshawar from December 2018 to April 2019. A sample size of 290 was selected and accordingly distributed to consumers in the university Campus in Peshawar. A proper questionnaire was designed and filled out by the consumers after which data analysis was done with the help of SPSS 20 version. Pie charts and frequency tables were drawn showing percentages of consumer's knowledge, attitude, and practice.

Result: Out of 290 consumers being questioned, 159 were males and 131 were females. Knowledge about milk adulteration was noted to be 93.4% overall in males and females while the remaining 6.6% lacked the knowledge. 45.5% positively showed attitude evidencing the disuse of adulterated milk once informed about milk adulteration by changing the brand/supplier of milk. Regarding behavior, 83% mentioned that they would not use adulterated milk while 16.6% will use it for several reasons.

Conclusion: It is concluded that more than two-thirds of consumers know about milk adulteration and a huge number showed positive attitudes and behavior regarding the use of such adulterated milk.

Keywords: Milk adulteration, Knowledge, Attitude, Practice.

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INTRODUCTION

Adulteration is adding some substance to the actual food item or the removal of a nutritive or vital component from food that decreases its nutritive value. ¹Adulteration can be in 2 ways, intentional (intentional addition of other substances or removal of natural components from milk to increase its quantity or accidental i.e. unhygienic way of handling can add adulterants into the milk. ² Nowadays, almost majority of the food is adulterated. Pakistan is the 4th largest milk-producing country in the world after the United States, Russia, and India. In Pakistan, the milk production and distribution is by traditional old ways. ³ In Pakistan according to an economic research survey conducted in 2011-12 milk production, per capita availability

of liquid milk drinks is 218 liters per annum. ⁴ Contamination of milk is done in many ways by adding water and some chemicals to it. ⁵ Due to increased demand in Pakistan milk adulteration is very common. ⁶ Adulteration is one of the factors causing deleterious effects on the health of individuals, but also lack of knowledge and irresponsible behavior of consumers affect health in the same way. The illiteracy of people causes them to buy adulterated milk and their unhygienic way further contributes to its adulteration. Most people do not know about adulteration in milk and still they purchase it due to several causes including the unavailability of pure milk, poverty, and many others. In total, 68% of milk is adulterated all over Pakistan. In West Bengal, Bihar, Orissa, it is 100%. 75% in Delhi. Milk adulteration is also common in China and Brazil. ⁷

In China in 2008, adulteration in milk had killed many young children. ⁸ Urinary tract diseases and kidney stones were the main issues due to the adulterated milk. ⁹ In March 2017 a petition was filed in Peshawar High Court regarding milk adulteration in which the petitioner claimed that milk is getting adulterated by injecting Oxytocin in the buffaloes to increase milk yield to 30%. ¹⁰ The statistics of the Livestock Department show that there are more than 400 registered milk shops while more than 500 are unregis-

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tered in Peshawar. According to the rules, there should be 3.5% and 5.0% butterfat and 8.5% and 9.0 % solids-not-fat for cow and buffalo milk, respectively. ¹¹

The study aims to educate, and increase awareness among milk consumers about milk adulteration, determine the attitudes and practices of Peshawar University consumers, and decrease adulteration of milk by fraud by implementing proper rules and regulations. This all helps in the creation of a healthy environment, promising a secure future along with helping government authorities to check on the extent of adulteration and implementation of laws by government, ensuring the development of the dairy sector of a country causing a real impact on the welfare of farmers and progress of all the stakeholders of the sector.

MATERIALS AND METHODS

This is a cross-sectional descriptive study conducted on milk consumers in different institutes and sectors located on the university campus in Peshawar. The duration of the study was December 2018 to April 2019. The sample size is 290. As per the WHO sample size calculator, the prevalence is 25% according to a petition filed in Peshawar in March 2017 where 20-30% (average 25%=0.25) of milk was noted to be adulterated. ¹⁰ The sampling technique used was nonprobability convenience sampling. The inclusion criteria were Colleges, universities public sector people, and those who are of age group above 18 years and are buying milk at least two times a week. Shopkeepers and those related to its business were excluded. The attitude is measured by asking if they change the supplier/brand of milk after knowing about its adulteration. Practice will be measured as positive means consumers are willing to consume adulterated milk while

negative means they are not willing to use such milk when they surely know that it is adulterated

The study was conducted after its approval from the ethical board of Khyber Medical College Peshawar. Approval from the head of concerned sectors was also obtained. Institutes and sectors were visited; their consent was taken after which a questionnaire was provided. The questionnaire included close type of questions asking about the knowledge, attitude, and practice of consumers about adulterated milk. After this, statistical interpretation was done and the knowledge, attitude, and practice of the concerned people were evaluated. Data has been analyzed using S.P.S.S version 20 for Windows. Quantitative variables like age were calculated as mean +/- standard deviation. Qualitative variables of knowledge, attitude, and practice of concern are presented in the form of frequencies and percentages.

RESULTS

The mean age of the respondents was 24 with a standard deviation of 4.3. 159 respondents were male while 131 were female. 93.4% know about milk adulteration, whereas 6.6% do not know about it. The attitude shows that the majority (45.5%) have a positive attitude i.e. they change the supplier/brand of milk after knowing about its adulteration. Tables and pie charts for the practice/behavior of consumers have also been drawn and most consumers (83%) are not willing to use adulterated milk and 16.6% will use such milk.

Figure 2 shows that the majority of the participants 83.45% had negative practices about the use of adulterated milk (were not using it) and 16.55% had positive practices of using adulterated milk.

Table 1: Showing knowledge of consumers about milk adulteration in terms of percentages and frequency

	Frequency	Percent
Yes	271	93.4%
No	19	6.6%
Total	290	100.0%

Table 2: Consumers knowledge and their perception about most probable cause of milk adulteration

Knowledge about milk adulteration		Perception of consumers about cause of adulteration			
Yes	No	Unawareness of people	Poverty	Unhygienic way of handling	Other causes
271	19	89	107	72	22

Table 1: Knowledge about milk adulteration-Attitude of consumers

	Attitude of consumers				Total
	buy it and use it as such	buy and then boil it	restraint from buying milk	change the brand/ supplier of milk	
Knowledge about milk adulteration	10	83	54	124	271
	2	6	3	8	19
Total	12	89	57	132	290

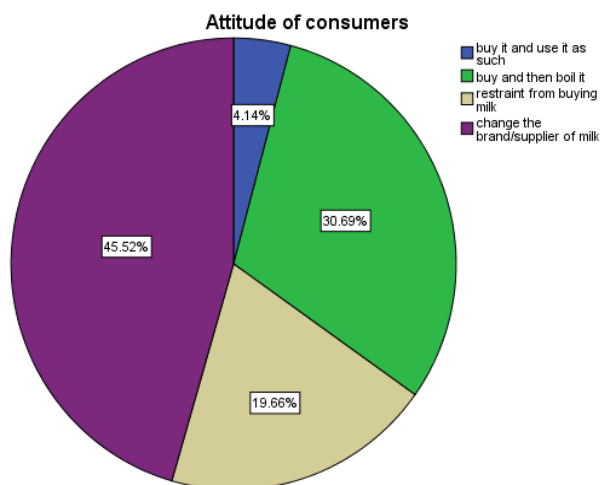


Fig 1: Pie chart for attitude of consumers along with their respective percentages

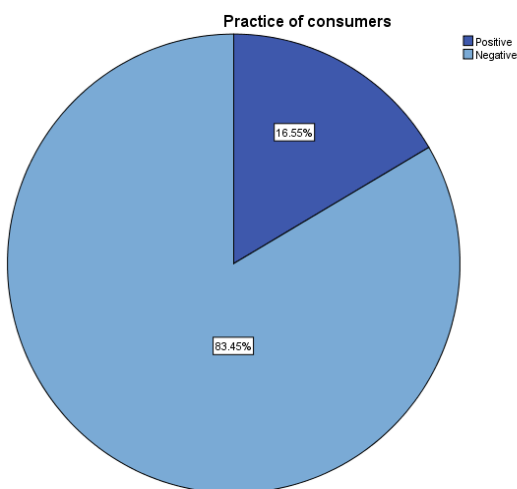


Fig 2: Practice of consumers

DISCUSSION

Our research focused on determining the knowledge, attitude, and practice of consumers about milk adulteration on the University Campus, in Peshawar. Results showed that 93.4% of consumers do know about it while the remaining 6.6% lack knowledge about milk adulteration. These results are consistent with a study done in Beijing, Northern China where 58.6% of interviewers showed a sufficient level of knowledge about adulteration and food safety.¹² This might give a link that knowledge has increased over the past several years and people are getting conscious about their food and related health issues. Our study can also be compared with a survey which showed that there is a lack of consumer knowledge about adulteration and the type of organisms causing food poisoning.¹³

The second objective was to evaluate attitudes and behavior of consumers about milk adulteration and after research study and analysis, positive results have

been achieved. For example, in our study, the majority of consumers mentioned that they changed their milk brands/suppliers after learning about its adulteration. On the other hand, study research done in Beijing, Northern China for evaluating consumers' knowledge, and attitude also showed positive results i.e. 94.4 % responded positively. Also, they figured out the association between the knowledge and attitude of consumers, and their results were significant (i.e. $p < 0.001$).¹² Attitude can also be co-related with a study in Dhaka on consumers' knowledge, attitude and they stated that 93% of their consumers would stop using such an item if they had learned that it was adulterated while 4% would continue to use it without any obvious reason and remaining 2% would continue to consume since they had no alternative.¹⁴ Almost the same results have been noted in the behavior of consumers i.e. majority 83% were unwilling to use adulterated milk while 16.6% would still consume it due to reasons not mentioned.¹⁴ It is also clear from the results that Knowledge regarding milk adulteration is there but there is lacking of proper measures to control it. A consumer should not just think of himself but of his family and the whole community. The high incidence of knowledge also suggests that there is heavy misuse of different adulterants in milk. Especially children from families consuming adulterated milk are constantly at risk of getting health problems related to adulterated milk consumption.

Some of the limitations of the study are the low sample size and we didn't approach the houses in which housewives have more knowledge. So far, it is noted that knowledge and awareness of consumers and the public have increased to a new extent and people have started changing their attitude and behavior regarding such adulteration but still, there are a lot more people who do not know about such evil acts and their outcomes and showing negative attitude and practices if evaluated as evidenced by our slow literacy rate so actions must be taken by government as well as public to increase awareness about consumers because once they know, they will change their attitude and practices as their might a link between these factors as shown by a study in Beijing, Northern China.

CONCLUSION

A larger proportion of consumers know milk adulteration and its different facets. On the other hand, a small number of consumers lack knowledge about milk adulteration.

Most consumers showed a positive attitude i.e. they changed the milk brand/supplier after knowing that these are adulterated. Regarding behavior, more than 80% showed positive behavior i.e. they will not use adulterated milk once informed about its adulteration whereas less than 20% of consumers had negative practices.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

- Hussan J:** Concept, planning, study design, study conduction, critical review, analysis, manuscript writing.
- Rasool P:** Critical review, discussion, interpretation, manuscript writing, study conduction.
- Aitizaz M:** Analysis, critical review, study conduction.
- Sanga G:** Critical Review, study conduction, interpretation.
- Khan SA:** Study design, study conduction.
- Mushtaq H:** Study design, study conduction.
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- Asmat S:** Planning, Study conduction, analysis
- Anwar Z:** Study design, study conduction.
- Siddique U:** Study conduction, critical review.
- Jadoon S:** Critical review, facilitation of expenses.
- khan J:** Concept, planning, study design,
- Ali K:** Concept, planning, study design, supervision.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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