

ORIGINAL ARTICLE

Attitudes, Beliefs and Practices Regarding Consumption of Milk and Milk Products among Female Consumers in Mirpur, AJK

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ABSTRACT

Background: Various factors influence the quality and safety of milk. However, a detailed study about these factors is lacking in our area.

Aim: To elucidate perceptions regarding milk hygiene, milk processing and consumption behaviors.

Study design: Descriptive cross-sectional study.

Place & duration of study: Mohi-ud-Din Islamic Medical College, Mirpur, AJK, from March to August 2020.

Methods: Female staff, patients and attendants were included. A pre-tested and pre-validated questionnaire was used to gather responses. Questions were specifically asked about practices associated with consumption of milk and related products, familiarity with risks associated with consumption of raw milk, practices associated with boiling of milk and milk consumption.

Result: There were 130 participants and 75(58%) were educated while 55(42%) were uneducated. Almost all of the educated women were aware of the importance of boiling milk. On the contrary, awareness about usage of boiled milk among uneducated women was 69% while 31% were unaware about the importance of boiling milk. About 58% of study participants consume milk regularly as compared to 42% who were not taking milk regularly. The duration of boiling of milk, for majority of participants, ranged from 05-15 minutes. Side effects experienced by the those consuming raw milk included abdominal pain (62%), diarrhea (23%) and vomiting (15%).

Conclusion: The findings suggest that there is a need to encourage sterile milk handling practices and local communities should be closely involved to strengthen their understanding of milk safety. There should be campaigns involving masses to induce behavioral changes among communities about safe and hygienic habits involving handling and usage of milk and its products. The best approach to encourage people towards milk safety will be the boiling of milk.

Keywords: Milk, boiling, pasteurization, hygiene, raw

INTRODUCTION

Milk is a highly nutritious product which provides both micro and macronutrients upon consumption in recommended amounts. But it should be handled rapidly and hygienically to preserve its properties¹. Otherwise, usage of unhealthy milk can lead to serious health issues because it can harbor dangerous pathogens². Freshly obtained milk is a sterile product. It gets contaminated during later stages of storage, transportation and its processing³. There are various ways of preserving the quality and excellence of milk. Some of these techniques include maintaining hygienic conditions during milking process, storing milk in standardized containers, maintaining appropriate temperature and boiling or pasteurization before ingestion¹. But it is very difficult to maintain these conditions in developing countries especially in those countries where there is extensive production of livestock⁴. Therefore, there is a high risk of microbial contamination and spoilage of milk due to these unhygienic conditions which in turn pose serious health threats^{4,5}.

Milk borne diseases constitute a significant burden of diseases and illnesses in developing countries particularly in Asia and Africa and most of the affected population is children of less than five years of age⁶. Raw milk and its products contain most of the pathogens which are transmitted to humans and are responsible for food borne diseases⁷. These microbes can be killed by boiling of milk or pasteurization². As there are multiple players involved in food chain involving milk and milk products, their practices do have an effect on milk related diseases. Their behavior is further influenced by their beliefs, knowledge, literacy, experience and training⁸.

There is limited data available regarding practices associated with boiled milk consumption in households in our area.

Therefore, we have conducted this study to ascertain the beliefs and knowledge of married household women about boiling milk and dangers of using raw milk.

MATERIAL AND METHODS

This was a descriptive cross-sectional study which was performed at the affiliated hospital of Mohi-ud-Din Islamic Medical College, Mirpur, AJK from March to August 2020 after IRB permission. It was a convenience sampling. A total of 150 married women were enrolled in the study. This included female staff, patients and attendants and informed written consent was taken. All male individuals and those who couldn't return for follow-up were excluded from the study. Based on these criteria, 130 individuals participated. A pre-tested and pre-validated questionnaire was used to gather responses. Questions were specifically asked about practices associated with consumption of milk and related products, familiarity with risks associated with consumption of raw milk, practices associated with boiling of milk and milk consumption. Data was entered, managed and analyzed using Microsoft Excel, 2021.

RESULTS

A total of 130 participants were included in the study based on set criteria. Out of these, 75(58%) were educated while 55(42%) were uneducated (Fig. 1). They almost exclusively consumed cow or buffalo milk without any preference for one or the other.

Almost all of the educated women were aware of the importance of boiling milk. On the contrary, awareness about usage of boiled milk among uneducated women was 38(69%) while 17(31%) were unaware about the importance of boiling milk, (Fig. 2). There were different products made from milk e.g. butter, butter milk and ghee. They were produced from boiled milk in those whose boiled milk before consumption while others used raw milk for this purpose.

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About 75(58%) of study participants consumed milk regularly as compared to 55(42%) who were not taking milk regularly (Fig.3). Duration of boiling of milk by women in the sample varied from 0 minutes (8%) to more than 15 minutes (15%) (Fig.4). Side effects experienced by the those consuming raw milk included abdominal pain (62%), diarrhea (23%) and vomiting (15%) (Fig.5).

Figure 1: Literacy rate of study population, (n=130)

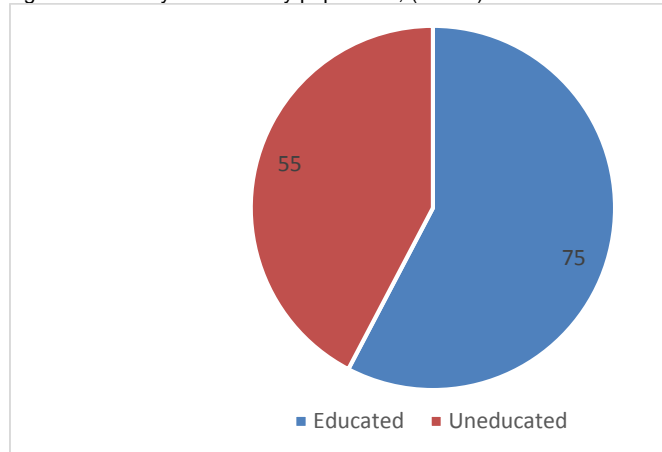


Figure 2: Awareness about usage of boiled milk among study population, (n=130)

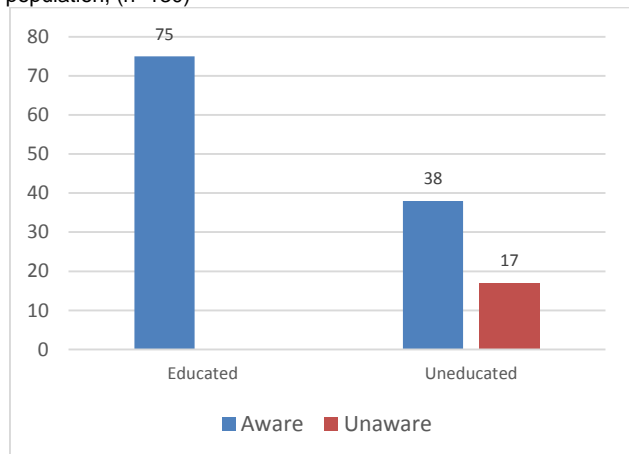


Figure 3: Proportion of study participants using milk regularly, (n=130)

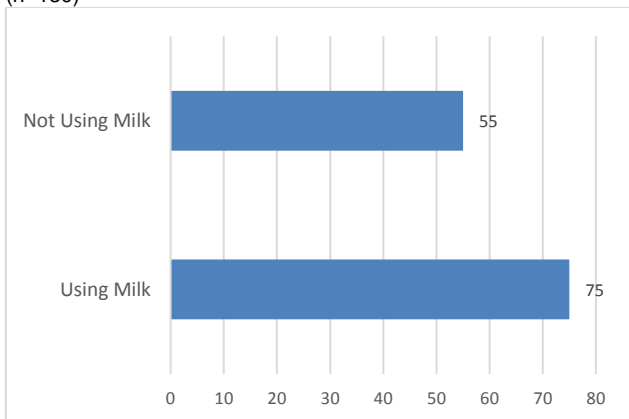


Figure 4: Duration of boiling of milk (n=130)

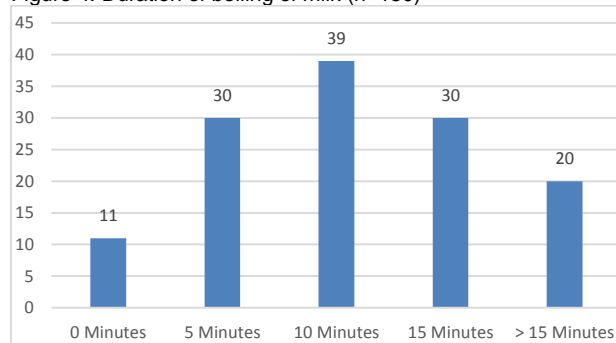
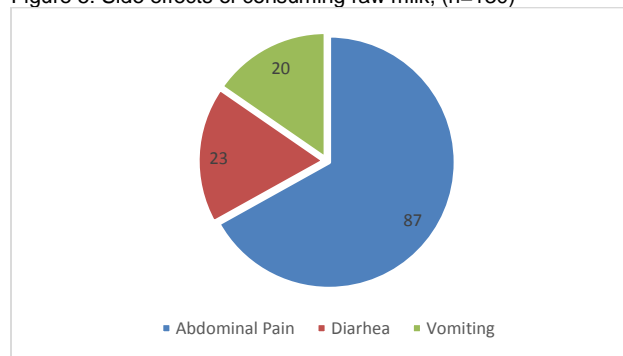


Figure 5: Side effects of consuming raw milk, (n=130)



DISCUSSION

Milk is an important part of diet globally because of its high nutritious value. At the same time, it can be a source of various illnesses if not handled properly^{2,9}. This study tried to assess the beliefs and behavior of common house-hold women about consumption and usage of boiled milk and the risks associated with using raw milk qualitatively.

Most of the study population in our study consisted of educated individuals as compared to 42% who were uneducated. Almost all of the educated women were aware of the importance of boiling milk. On the contrary, awareness about usage of boiled milk among uneducated women was 69% as compared to 31% uneducated women who were unaware about the importance of boiling milk. This might be attributed to their cultural beliefs regarding boiling process. This was in quite contrast to what Amenu et al have found them in their study. They reported that boiling fresh milk was quite uncommon while consumption of raw milk and raw milk products is extremely common especially in Borana people.¹ This was attributed to their belief system where they believed that boiling killed the nutrients present in milk and rendered it useless. Similarly, this was their tradition and custom as not to boil the milk. Similarly, Prakashbabu et al also reported that their study population almost exclusively preferred raw milk usage. This was attributed to the age old custom of using raw milk as well as their belief that milk boiling led to mastitis in their milk producing cattle⁶.

Duration of boiling of milk by women in this study varies from 0 minutes (8%) to more than 15 minutes (15%) and most of the participants, 76.18%, boiled milk from 05-15 minutes. Boiling of milk is far better than using raw milk. Nearly all pathogens can be killed by boiling^{2,6}. Various studies have documented that consumption of raw milk led to multiple disease outbreaks in humans specifically between 2000-2008^{7,10}. This could partly be attributed to the presence of different major pathogens in raw milk⁷. Prakashbabu et al also stated that consumption of raw milk was a major reason of various foodborne diseases. This finding

emphasized the fact that raw milk is unsafe for human consumption.

Side effects experienced by the those consuming raw milk, in our study, included abdominal pain (62%), diarrhea (23%) and vomiting (15%). Amena et al have also mentioned various side effects associated with raw milk consumption. These side effects mostly included gastrointestinal disturbances, gastritis and delayed wound healing¹.

Milk and its related products is common constituent of human diet. An average person should consume 02-03 servings of milk or its products daily¹⁰. Correspondingly, majority of our study participants, (58%), consumed milk regularly. Consumption of dairy products not only helps in the prevention of certain illnesses but also provide calcium supplementation. This calcium help strengthens bones as well as prevent osteoporosis^{11,12}. Similarly, these products are rich source of various nutrients i.e. vitamins, minerals and proteins¹³.

Our study has certain limitations. There was a small and limited sample size. Furthermore, the main focus was common household women who were selected because they were end users. Hence, further studies should be performed with much larger sample size, involving multiple geographical areas especially rural ones and studies specifically targeting milk handlers and pastoralists.

CONCLUSION

The findings suggest that there is a need to encourage sterile milk handling practices and local communities should be closely involved to strengthen their understanding of milk safety. There should be campaigns involving masses to induce behavioral changes among communities about safe and hygienic habits involving handling and usage of milk and its products. The best approach to encourage people towards milk safety will be the boiling of milk.

Conflict of interest: Nil

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