Original Article

Knowledge, Attitude, and Practice about Hygiene among Livestock Keepers in Peri-Urban Area of Vadodara District, Gujarat

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Abstract

Background: Zoonoses are considered as an emerging public health problem. To reduce its prevalence, hygiene of animals as well as personal hygiene during milk production cycle is vital. This study has been conducted in the peri-urban areas of Vadodara district. **Objective:** The objective was to assess the knowledge, attitude, and practices (KAPs) about hygiene among livestock keepers in the peri-urban area. **Materials and Methods:** The study design is cross-sectional descriptive in nature mainly based on pretested questionnaires to answer questions on KAP with regard to hygiene among livestock keepers. A total of 100 livestock keepers were randomly selected from the peri-urban area of Vadodara. **Results:** Among the selected respondents, 28% of participants know that disease can transmit from animal to human. The majority 72% of all interviewed respondents had no knowledge that disease can transmit from animal to human. Only 33% livestock keepers had awareness that zoonotic disease can be prevented. Among all livestock keepers interviewed, about 52% showed positive attitude and 48% showed negative attitude toward hygiene. There was positive impact of good socioeconomic status on the practices about hygiene, as majority of livestock keepers with good practices belong to the upper middle group. **Conclusion:** This study indicates that education has impact on knowledge about zoonotic disease, its transmission, and how hygiene is important to prevent zoonotic disease. Further, there is a need to increase the awareness about hygiene among livestock keepers with regard to personal, animal, and milk hygiene.

Keywords: Attitude, hygiene, knowledge, livestock keeper, peri-urban area, practice, zoonotic disease

Introduction

Zoonoses are defined as "those diseases and infections which are naturally transmitted between vertebrate animals and man" by the WHO in 1959. A zoonosis is any infectious disease that can be transmitted from animals, both wild and domestic, to humans.[1] Zoonoses are also considered to be twice as likely to be associated with emerging diseases as nonzoonoses.[2]

Zoonoses are considered as an emerging problem which has crossed boundaries due to interrelationship between countries and become a subject of international concern. Over the past two decades, there has been considerable change in certain zoonotic diseases in many parts of the world, resulting from ecological changes such as urbanization, industrialization, and diminishing proportion of persons working in the so-called primary sector.[3] Preventing, identifying, and managing these infections must be a central public health focus according to the National Institute of Health.[4] "About 2.2 million people killed per year due to disease transmitted to humans from animals" said by the lead study author Delia Grace, a veterinary epidemiologist and food safety expert with the International Livestock Research Institute in Kenya.[5]

Among recognised pathogens causing human diseases, almost 60% are of animal origin. They cause such diseases as toxoplasmosis, anthrax, rabies, Ebola haemorrhagic fever, severe acute respiratory syndrome (SARS), and primary HIV infection.[6] The majority of infectious diseases mainly affect the poor and those populations who depend on livestock

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animals. As a result, these populations are subjected to a cycle of ill health and poverty that aggravates their burden of infectious diseases. A study in Punjab shows 51.2% of respondents were aware of the transmission of zoonotic diseases to human beings.[4]

Today, India is "The Oyster" of the global dairy industry.[7] To get good quality of milk to reach the consumer, the final one who consumes milk should get milk in a good condition. There are various predisposing factors, which influence the microbiological quality of milk at all stages of production and handling. To achieve a good quality of milk, various things need to be observed right from the producing place that is from farm to the processing factory if taken, and thereafter, to the retailers and ultimately to the consumers. There are various steps that need to be taken care of throughout the whole chain of production.

Knowledge regarding what is zoonotic disease, knowledge about the source of contamination. Knowledge about possible causes of zoonotic disease and how important hygiene is to prevent contamination from different possible source; knowledge regarding health condition of cattle whether the cattle is healthy or have any symptoms so they can consult a veterinary doctor for diagnosis and further treatment.

To increase the knowledge regarding hygiene, there is a need to create awareness about hygiene and that starts with the person himself/herself. If a person understands the importance of hygiene then that will increase chances of good knowledge about hygiene leads to good KAP directly or indirectly.

A study conducted in Gujarat stated that there are predictions of explosive growth in certain infectious and zoonotic diseases due to forced man–environment interactions.[8] To reduce the burden of the disease factors such as raw milk consumption, containers used to put milk during milking, storage and delivery, and infected personnel involved in milking are potential sources of milk contamination, and they play an important role in disease contribution; these factors need to be assessed to control.

Objective

The study was performed to assess the knowledge on hygiene among livestock keepers, thereby identifying the gap. The objective was to evaluate the attitude and to enumerate practices of hygiene among livestock keepers.

Materials and Methods

The study was cross-sectional descriptive in nature. The target population was livestock keepers of peri-urban area in Vadodara district, Gujarat. The study period was 5 months from February 2017 to May 2018.

A total of 100 livestock keepers were taken as respondents from peri-urban areas of Vadodara district, Gujarat. Peri-urban area of Vadodara district was divided into four regions: Northern, Southern, Eastern, and Western. From these divided regions, 25 livestock keepers selected randomly from each region.

The questionnaire was prepared in reference to hygienic milk handling, processing, and marketing: reference guide for training and certification of small-scale milk traders in East Africa, volume 1 and 2[9] and assessment of milk handling practices and bacterial contaminations along the dairy value chain in Lushoto and Handeni districts, Tanzania.[10]

The questionnaire contained both open-ended questions and close-ended questions on various aspects of hygiene among milk vendors, that is, awareness, knowledge, and personal hygiene were included to interview the respondents.

Respondents were asked about 24 variables. About 15 questionnaires were interviewed about practice among livestock keepers, six questions regarding knowledge, and three questions about their attitude toward hygiene whether personal, animal, and milk hygiene. The respondents were asked about different variables on the knowledge of hygiene, disease transmission of zoonotic disease from animal to animal and animal to human, prevention of zoonotic disease, role of hygiene in prevention, etc., Questionnaires regarding attitude included what was source of water and whether they used same source of water for drinking and washing/cleaning of animals, livestock keeper's attitude toward hygiene for themselves and for animals/cattle. With regard to practice questionnaires, respondents were asked regarding whether the proper hygiene was maintained for containers used during the storage of milk as well as transportation of milk, how they cleaned and washed containers. What practice did they do if they found out about contaminated/abnormal milk; whether they used it or threw it away, and what did they do if cattle is suffering from any infectious disease.

A draft pretested questionnaire was developed to assess KAP to ensure its response. Initially, an English version of the questionnaire was developed, then it was translated into regional language, that is, Gujarati for field operation. Semi-structured questionnaires were divided into different sections; these sections included various questions regarding milk hygiene, animal hygiene, personal hygiene, and equipment hygiene if used.

Socioeconomic scale

Modified Kuppuswamy's socioeconomic status scale 2014 was used to get the information about the socioeconomic condition of the milk vendors. The scale was also used to evaluate the relationship between socioeconomic status and their KAP if any. Selected livestock keepers were categorized into different categories according to this scale, respectively.

According to the modified Kuppuswamy scale selected respondents are classified into five categories: upper (26–29), upper middle (16–25), lower middle (11–15), lower upper (5–10), and lower (<5).

Data analysis

Data were collected and analyzed to determine the percentage of knowledge of respondents, KAP about hygiene in relation to zoonotic disease. A scoring system was developed by awarding each correct answer 1 mark, and each incorrect answer was

awarded 0 mark. Calculating each answer of the respondents, a scorecard was developed for KAP.

For statistical analysis of the study, Microsoft Excel and Statistical Package for the Social Sciences (SPSS) version 22 (SPSS Inc., Chicago, IL, USA) were used.

Ethical clearance

An ethical consent was obtained for the study from the Ethical Committee of the International Institute of Health Management, New Delhi. Informed consent was taken from participants before the study, and participants will inform about the purpose of the study.

Results

Among the selected 100 livestock keepers, about 14 (14%) respondents got education up to primary level, and 14 (14%) respondents acquire secondary education among all cattle holders. As shown in Table 1, about 65 (65%) respondents were illiterate showed poor education levels among livestock keepers. Only six respondents out of 100 livestock keepers had higher secondary education, and only 1 (1%) respondent was graduate.

As shown in Table 1, among selected 100 livestock keepers, about only 33 (33%) respondents had knowledge that zoonotic disease can be prevented by maintaining proper hygiene, not using abnormal/contaminated milk, call veterinary when cattle fall sick, while the majority of respondents which were 67 (67%) did not have knowledge regarding the prevention of zoonotic disease. As per the socioeconomic analysis of all livestock keepers, about 76 (76%) respondents belong to the upper middle group, 3 (3%) respondents belong to the upper lower group, and while all interviewed respondents, 21 (21%) belong to the lower middle group of socioeconomic status. As described in Figure 1, this interprets that about 28 (28%) of participants know that disease can transmit from animal to human. Majority (72%) of all interviewed respondents had no knowledge that disease can transmit from animal to human while handling them. About 79 (79%) of respondents had knowledge regarding disease transmission from animal to animal, and 21% had no knowledge about it.

Table 2 interprets that there was a positive impact of good socioeconomic status on practices about hygiene, as majority of livestock keepers with good practices belong to the upper middle group. Of 100 respondents, 54 (54%) respondents used soap to wash the containers used for milking, while others still using ash/mud or only water. Among all interviewed participants, only 30 (30%) participants' bath cattle regularly periodically weekly/biweekly/fortnightly/monthly, while 70 (70%) did not bath regularly.

Among all livestock keepers interviewed, about 52% showed a positive attitude toward hygiene with regard to personal as well as animal hygiene. About 48% of keepers showed a negative attitude using different sources of water for them and use different sources of water for animals.

Discussion

Livestock keepers play an important role in the economy of any country, especially developing country like India. Livestock keepers have contributed to the income of livestock keepers and provide employment to rural and peri-urban community.[11] Livestock is a source of subsidiary income of many families, especially those families who own cattle and mostly as a part of their main source of income.[12] All foods have the potential to cause of many food-borne diseases, and milk and milk products are undivided part of food industry; as major food items made from milk and milk products. The biological value of milk is second to eggs in regard to nutrients such as essential amino acids, energy, calcium, and vitamins. In many parts of world, milk contributes as the wholesomeness of human diets to all age groups. Hygiene is an inseparable part in food industry and specifically in milk industry where any negligence can cause harmful results to health of animals as well as humans. Practices should be trained to the person who is engaged in this work and is in constant touch with cattle and milk throughout the process of milk production. Avoid contamination from dirty udders and teats by good cow housing and proper management. Livestock keepers must have knowledge about the consequences that can occur from poor knowledge and practice. This study shows that KAP regarding hygiene depending on socioeconomic conditions, cultural beliefs, and practice of livestock keepers. It shows that upper-middle group has average knowledge, positive attitude, and good practice of hygiene in milk production cycle. Ultimately, the nation will suffer, as people will not provide good quality of milk and milk products. To avoid these bad happening, hygienic milk handling is essential at each stage; at the production site whether it is a farm or cattle sheds or

Table 1: Relationship between the prevention of zoonotic disease and qualification of livestock keepers

Qualification of livestock keepers	Knowledge about prevention of zoonotic disease		Total
	Yes	No	
Illiterate	22	43	65
Primary	5	9	14
Secondary	3	11	14
Higher secondary	2	4	6
Graduate	1	0	1
Total	33	67	100

Table 2: Association between the attitude and different socioeconomic status

Modified Kuppuswamy socioeconomic scale	Negative attitude	Positive attitude	Total
Lower middle	10	11	21
Upper lower	3	0	3
Upper middle	35	41	76
Total	48	52	100

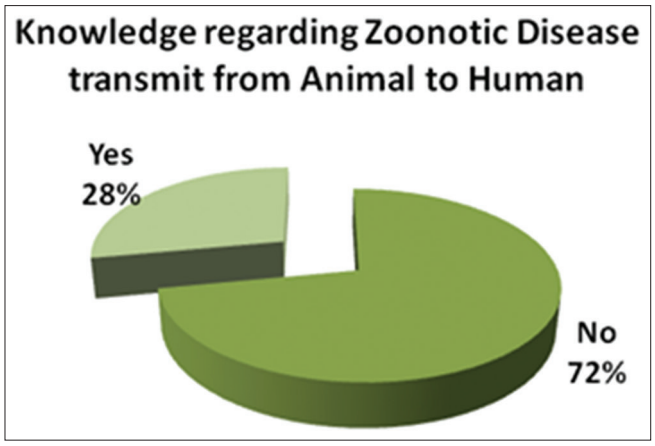

Figure 1: Knowledge regarding zoonotic disease transmission from animal to human

barns and during transportation. Proper sanitation has to be maintained at the farm or cattle sheds or barns by planning cleaning routine daily, alternate days or weekly. Few studies are there which explore relationship between KAP among those involved in milk business such as small-scale dairy farmers and livestock keepers. It has been noticed that among all these studies, it has been observed that there is utmost need to create awareness regarding the importance of hygiene to the stakeholders to increase their knowledge, to establish good attitude, and to increase good practice among milk handlers at all the level.[13,14]

It has been observed that many livestock keepers had knowledge regarding disease transmission from animal to animal, but almost no knowledge regarding disease transmission from animal to human. As zoonotic disease has been increased for the past few years, knowledge reading this should be increased to decrease the prevalence of these diseases. Beside knowledge, attitude plays an important role to ensure hygiene in all perspective of the milk production cycle. It is likely that a positive attitude increases the quality of milk and negative attitude can alter the quality of milk. It was observed that with regard to bath of cattle, there were different reasons, as many respondents did not bath cattle due to lack of water, while some livestock keepers bath their cattle periodically weekly/fortnightly/monthly to nearby river/pond/other place where enough water is available. It has been observed that some respondents never bath cattle with the Hindu belief that cows are pure so they do not need to bath.

Various researches have been conducted regarding food hygiene, its knowledge, KAP in food domain which helps to indicate problems in food business. As there are studies related to milk production, but majority of them are regarding milk production obtained from processing at dairy. More studies are required to identify obstacles in the whole process of milk production so that those gaps can be filled by various means of activities to increase awareness, which leads to reduce the burden of zoonotic disease.

Conclusion

This study indicates that education has an impact on knowledge about the zoonotic disease, its transmission, and how hygiene is important to prevent zoonotic disease. Further, there is a need to increase the awareness about hygiene among livestock keepers with regard to personal, animal, and milk hygiene.

Recommendations

Recommendations are to create awareness about the importance of hygiene with respect to KAP among livestock keepers by Information Education Communication.

Behavioral change communication material for awareness and education with more focus on the younger age group, as maximum number of milk handlers of this age group are involved in this profession. Community awareness should be included to educate how harmful consumption of raw or unpasteurized milk is. Education can be done in pictorial and hygiene practices have to be audiovisual in addition to the print media.

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Conflicts of interest

There are no conflicts of interest.

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