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Knowledge; Hygienic Practice among Milk and Cottage Cheese Handlers in Districts of Gamo and Gofa Zone, Southern Ethiopia

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Abstract

A cross-sectional questionnaire survey was conducted in Arba Minch Zuria and Demba Gofa districts of Gamo and Gofa Zone of the Southern nation nationalities and people's regional state with the objectives of assessing knowledge of hygienic practice of milk and cheese handlers in both study area. For this a total of 102 farmers who involved in milking, collecting and retailing of milk were included in the study area. Data obtained from questionnaire survey were analyzed by descriptive statistics and Chi –square test, using the Statistical package for social science (SPSS Version 17). The participants of this study were woman of different age group and 27(52.9%) of participants in Arba Minch Zuria and 32(64.7%) in Demba Gofa were >36 years old. The majority of participants 21(41.2%) and 22(43.1%) were educated up to grade 1-8 in Arba Minch Zuria and Demba Gofa, respectively. This had an impact on hygienic practice of milking and milk handling. The difference in hygienic handling, training obtained and cheese making practice among the study areas were statistically significant ($p<0.05$). There was also a statistically significant difference in hand washing and utensil as well as manner of washing between the two study areas ($p<0.01$). Finally this study revealed that there were no variation in Antibiotic usage and Practice of treating sick animal in both study area ($p>0.05$) with significant difference in Prognosis, Level of skin infection and Selling practice among study participants in both study areas ($p<0.05$). Good manufacturing; handling practice as well as hygienic milking and cleaning practice should be improved in both study areas.

Keywords: Arba Minch • Farmers • Milking practice • Antibiotic usage

Introduction

The safety problem of milk with the respect to foodborne disease is great issue around the world. This especially true in developing countries like Ethiopia where handling of milk and milking practice often takes place under unsanitary condition and the consumption of raw milk and cottage cheese which are typically produced at farmer level under unsanitary hygienic condition is common practice [1-4].

Milk is an excellent growth medium for a large number of micro-organisms. Microbial contamination of milk usually occurs during the milking processing, handling, distribution and this depends on the sanitary condition of the environment, utensils used for milking and the milking personnel. The health of the cow, its environment, poor sanitary, improper handling of milk product, absence of good manufacturing practice, lack of trained milk handler as well as poor personal hygiene of the milk handler aggravate the problem in milk and cottage cheese which are serve as the source sources of microbial contamination of milk and cheese of and the potential source of foodborne pathogen in the world especially in developing country.

Some pathogens naturally inhabit human nostril and there is an obvious contamination of milk and cottage cheese. The milk handlers doesn't give attention on the hygienic handling of milk product and most importantly it is common practice of touching the nose with hand and handle the milk and cottage cheese these results in the contamination of milk and milk product.

The habit of consuming raw milk and cottage cheese is very common practice in both study area of Demba Gofa and Arba Minch Zuria district. The preformed enterotoxin of microorganism can survive even the pasteurization temperature and impose a long range of health problem in the consumer. Beside that there is also occurrence of drug resistance microbes is very common due to irrational use of veterinary drug by farmers to treat their animal and lack of knowledge on milk withdrawal period. Having these facts, research was not yet done on the knowledge of milk handlers about hygienic handling practice and health management of dairy cattle.

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Therefore the objective of this study was to assess the knowledge of milk and cheese handlers on hygienic practice as well as health management of dairy cattle in both study area [5].

Materials and Methods

The study was carried out from January 2018 to December 2018 in Arba Minch Zuria and Demba Gofa district. Arba Minch Zuria was a part of the Gamo Zone located in the Great Rift Valley, Arba Minch Zuria is bordered on the south by the Dirashe special woreda, on the west by Bonke, on the north by Dita and Chencha, on the northeast by Mirab Abaya, on the east by the Oromia Region, and on the southeast by the Amaro special woreda. This woreda also includes portions of two lakes and their islands, Abaya and Chamo. Nechisar National Park is located between these lakes. City of Arba Minch is surrounded by Arba Minch Zuria. The district has high cattle population with mixed agriculture activity. This district has high mid and low land agro-ecological zones and Demba Gofa is one of the woredas of Gofa Zone in South Nation Nationalities Peoples Regional State. The administrative center, Sawla town, is located at a distance of 525 km from Addis Ababa, capital of Ethiopia in the Southwest direction. The Woreda is divided into 38 rural Kebeles. Population number of the district was estimated to be 125,889 and Agro-ecologically Demba Gofa is divided in to law land (Kolla) 75%, midland (Woyna Adega) 15% and high land (Dega) 10%. Maximum and minimum rainfall of the district is 900 and 1100mm, respectively. In the district the live hood of farmer s depends a great extent on Agricultural production (99%) mainly on livestock and crop production and 1% on trading (Figure 1).

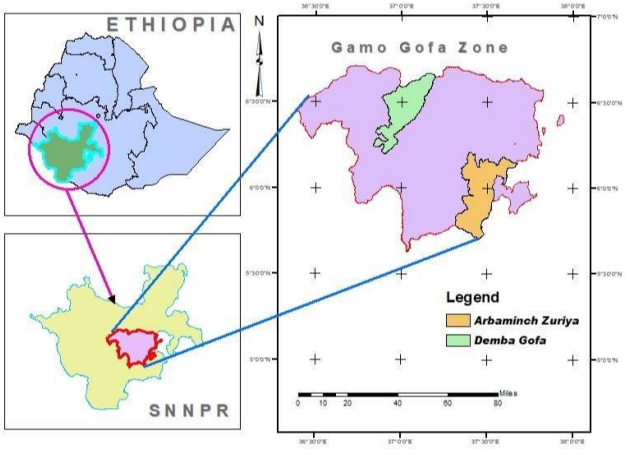

Figure1. Showing study area (GIS, 2019).

Milk handling, transportation, processing and selling at cooperative, farmer's house and cooperatives processing plant were observed to know any hygienic problem through check list at the time of visiting to interview. Besides that, the milk handlers were assessed whether or not they took any training regarding hygienic milk handling and milk processing. The farmers who were members of the cooperative at Arba Minch Zuria and Demba Gofa were observed whether or not they were using refrigeration of milk [6-10].

Data obtained from a questionnaire survey was stored in Microsoft Excel spreadsheet (Microsoft Corp.). These data was analyzed by descriptive statistics, using the Statistical package for social science (SPSS Version 19) statistical package (SPSS 2019). Chi square test was used to determine significant variation between variables and ANOVA was also used to compare the mean difference among the independent variable at 95% confidence interval and 5% absolute precision.

Results and Discussion

In both study area, all the respondents were female who take care of milking and handling of milk and milk products. This was due to the fact that men were mainly engaged in crop production, livestock management and tread beside that the members of the dairy cooperatives were women having lactating cows in both study areas. When we saw the age group who involved in milk handling practice the dominant one was >36 years old with 27 (52.9%) and 32 (64.7%) respondents in Arba Minch Zuria and Demba Gofa, respectively. As far as the educational background of the respondents were concerned 21 (41.2%) were educated from 1 to 8 grade, followed by 15 (29.4%) literate, 9 (17.6%) from grade 9 to 12, 1 (2%) graduate and the remaining 5 (9.8%) were illiterate in Arba Minch Zuria district and an almost similar result was obtained from Demba Gofa district with 22 (43.1%) were grade 1 to 8 followed by 10 (19.6%) were from grade 9-12, 7 (13.7%) were literate, 4 (7.8%) were graduate and the remaining 8 (15.7%) were illiterates. There were no statistically significant differences in age and educational status of the participant in both study areas. This result was in line with the report who found the educational status of 39.7 % attend primary school. This may have an impact on the hygienic practice of milking, handling, and processing of milk and milk product in general and also contribute to the quality deterioration of milk and milk products [11,12].

The job division of the study participants, about 43 (84.3%) were involved in milking, 7 (13.7%) in milk collection and only 1 (2%) respondent was engaged in-retailer activity in Arba Minch Zuria while 36 (70%) participant involved in milking practice whereas 11 (21.6%) and 4 (7.8%) participants were engaged in milk collection and retailer activity, respectively in Demba Gofa Woreda. This difference was not statistically significant ($p<0.05$). FAO, 2017 reported similar result which indicated women are responsible for taking care of animals with the help of children; they gather fodder, milking and traditional processing and selling products. Abebe and Gelmesa, in Ambo also found similar result who reported 90% of respondents indicated that females are responsible for milking and again 79.3% of the cases in all production system milking is handled by women in Shashemene but Milking is done mainly by men in West Gojam and it is contrary to the practice in other parts of the Country; who reported dissimilar finding 32%-34% of labour contribute on milking in Wote, Uganda. This difference might be due to variation in the gender division of labour in different parts of Ethiopia mainly in Oromia and Amhara region the involvement of men are very high [13-14].

Conclusion

This current study revealed that there were unhygienic handling of milk and cheese in both study areas, milking and cleaning practices were also the potential risk factor for milk contamination by different microorganisms. The risk of occurrence of foodborne infection and intoxications were very high due to poor hygienic handling and milking practice, improper washing of hand, utensils and udder;

knowledge gap, lack of training on hygienic handling practice of milk and cheese in both study area. Farmers in the study areas had the practice of poor housing, cleaning practice, and irrational veterinary drug usage which predispose milk and milk products to microbial contaminations and development of veterinary drug resistance in general. Above all this study concluded that the cheapest possible solutions for reduction of the risk of occurrences of foodborne infection and intoxication in both study areas. Based on the above conclusion the following recommendations are forwarded:

• Good handling and manufacturing practice should be implemented mainly to cooperatives who handled milk and milk products in both study areas.

• Training should be given to farmers on hygienic milking, handling practice and personal hygiene mainly to woman who had direct contact with milk and milk product in both study areas.

• Awareness creation should be done regarding foodborne disease and zoonosis through extension service in both study areas.

• Education should be given on boiling of milk and thorough cooking of cottage cheese to farmers, students at school and public institutions.

• Further investigation should be done on milk and cheese safety and quality through microbial identification and isolation together with antibiotic susceptibility test.

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