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Shafali Jeet Kour

MVSc Scholar, Division of Veterinary Public Health & Epidemiology, Faculty of Veterinary Sciences & Animal Husbandry, Sher-E-Kashmir University of Agricultural Sciences & Technology of Jammu, Ranbir Singh Pura, Jammu, Jammu and Kashmir, India

Mohd Rashid

Professor, Division of Veterinary Public Health & Epidemiology, Faculty of Veterinary Sciences & Animal Husbandry, Sher-E-Kashmir University of Agricultural Sciences & Technology of Jammu, Ranbir Singh Pura, Jammu, Jammu and Kashmir, India

HK Sharma

Professor & Head, Division of Veterinary Public Health & Epidemiology, Faculty of Veterinary Sciences & Animal Husbandry, Sher-E-Kashmir University of Agricultural Sciences & Technology of Jammu, Ranbir Singh Pura, Jammu, Jammu and Kashmir, India

Corresponding Author: Mohd Rashid

Professor, Division of Veterinary Public Health & Epidemiology, Faculty of Veterinary Sciences & Animal Husbandry, Sher-E-Kashmir University of Agricultural Sciences & Technology of Jammu, Ranbir Singh Pura, Jammu, Jammu and Kashmir, India

Assessment of knowledge attitude and practices associated with water in domestic and dairy farming in Ranbir Singh Pura Jammu

Shafali Jeet Kour¹, Mohd Rashid², HK Sharma³

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ABSTRACT

A cross sectional study was conducted among 320 randomly selected households in Ranbir Singh Pura Block of Jammu to assess the demographic profile, knowledge, attitudes and practices related to drinking water safety, waterborne zoonotic diseases, hygiene and waste management. The majority of (68.75%) respondents were in age group of 20–40 year, while 31.25% were of 41–65 years and 75.0% were women. About 67.19% were uneducated, or having primary education. About 40.6% were unemployed and 31.3% were engaged in non-skilled occupations. Rural residents constituted 73.4% of the study population. The findings revealed a considerable gap between general awareness and knowledge of practical water safety measures. Although 68.8% of respondents had knowledge of safe drinking water sources and 68.1% were aware of the transmission of waterborne zoonotic diseases, 63.1% lacked knowledge about chemical contamination, 61.2% were unaware of the importance of boiling or purification of water and 60.0% lacked awareness regarding safe distances from water sources. Similarly, 58.8% were unaware of hand washing before water collection and 56.9% lacked knowledge regarding proper disposal of livestock waste and dead animals near water bodies. Regarding attitudes, 65.0% agreed safe water sourcing and 56.25% boiling or purification of water. However, 51.87% preferred community level water treatment by government agencies, while 72.5% preferred local natural water sources over packaged drinking water. In practice, hand pumps and tube wells were the major sources of water for domestic (66.35%) and dairy-farming (73.13%) purposes. Although 91.87% reported safe solid waste disposal, whereas, 25.31% were disposing of liquid waste haphazardly. Furthermore, 51.2% lacked access to treated water and 36.87% did not routinely clean and sanitize water reservoirs. The study highlights substantial gaps between water related awareness and safe practices, emphasizing the need for targeted health education, improved water infrastructure, regular monitoring of water quality, and community based interventions to reduce the risk of waterborne and zoonotic diseases.

Keywords: Knowledge, Attitude, Practices, Water, Zoonoses, Transmission

Introduction

Water is an important component of ecosystem and an essential constituent which supports human beings, animals and plants life. In our country, almost 70% of the water has become polluted due to the discharge of domestic sewage and industrial effluents into natural water sources (Joshi *et al.*, 2014) [1] According to a NITI Aayog Report (2019) [2] India is placed at 120th amongst 122 countries in the water quality index. Health of humans, animals and other organisms is directly related with safe water, so safe water resources are very important in maintaining a healthy nation. In most of the developing areas, under the pressure of population explosion and industrialization sufficient wholesome water is not available and the public fulfill the need of water requirement by managing at their own level with the limited resources. It is normally observed that due to lack of safe drinking and utility water, animals and humans become ill (WHO 2023). India draws 25% of world ground water for day to day life from various sources and the most of water sources are contaminated by sewage and industrial wastes. The factors like population explosion, urbanization, industrialization and climate change influence the hygienic quality of water (NITI Aayog Report, 2019). The knowledge, attitude and practices of dairy workers and availability of whole some water is a burning issue of developing nations like our country and Union Territory of Jammu & Kashmir. The awareness and change in behavior about safe drinking water, proper disposal of wastes, improved drinking and living practices will decrease water borne diseases among animals and human beings.

According to an estimate of WHO-2020 each year 10 million people die from contaminated drinking water globally and 2 lakh in India alone. About 80% of all diseases in human are either water borne or water related affecting both human and animals (UN Secretary General Press release-2003). There is no documentary report available about such type of study conducted among these villages for the analysis of water quality.

Keeping in view of the heavy rainfall and deterioration of water bodies or different water resources of R.S.Pura block, last year, this study was designed to assess the knowledge, attitude and practices of dairy workers of Ranbir Singh Pura (R.S.Pura) located in and around the faculty of veterinary sciences and animal husbandry.

Materials and Methods

Study area

The study was conducted by obtaining responses from 320 respondents of Ranbir Singh Pura (R.S.Pura) block under a cross sectional study design. The R.S.Pura block is located in Jammu District of Jammu & Kashmir Union Territory with geographical coordinates of approximately, 32.63°N and 74.73°E and an elevation of 270 meters above sea level. The area is characterized by a sub-humid climate.

Study Design: A random sampling technique was used to select 320 dairy farmers (Siddiqui *et al.*, 2019) [3] from 40 villages of R.S.Pura block for collection of data on knowledge, attitude and practices (KAP) regarding sanitation and hygiene of water used for domestic and dairy farming. Before conducting of formal interview a preliminary visit was made to locate the dairy farms and simultaneously to obtain farmers consent, to give a brief description on the research objectives and farmers potential benefits of involving in the research. In this cross sectional study the sample size was calculated by adopting Cocharam’s formula. The duration of study was seven months commencing from January, 2026 to July, 2026 and the persons actively involved in livestock farming were taken as the study population in terms of respondents. The study is designed with inclusion criteria of respondents involved in dairy farming, willing to participate and available at the time of study and data collection. Whereas the exclusion criterion for the present study was respondents under 20 years age, old aged persons (> 65) and persons not associated with dairy farming, not willing to participate or unavailable at the time of study.

Method of data collection: A single visit multiple subject formal survey technique (Kaniambady *et al.*, 2017) [4] was used to collect data

through interviews, conducted in the local language by the researcher using a formal semi-structured questionnaire. Data obtained from respondents was on the parameters as enlisted in table-1 to 4. The questionnaire consisted of both open ended and closed ended questions. Semi-structured questions were divided into different sections; these sections included questions regarding the knowledge, attitude and practices of dairy workers (Fisher, *et.al.* 2011, Saxena, *et.al.* 2024) [5]. It also included questions on the social and economic status of respondents, disposal of dairy wastes near water bodies, adoption of hygienic practices of workers (Tahlil *et al.*, 2025) [6]. Before analysis, data was checked, for accuracy, completeness, consistency, omission and organized to allow for coding and tabulation for further analysis. Tables and graphs were used to represent the response in percentage. The risk was scored on a scale of 1-3, where ‘1’ denoted mild risk of category-1, ‘2’ denoted moderate risk of category-2, and ‘3’ denoted high risk of category-3. This system was used for the six variables. The study was approved by the competent authority and students’ advisory committee. Consent of respondents was taken prior to the start of study, and they were also informed about their freedom of participation without any compulsion. The demographic parameters were on; basic information (Age, Education, Religion, Income, land holding, primary occupation), knowledge about water treatment, drinking of unsafe water, knowledge about water borne diseases, sources of water supply of dairy farms, knowledge on hand washing.

Results and Discussion

On demographic profile data was collected from 320 households randomly selected families in this cross sectional study revealed that 68.75% of persons were in age group of 20-40 years and 31.25% were in age group of 41-65 years, out of them 75% were women. Persons with primary education or uneducated were 67.19%, unemployed 40.6% and other non skilled workers were 31.3% and rural residents were 73.4%, whereas, only 10.9% graduate, 26.6% from urban areas and 73.4%, from rural villages participated in the study (Table-1).

Table 1. Distribution of respondents according to socio-demographic characteristics (N = 320)

S.N.	Parameters	N	%
	Age		
	20-40 years	220	68.75
	Above 41-65 years	100	31.25
2.	Gender		
	(Male)	80	25
	(Female)	240	75
3.	Education		
	Illiterate	105	32.8
	Primary level	110	34.4
	Secondary level	70	21.9
	Graduate	35	10.9
4.	Primary occupation		
	Unemployed	130	40.6
	Skilled persons engaged in farming	90	28.1
	Non-skilled persons engaged in farming	100	31.3
5.	Type of residence		
	Urban	85	26.6
	Rural	235	73.4

The study on water-related knowledge among 320 respondents in the R.S. Pura Block revealed a significant divide between general awareness and practical safety measures. While a substantial majority of the participants demonstrate good foundational knowledge regarding safe drinking water sources (68.8%) and the transmission of waterborne zoonotic diseases (68.1%), this awareness does not translate into an

understanding of critical preventative practices. Alarminglly, majorities of the respondents lack essential knowledge about chemical contamination (63.1%), the vital importance of boiling or purifying water (61.2%), and the necessity of maintaining safe physical distances from water sources (60.0%). Furthermore, significant gaps exist in basic hygiene and environmental health, with 58.8% unaware of the

importance of washing hands before water collection and 56.9% lacking knowledge on the proper disposal of livestock wastes and dead animals near water bodies. These findings highlight an urgent need for targeted public health interventions and educational campaigns

that shift focus from general awareness to practical water safety, hygiene, and environmental sanitation behaviors within the community (Table-2).

Table 2. Knowledge of Respondents in respect of water pollution and spread of zoonoses ($N = 320$).

S.N.	Indicators	Category	Frequency	Percentage
1.	Knowledge about zoonotic diseases transmission through water	Yes	218	68.1
		No	102	31.9
2.	Knowledge of safe source of drinking and domestic use water	Yes	220	68.8
		No	100	31.2
3.	Knowledge about importance of boiling or purification of water	Yes	124	38.8
		No	196	61.2
4.	Knowledge about importance of washing hands before collection of water	Yes	132	41.2
		No	188	58.8
5.	Knowledge about the importance of distance from source of water	Yes	128	40.0
		No	192	60.0
6.	Knowledge about disposal of livestock wastes and dead animals into water bodies	Yes	138	43.1
		No	182	56.9
7.	Knowledge about chemical contamination of drinking water	Yes	118	36.9
		No	202	63.1

Based on the data analysis it is revealed that majority of community members were strongly supporting boiling or purification of water (56.25%), and safe water sourcing (65%), but exhibit critical gap in awareness about the regular checking of water sources (51.87%), spread of diseases through contaminated water among the humans and animals (53.13%), revealed undesired behavioral response against zoonotic diseases. However, 48.13% perceive treatment of water at

home but majority of them (51.87%) want treatment of water at community level by the Govt. department responsible for water supply. Majority of respondents rejected the idea of use of packed bottle water arguing poor economic conditions, suggesting regular use of local natural water sources like wells, hand pumps and canals and rivers (72.5%).

Table 3. Attitude of respondents about the Zoonotic Diseases ($N = 320$).

S.No	Indicators	Category	Frequency	Percentage
1.	Importance of boiling/purification of water	Agree	180	56.25
		Disagree	140	43.75
2.	Importance of safe source of drinking and domestic use of water	Agree	208	65.00
		Disagree	112	35.00
3.	Importance of acquiring awareness for use of wholesome water in dairy farming	Agree	196	61.25
		Disagree	124	38.75
4.	Does regularly testing of drinking water is important?	Agree	154	48.13
		Disagree	166	51.87
5.	Does quality of water affect human and animal health?	Agree	150	46.87
		Disagree	170	53.13
6.	Does packed water is safer than other sources?	Agree	88	27.50
		Disagree	232	72.50
7.	Does community level water testing is important?	Agree	220	68.75
		Disagree	100	31.25
8.	Does water treatment at home is necessary?	Agree	154	48.13
		Disagree	166	51.87

This study revealed that out of 320 respondents 212 (66.35%), use hand pumps and tube wells water as the main source for domestic purpose and 73.13% for dairy farming in the area. Most of the respondents (91.87%) manage solid wastes in safe ways but still 7.81 % through haphazardly creating nuisance, contamination of water bodies and source for breeding of flies and spread of diseases. But liquid waste management practices are matter of public health concern as 39.38% use in kitchen gardening, 35.31% in agricultural farming and 25.31% through haphazardly without proper treatment. So such practices may lead spread of zoonotic diseases among the occupationally

exposed workers. A very less number of respondents use piped water for domestic and dairy farming (7.81-15.62%), whereas maximum population is dependent on hand pump, tube well, bore well, canal, pond water. About 8.85% use bore well, 9.38% stream/pond water for washing clothes, utensils and other domestic purposes that may have chances of contamination. In the area most of such water sources are contaminated. Most of the practices are risky, such as 51.2% of respondents do not access to treated water, 25.31% through untreated liquid wastes haphazardly, 36.87% do not clean and sanitize water reservoirs routinely.

Table 4. Practices and Risk factors associated with water among Respondents ($N = 320$).

S.No	Indicators	Category	Frequency	Percentage
1	Sources of drinking water for human use.	Piped water	50	15.62
		Hand pump / Tube well	212	66.25
		Dug well	0	0.0
		Bore well	28	8.75
		Canal/pond/stream	30	9.38
		Other: _____	0	0.0
2	Sources of water for use in dairy farm.	Piped water	25	7.81
		Hand pump / Tube well	234	73.13
		Dug well	0	0.0
		Bore well	10	3.13
		Canal/pond/stream	51	15.93
3	Do they purify water before use?	Yes	156	48.80
		No	164	51.20
4	What method used for purification of water?	Boiling	160	50.00
		Filtering	118	36.88
		Chemical use	42	13.12
5	Solid waste management	Burn	140	43.75
		Bury	67	20.93
		composting	53	16.56
		Dry for burning	35	10.94
		Through haphazardly	25	7.81
6	Liquid waste management	Kitchen Gardening	126	39.38
		Agriculture field use	113	35.31
		Through haphazardly	81	25.31
7	Do they clean water storage tank regularly?	Yes	202	63.13
		No	118	36.87

Conflict of interest

The authors declare that there is no conflict of interest.

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