INTERNSHIP TRAINING

AT

PUBLIC HEALTH FOUNDATION OF INDIA, DELHI

AN ASSESSMENT OF KNOWLEDGE REGARDING THE RISK OF ZOONOSES AND HYGIENE PRACTICES AMONG FEMALES WITH LIVESTOCK IN SOUTH-WEST, DELHI, INDIA:
A CROSS – SECTIONAL STUDY

BY

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PG/15/059

UNDER THE GUIDANCE OF

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POST GRADUATE DIPLOMA IN HOSPITAL AND HEALTH MANAGEMENT

2015-17

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

TO WHOMSOEVER IT MAY CONCERN

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The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

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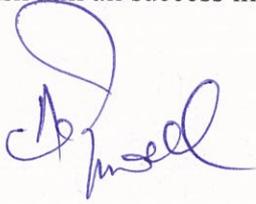
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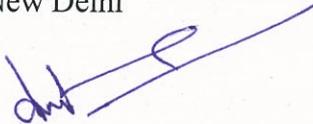
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This is to certify that **Dr. Priya Chinchwadkar** a graduate student of the Post- Graduate Diploma in Health and Hospital Management has worked under our guidance and supervision. She is submitting this dissertation titled "**An assessment of knowledge regarding the risk of zoonoses and hygiene practices among females with livestock in South-West, Delhi, India: A cross – sectional study**" at "**Public Health Foundation Of India**" in partial fulfillment of the requirements for the award of the Post- Graduate Diploma in Health and Hospital Management.

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The following dissertation titled **"AN ASSESSMENT OF KNOWLEDGE REGARDING THE RISK OF ZOONOSES AND HYGIENE PRACTICES AMONG FEMALES WITH LIVESTOCK IN SOUTH-WEST, DELHI, INDIA: A CROSS – SECTIONAL STUDY"** at **"PFHI, GURUGRAM"** is hereby approved as a certified studying management, carried out and presented in a manner satisfactorily to warrant itsacceptance as a prerequisite for the award of **Post Graduate Diploma in Health andHospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for thepurpose it is submitted.

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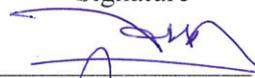
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PG/15/059
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An assessment of knowledge regarding the risk of zoonoses and hygiene practices among females with livestock in South-West, Delhi, India: A cross – sectional study

ABSTRACT

Summary

Zoonoses are diseases that are transmissible between animals and people. These diseases may be transmitted during processing, production and handling of animals & food products of animal origin. Knowing about the perception, culture and general habits of the farmers regarding the cause of zoonoses is important, their understanding about its prevention and awareness and practices to be followed act as an important tool in improving the control measures for it. Women account for 93 per cent of total employment in dairy production in India, which make them more vulnerable. . The study is of importance for the decision- makers, medical doctors, public health professionals, veterinarians for integrating multi-sectoral 'One health approach.

Aim

The present study was conducted to assess the knowledge level regarding the risk of zoonoses and hygiene practises among female population with livestock in South-West Delhi.

Methods

The study was carried out on a total sample of 60 households with women handling livestock. A questionnaire was used as a data collection tool; similarly, a checklist was used for checking if any gap is found in knowledge level and their actual practising technique. The data was collected using Quota sampling with age group of female populations as young, middle and senior. Following snowball sampling technique was used to attain the desired sample size.

1

Result

Data analysis was done with Statistical Package for the Social Sciences (SPSS), knowledge level was calculated with the help of knowledge scores for risk of zoonoses and hygiene practices. It was found that the knowledge level of the majority respondents (75%) about diseases transferred from animal to man i.e zoonotic diseases was low. Nearly half of the respondents 32(53.3%) disagreed that few diseases can be transferred from man to animal or vice-versa, while none of the respondent had knowledge of specific zoonotic diseases. It was observed that 50/58 (83.3%) of respondents washed their hands every time before milking. A knowledge score was calculated for knowledge regarding the hygiene practices related to zoonoses, out of total score (28) the respondents got a maximum mean score of 11, while the respondents scored maximum 7/9 in general hygiene practices and 11/19 in specific practices related to zoonoses. On observing the way of actual handling of livestock gap was observed in their knowledge level and practicing.

Keywords: Zoonotic diseases, knowledge level, hygiene practices, One-Health

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My sincere thanks go to my mentor **Prof. Divya Aggarwal** (AsstProf. IIHMR, New Delhi) for her kind assistance and support throughout my training.

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ABBREVIATION

- o **ATT** : Awareness, Teaching and Training
- o **HH** : House Hold
- o **PHFI** : Public Health Foundation India
- o **WHO** : World Health Organisation
- o **NGO** : Non-Government Organisation
- o **RCZI** : Roadmap to Combat Zoonoses India
- o **RCBP** : Research Capacity Based Program
- o **ILRI** : International Livestock Research Institute
- o **SPSS** : Statistical Package for the Social Sciences

LIST OF TABLES

1) <u>ORGANIZATIONAL PROFILE</u>

1.1 The Public Health Foundation of India (PHFI) is a public private initiative that has collaboratively evolved through consultations with multiple constituencies including Indian and international academia, state and central governments, multi & bi-lateral agencies and civil society groups. PHFI is a response to redress the limited institutional capacity in India for strengthening training, research and policy development in the area of Public Health.

Structured as an independent foundation, PHFI adopts a broad, integrative approach to public health, tailoring its endeavours to Indian conditions and bearing relevance to countries facing similar challenges and concerns. The PHFI focuses on broad dimensions of public health that encompass promotive, preventive and therapeutic services, many of which are frequently lost sight of in policy planning as well as in popular understanding.

1.2 The vision, mission, goals are as follows-

Vision	Our vision is to strengthen India's public health institutional and systems capability and provide knowledge to achieve better health outcomes for all
Mission	- Developing the public health workforce and setting standards - Advancing public health research and technology - Strengthening knowledge application and evidence-informed public health practice and policy
Values	**Transparency** - Uphold the trust of our multiple stakeholders and supporters - Honest, open and ethical in all we do, acting always with integrity

Impact

- Link efforts to improving public health outcomes, knowledge to action

- Responsive to existing and emerging public health priorities

Informed

- Knowledge based, evidence driven approach in all we do

- Drawing on diverse and multi-disciplinary expertise, open to innovative approaches

Excellence

- Aim for highest standards in all aspects of our work

- Encourage, recognise and celebrate our achievements

Independence

- Independent view & voice, based on research integrity & excellence

- Support academic and research freedom, contributing to public health goals and interests

Inclusiveness

- Strive for equitable and sustainable development, working with communities

- Collaborate and partner with other public health organisations

1.3 Organizational Design
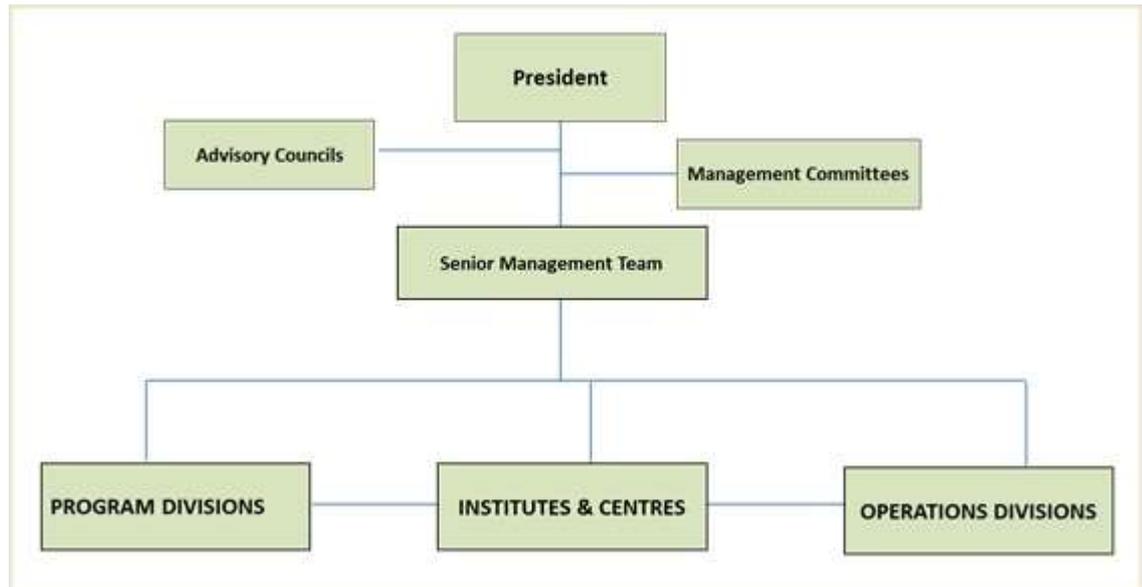
1.4 Roadmap to Combat Zoonoses in India (RCZI)

The Roadmap to Combat Zoonoses in India's (RCZI) mission is to identify specific outcomes that can be integrated into mainstream systems through innovative approaches that can help combat, prevent, and control zoonotic infections. It aims to dothis

- Integrating research and training by experts in the field of human, animal, and vector-borne illnesses

- Identifying partners and developing mechanisms and resources for multisectoral collaboration and initiatives

- Encouraging advocacy and communication strategies to raise awareness amongst different stakeholders involved in zoonotic infections transmission, prevention, and control

- Conducting research and capacity-building priorities focused on the 'One Health' concept (linking all sectors ranging from human health to animal, wildlife, social and environmental sectors)

1.5 PHFI's Mandate

Promote and further develop prevention and control of zoonoses through support for collaborative programmes with national and international organisations.

Build capacities and research initiatives to strengthen India's current zoonoses workforce.

Strengthen the Roadmap for Combating Zoonoses in India (RCZI) through a systems-based collaborative approach that can help bring the best of multiple sectors (human, veterinary, and wildlife) in controlling and preventing zoonotic infections

1.6 Research Capacity Building program (RCBP)

PHFI/RCZI-International Livestock Research Institute (ILRI) started an initiative which aims to generate a stronger evidence-based cross-sector policy and local capacity for integrating public health, animal/livestock health, urban planning, local food production and social development in select peri-urban sites in India. Establishing a policy-relevant research platform and creating sustainable multidisciplinary and multi-actor partnerships would be the eventual outcomes of the study.

Selected researchers will explore the EcoHealth approach to research, applying it to local healthy food production, healthy livestock, and prevention and control of zoonotic diseases in peri urban settings. The research findings will help develop and improve the understanding of interactions between livestock rearing practices and epidemiology of

diseases associated with these practices, transmission dynamics and its implications on human health and environment with a view to promote health, livelihood and sustainable development across the country's different peri-urban settings.

1.7 Observation/Learning

A two workshop was conducted to introduce to the concept of 'One-Health', importance of prevention and controlling of zoonoses. A hand on training was given for using Mendeley software, Mendeley is a combination of a desktop application and a website which helps in manage, share and discover both content and contacts in research. It helps the researcher in-

- Automatic extraction of document details
- Sharing and synchronisation
- An online backup of your library

Along with the research concept and methodology, basic learning of hoe to do network establishment and project management were the other broad areas of learning.

Chapter 1: Introduction

1.1 Introduction

The word "zoonoses" (singular zoonosis) originated from the Greek word "zoon" meaning animal, "nosos" means disease. Rudolf Virchow first used this term in 1855 in his famous "Handbook of Communicable Disease" to describe the animal diseases secondarily transmissible to man. The overall concept of zoonoses is complex. It involves man, another vertebrate, often an arthropod, the agent that causes disease, and the environment – all forming a biologic whole. This follows the basis of epidemiology as agent, host and environment. According to WHO definition zoonoses are diseases and infections that are naturally transmitted between vertebrate animals and humans. It is also termed as zoonosis is a disease which is transferred from animal to humans and vice versa[1].Globally the emergence and re-emergence of zoonoses and its potential harmful effect on human health are gaining attention[2]. There are total seven endemic zoonoses of concern i.e. Brucellosis, rabies, human African trypanosomiasis, bovine tuberculosis, cysticercosis, echinococcosis and anthrax. These diseases may be transmitted to the farmers with livestock during processing, production and handling of food products of animal origin[1].

India is a land of villages with 71.6 percent population living in rural area, whose main occupation is agriculture and agro-related occupations[3]. Worldwide, India is the largest milk producer with highest population of cattle i.e. 134 million cows and 124 million buffalos[4]. The interdependency of man and animal is an old concept, but along with the benefits there are some problems associated like lack of awareness about the causes and the impact of Zoonosis on the public health. According to Public health foundation of India (PHFI), the Indian subcontinent has been identified as one of the four global hot-spots at increased risk for emergence of new infectious diseases[5].These diseases have

an ill effect on the animal production, leading to slow growth and less milk production; leading to an economic impact on the social wellbeing of the rural community

As a result, knowing about the perception, culture and eating habits of the farmers regarding the cause of zoonoses is important, their knowledge about its prevention, awareness and practices to be followed act as a valuable tool in improving the control measures for it[1].

Women account for 93 per cent of total employment in dairy production in India. It is established beyond doubt that women always participated in dairy and animal husbandry activities in addition to their daily household chores[8], which makes them more vulnerable. The current study will assess the knowledge regarding the risk of zoonoses and the hygiene practises being followed; it will be of significance for the decision makers, veterinarians, general practitioners and NGOs in creating awareness among the females.

Chapter 2: Review of Literature

2.1 Review of Literature

Developing countries such as India suffers from the triple burden of diseases; the unfinished work of communicable diseases, the non-communicable diseases and emergence of new pathogens and overstretched health infrastructure[4]. Adding to this, the role of global warming and climate change is affecting the biodiversity and distribution of animals resulting in emergence of zoonoses[6]. Favourable environmental, demographic and socio-economic factors further put India at a risk of epidemics of emerging infections.

Researchers have found that globally 13 diseases called as zoonosis are responsible for 2.2 million human deaths every year[8]. In a study it was found that Awareness, Teaching and Training programs for dairy farmers can improve diseases control in animals and reduce the public health risk of milk-borne zoonosis. In another study conducted in Tanzania it was discussed that Public health promotion on education and inter-disciplinary one-health collaboration between vets, public health practitioners and policy makers should result in a more efficient and effective joint approach to the diagnosis and control of zoonoses[7]. In a study conducted by PHFI, it was found that currently there are inadequate efforts for one–health and with the emergence and re-emergence of pathogens in India there is an immediate need for strengthening one-health programs[8]. Lack of knowledge regarding these diseases have impact on both the animal and human health, also there is a positive association in the occurrence of zoonotic diseases and lack of knowledge about it. As a result, it has created a major hurdle in starting of adequate and effective control measures[13].

WHO conducted a program on rabies in India and it was found that the number of cases reduced to a certain extent, also the economic losses came down[17]. Hence

understanding the public knowledge and awareness about the disease can be helpful in devising disease awareness and control programs for it[14,15]

About 75 million women as against 15 million men are engaged in dairying in rural India[9-11]. Role of female population is important in handling of the livestock as they are actively involved in various aspects of dairy farming activities like care of new-born calf, cleaning of animal shed, care during pregnancy and care of sick animals[9]. As a result, understanding their knowledge about the disease becomes critical.

Chapter 3: Objective

3.1 Objective

- To assess the knowledge regarding risk of zoonoses and hygiene practices among females in small holder dairy farms
- To assess the actual status of practices adopted in the small holder dairy farm.

3.2 Conceptual framework

A conceptual framework has been illustrated below to achieve the objectives of this study. The broad areas to be studied were identified. The three closely linked themes covered include: Zoonotic diseases, Knowledge and Hygiene practices, with a focus on the Indian context.

Figure 3.1: Conceptual framework for the study
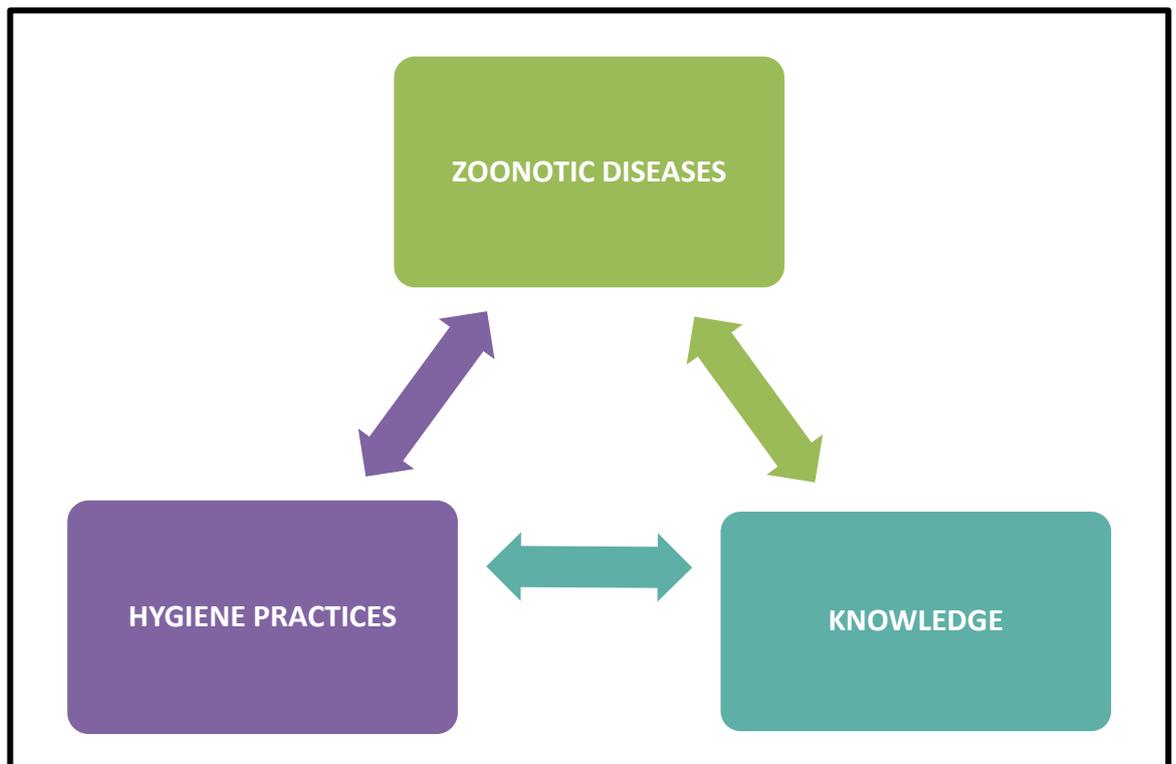
As illustrated in the figure above, there is a close correlation among the three thematic areas and variations in one area have implications on others. The relationship between these cross-sectional variants and their importance has been briefly described below:

1. Zoonotic diseases are a cause of death of millions in India, India is one of the four major hot spot for these diseases, the spread of these diseases largely depend on the handling practices and correct knowledge.

2. Knowledge about this diseases lead to safe and conscious practices.

3. Hygiene practices are key for spreading or restricting spread of any disease.

3.3 Methodology

In order to achieve the study objectives, quantitative method was used for data collection and analysis. The study was conducted through various processes including brainstorming discussions to establish the study objectives, selection of area and the study methodology. A preliminary literature review was also conducted during the early phase of the study.

Figure 3.2: Steps for conducting the study.

3.3.1**Study Area**: The current study was carried out in peri-urban area of South -West area, New Delhi. South West Delhi has a population of 2,292,363 (2011 census), and an area of 420 km² Administratively, the district is divided into three subdivisions, Dwarka, Najafgarh and Kapas Hera, out of it, Najafgarh is the division which has mix

of urban, peri-urban and rural areas. The study was carried out in Ujwa village of Najafgarh division.

Figure 3.3: Map of Najafgarh
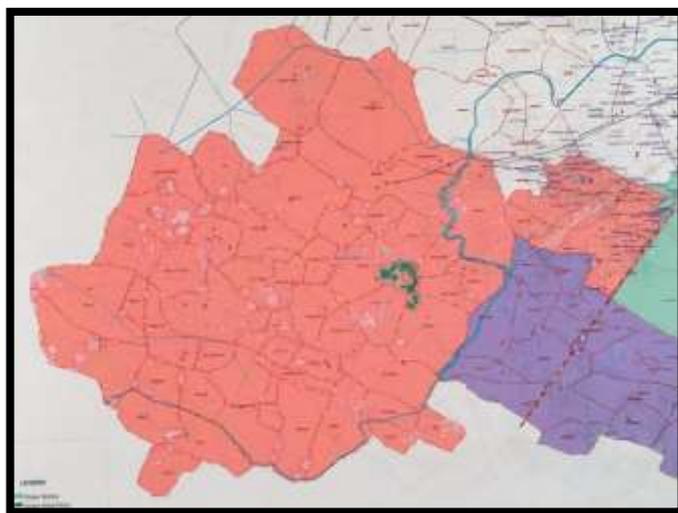
3.3.2**Study Population**: Female population from the House-Hold (HH)

3.3.3**Inclusion Criteria**: The study had one inclusion criteria- i) one female from the HH who is involved in the major handling of the livestock.

3.3.4**Sample Size**: The total sample size was of 60 HH, the sample size was selected as per convenience.

3.3.5**Sampling Method**: Quota sampling was used to select female population according to age, three age groups were taken- young female population (15-24 yrs), middle age (25-54yrs), senior age (55-64yrs). Following this, Snowball sampling method was used for gaining the desired number. The technique was followed in two steps: 1- Identification of 1-2 participants from the area. 2-These participants were asked to give information about the similar subjects and so on; this was continued till the desired sample size was achieved.

3.3.6 **Data Collection Method**: The data collection was done from Ujwa village. After selection of the participant, Informed consent was taken; those who won't agree were excluded.

Structured questionnaire was used as a tool for data collection, It had 3 broad sections i.e Demographics, Awareness about zoonotic diseases and hygiene practices including-general hygiene practices, specific hygiene practices, the responses were dichotomous or using a Likert scale, this questionnaire was translated and retranslated, which was pre-tested, the testing was done by the same questionnaire among the participants, who were asked about feedback, the questions which were difficult to understand, ambiguous were modified. It was checked for its appropriate responses, while the checklist had points for the ideal way of handling along with the marks for their compliance.

Chapter 4: Research Method

4.1 Pilot study test

A pilot study was conducted for the study titled '**An assessment of knowledge regarding the risk of Zoonosis and hygiene practices among females with livestock in South-West, Delhi, India: A cross – sectional study'.**

4.2 Objectives

1. To evaluate the responses being received against the questions asked.

2. To test whether the questions are simple to understand

3. To evaluate if the questions asked are not sensitive with respect to cultural and social belief.

4. To highlight areas in the questionnaire that needs improvement.

4.3 Method

4.3.1 **Study Participants**:

Total 10 female participants were used as a sample. Quota sampling was used in the sample according to the age group 15-24 yrs, 25-54 yrs, 55- 64 yrs; following this snowball sampling was done to attain the desired sample size. Total 3 participants were interviewed for the age group of 15-24 yrs and 55-64 yrs while 4 participants were selected from the age group of 25-54 yrs. This was done to understand the responses from each age group. These participants were selected to represent the study population with livestock at their homes.

4.3.2 **Study area**:

The mentioned study was conducted in Ujwa village of South- west division.

4.3.3 **Material**:

The participants were informed about the study and consent was taken. Following the consent, the participants were interviewed with the questions from the questionnaire and their responses were noted. Total 30 questions were asked in the questionnaire which has a mix of open ended as well as close ended questions. An observational checklist of 11 points was also used to see their actual handling practices.

4.3.4 **Study Population**:

Those households which had livestock at their home were selected and those participants who spent maximum time with them were chosen

4.3.5 **Findings**:

- Response Rate-10 individuals were approached for the interview, and all of them gave appositive response, hence the response rate was 100%.

- The participants understood correctly the questions being asked. The responses received were in accordance with the questions asked.

- It was found during the pilot study that few questions which were dichotomous didn't receive correct response, hence there was a need felt to change them to Likert scale. It was observed that these questions were not able to catch the exact frequency of their cleanliness habit. Hence, those questions were changed to Likert scale.

- One question was found to be sensitive to their social and cultural belief, as a result the language of the question was changed to get the desired response

- Also to experiment the socio-economic scale 5 questionnaire were designed using Kuppuswamy's socio-economic scale and 5 questionnaires were designed

using SLE score of NFHS-3, it was found that all the 5 responses received under SLE score belonged to upper class and no variation was noted. While there was variation in the socio-economic status covered with Kuppuswamy scale.

- Questions regarding animal husbandry, vaccination of the cattle, specific disease management etc were not included in the questionnaire.

4.3.6 **Conclusion**:

The pilot test study helped in understanding the gaps in the questions being asked and the responses acquired for the same. Thus, the changes are made in the questionnaire which will be used as the final tool for data collection.

Chapter 5: Interpretation

5.1 Data Analysis & Interpretation

5.1.1 **Data Analysis**: The collected data was coded and analyzed with the help of SPSS. Descriptive statistics and cross tabulation were mainly used on data. Association and regression was tested on the data.

Knowledge scores will be calculated for risk of zoonosis knowledge on hygiene practices, its association with the age groups and with the standard of living of the study population.

Observations on the hygiene practices will be calculated.

5.1.2 **Expected Outcome**: The study will help in assessing the knowledge level of the female population regarding the risk factors of zoonosis and also about the hygiene practices followed.

The study will also further help in understanding the knowledge level regarding the general hygiene and hygiene practises specific to the risk of zoonosis.

5.2 Results

5.2.1 **Demographic characteristics**

All the respondents in the sample were females. The response rate in the sample was 58/60 (96.7%). The majority of the respondents (25, 41.7%) were uneducated while 23 (38.3%) were educated up to primary level. The majority of the respondents 49/58 (81.7%) were housewife while only 9/58 (15%) were working. According to Kuppuswamy score for socioeconomic status, most of the respondents 23(38.3%) belonged to lower middle class, followed by middle upper middle (21, 35%)

Table 5.1: Demographic Characteristics

1.	Age of the respondent		
	Age Groups	Frequency	Percent
	15-24	18	30
	25-54	20	33.3
	55-64	20	33.3
2.	Occupation		
	Housewife	49	81.7
	Working	9	15
3.	Kuppuswamy socio-economic status		
	26-29- Upper	4	6.7
	16-25- Middle Upper Middle	21	35.0
	11-15- Lower Middle	23	38.3
	5-10- Lower Upper lower	9	15
	less than 5- Lower	1	1.7

5.2.2 **Assessment of knowledge regarding hygiene practices and zoonotic diseases**

The majority of the respondents 32(53.3%) disagreed that few diseases can be transferred from man to animal or vice-versa, while the majority didn't have the knowledge 45/56(75%) about diseases transferred from animals to humans, while no respondent had knowledge of specific zoonotic diseases.

It was observed that 50/58 (83.3%) of respondents washed their hands every time before milking. The respondents actively helped the cattle during reproduction (49/58; 81.7%) but didn't wear any protective gloves (54/58; 90%). Majority of the respondents did not apply any medication on udder after the milking stops (57/58; 95%), while all the respondents washed udder before milking (58/58; 96.7%).

5.2.3 **Knowledge score and hygiene practices related to zoonoses**.

The total score for the questions was 28. The questions with responses like 'Yes or No' were given scoring as- for correct response 1 and 0 for incorrect; the questions with

frequency like 'Everyday, Occasional, and Never' were scored, the correct response was given 2 while incorrect was given 0. The scoring range of the questions was 28 to be maximum while 0 minimum. < 18 was considered as low score and >18 as considered high score.

5.2.3 Knowledge towards General and Specific Practices about zoonotic diseases

The respondents were asked about the general hygiene practices and scored accordingly. The highest score was 9 while the minimum being 0. The respondents were asked questions about hand washing before serving food, after touching animals, disposing waste etc. Also, knowledge about specific practices which are to be carried out to prevent zoonoses were assessed, as shown in Table no. 2

Table no. 5.2: Total knowledge score about hygiene practices related to zoonotic diseases.

Sr.No.	Knowledge about practices	Obtained mean score	Expected total score
1.	General practices	7	9
2.	Specific practices	11	18
3.	Total score	18	28

The below graph shows a pictorial depiction about the knowledge scores obtained by the respondents. It shows that the respondents of that population were well- versed in the general hygiene. While specific to zoonotic diseases they had an adequate knowledge about the practices to be followed, although they were not aware about the zoonotic disease per se.

Figure5.1: Knowledge scores: Expected and obtained
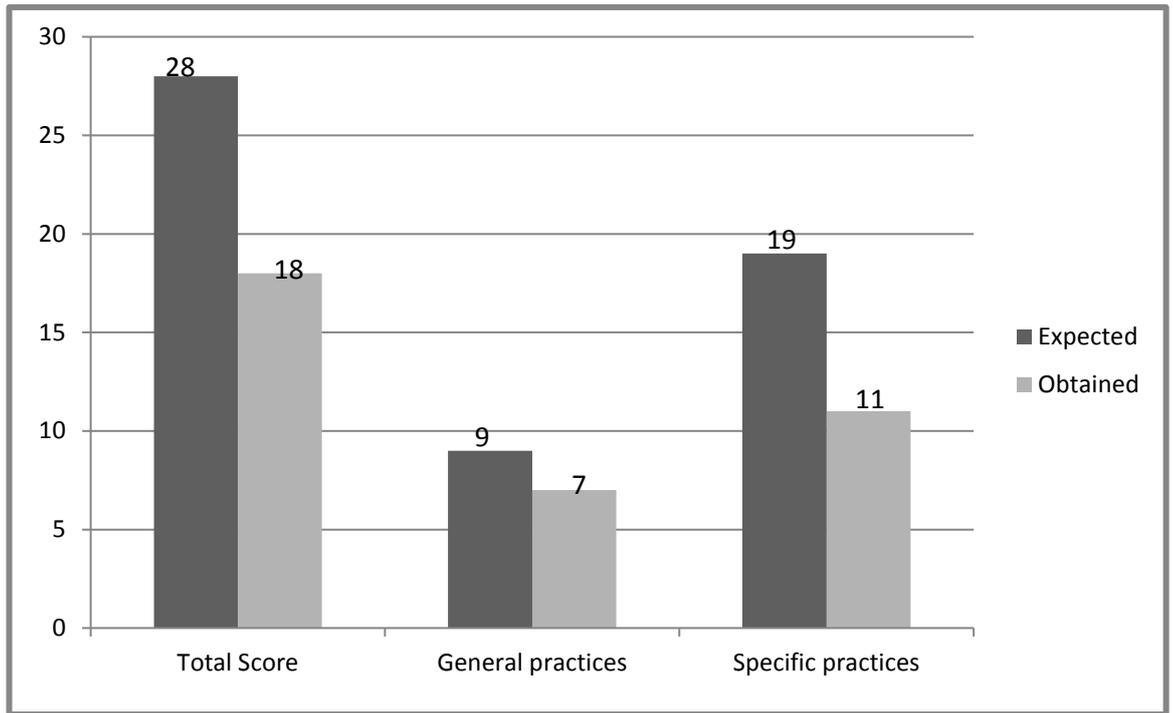
It was found that the 27 respondents got into low score category i.e<18, but their total mean score was towards higher range (15), and 31 respondents belonged to high score category

Figure5.2: Distribution of Knowledge Score
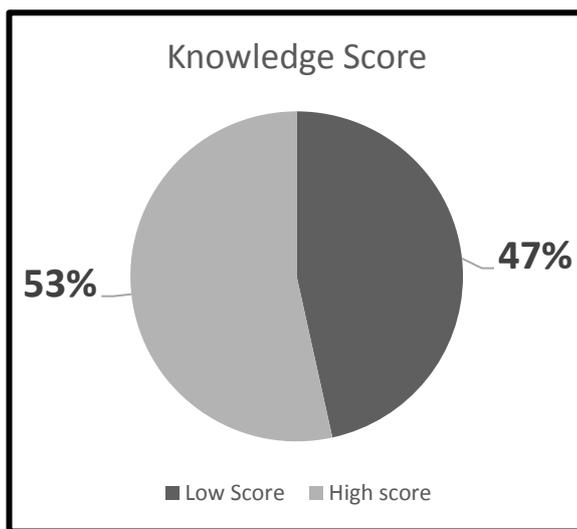
5.2.4 **Assessment of Highest level of education and Knowledge**:

Crosstab and chi square test of association was used to find out if increase in the education level results in change in knowledge about hygiene practices

Table no. 5.3: Crosstab and Fisher's Exact test

		Knowledge score		Total
		Low	High	
Highest level of education	**None**	14	11	25
	Primary incomplete	10	13	23
	Secondary Incomplete	3	7	10
Total		27	21	58
Fisher's Exact test: 2.028 (p=.35) **Cramer'sV(.190)**				

The Fisher exact test value for the association between education and knowledge of practices was obtained as '2.028 with a Significant probability more than 0.05 (i.e. 35). On the evidence of this data there would appear to be no doubt that there is an association between education and knowledge of practices in the population from which this sample respondents was drawn. However, it can be seen that the strength of association between the variables is weak-positive (Cramer's V=.190) may be due to i.e. rural and female. Also, the result cannot be generalized in larger population due to probability more than 0.05. While the mean score was found to be highest in the highest education in the sample i.e 20 while it was less in respondents who were not at all educated i.e 17.

5.2.5 **Assessment of Age and Knowledge scores**:

The age was divided into 3 age groups i.e 15-24, 25-54, 55-64. It was observed that knowledge increased as age increases. It may be due to more exposure and experience

gained during the process or from the educated peer group. Cross tabulation and chi square test was applied to see association between age and knowledge scores.

Table no. 5.4: *Crosstab* and *Chi Square*- Test Output (N=58)

		Knowledge score		Total
		Low	High	
Age of the respondents	15-24	10	8	18
	25-54	8	12	20
	55-64	9	11	20
Total		27	31	58
Pearson Chi-square: 0.951 (p=.622) Phi (.128)				

The Chi-square value for the association between age and knowledge of practices was obtained as '0.951' with a significant probability more than 0.05 (i.e. 622). On the evidence of this data there would appear to be no doubt that there is an association between age and knowledge of practices in the population from which this sample respondents was drawn. However, it can be seen that the strength of association between the variables is weak-positive (Phi=.128) Also, the result cannot be generalized in larger population due to probability more than 0.05

5.2.6 **Assessment of socio-economic condition on knowledge scores for hygiene practices:**

Kuppuswamy socio-economic scale was used for the assessment of the socio-economic condition. Upper was considered as one category followed by middle upper middle and lower middle to be middle class while lower upper lower and lower was considered as lower class.

Table no. 5.5: Socio-economic status and scores

Sr.no	Category	N	Score(considered)	Mean	Standard deviation
1.	Upper	4	Total	19.2	1.50
2.	Middle	44	Total	18	2.74
3.	Lower	10	Total	17	3.17

It was observed as shown in the table below, that with the increase in the socio-economic status the knowledge about practices increases, it might be due to better accessibility and affordability to education.

5.2.7 **Assessment of actual practices (observation) viz a viz knowledge**.

The respondents were assessed based on the actual way of practicing while dealing with livestock. They were assessed on points like hand washing after touching animals, before milking, washing udder before and after milking, whether they wore different cloths while working, nails were short and clean, the animal shelter was clean and free of cow-dung etc.

Table no. 5.6: Mean: Knowledge and observation.

		Mean	N	Std. Deviation
Pair 1	Knowledge	7.7069	58	1.32465
	Observation	6.6897	58	1.21694

Similarly, their knowledge about the same aspects was tested against the observation; it was found that the total score of the knowledge questions which were asked came out to be 7.7/10 while on observing the same practices there was gap found in the knowledge and practices. The respondents got a score of 6.6/10.(as shown in table no.5.6)

Table no. 5.7: Paired t-test: Knowledge and observation.

Knowledge – observation	Paired differences				
	Mean	Std. Deviation	T	df	Sig.
	1.01724	1.6489	4.698	57	.000*
*Statistically significant at 95% confidence level (p<0.05)					

The descriptive statistics as shown (table no.5.7) above shows the overall mean for the respondents was 1.01, this shows there was a gap between the respondents' knowledge about the practices and the actual practice. A paired t test was done to see the significance, the knowledge and the actual practices should ideally have same value but there was a difference observed it indicates that the respondents in the sample didn't follow in practice the knowledge which they have. The results of the t-test were found to be statistically significant. The result is considered statistically significant if the p-value is less than the chosen alpha level (.05).

Chapter 6: Results & Analysis

6.1 **Discussion**

India is suffering from the triple burden of diseases; the unfinished work of communicable diseases, the non-communicable diseases and emergence of new pathogens and overstretched health infrastructure[4]. The interaction between animals and men is an old concept and the relationship is intimate hence the awareness, knowledge about the diseases which can be easily transferred from animal to man and vice-versa becomes critical to understand. In the current study it was found that the knowledge level of the respondents (75%) about diseases transferred from animal to man i.e zoonotic diseases was low. One of the important steps to control the spread of disease is caring of animals. To minimise the risk of zoonoses use of protective clothing, appropriate vaccination becomes important[18].

It is evident that the risk of development of a zoonotic disease can be reduced to an extent by early recognition of infected animals, proper animal handling, and, most importantly, personal hygiene[19]. In the study it was found that the respondents scored maximum 7/9 in general hygiene practices, while asked about the specific practices related to zoonoses their score was 11/19.

Majority of the respondents were unaware about zoonoses, the respondents (45/56; 75%) didn't have knowledge that few diseases can be transferred from animals to man and vice- versa; this was supported by studies of other authors[20]. When they were asked about the details of the zoonotic diseases and if they can name any few, majority could not answer the question 42/47 (70%) while those who knew say it was some infection 5/47 (8%). This may be due to less awareness about these diseases and infections are visible so the respondents might have answered infection, other reasons could be lack of awareness camps, health facilities, low trainings on handling of animals, and low

literacy might be the contributing factors, similar has been indicated in different studies to see the knowledge about zoonoses[1,21,22].

Age, education, socio-economic status had an impact on the knowledge levels of the respondents, they have a positive relation but their strength of the relation is weak. It may be due to prior training, observation.

The respondents were also observed about the actual practice of handling the animals against their knowledge, it was observed that the respondents correctly answered the questions which were asked but did not follow while actual practicing it with livestock. This gap may be due to ignorance, thoughts like nothing happened over generations in family.

6.2 **Recommendations**

1) There is a need to increase the knowledge about zoonoses, hence awareness camps should be held in the community.
2) One-health approach should be applied while dealing with zoonoses, as other stakeholders majorly, veterinary doctors holds a major role in bringing a change in the safe handling of the livestock.

6.3 **Conclusion**

The knowledge of the livestock holders was low to medium about the zoonoses that diseases can be transferred from animals to humans or vice- versa. Proper disposal of placenta material, use of hygienic practices while handling or during milking are the utmost important steps in controlling zoonoses[1,23]. Lack of knowledge regarding these diseases has an impact on both the animal and human health leading to an economic impact on the social wellbeing of the rural community. Although Government is taking efforts on few diseases through different National programs by organising animal health

check-up camps, vaccinations etc but importance should be given to increase the knowledge and conveying the importance of correct practicing, female population plays one of the crucial role in educating the family regarding the correct methods and hence their upliftment in knowledge about these diseases becomes important.

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Annexure 1 – Consent form

<u>CONSENT</u>

My name is Dr.Priya Chinchwadkar, a student of International Institute of Health Management research, Dwarka, Delhi. I am doing research on 'Knowledge regarding Zoonotic diseases and hygiene practices among females' in this area. This questionnaire seeks to get information from you about your knowledge of this disease and related hygiene practices. The purpose of this activity is to establish how you practice your animal husbandry. The information obtained will be used to understand how best to handle the animals to avoid contacting of the disease in future. This information you provide and photographs which will be taken will be treated with confidentiality and is purposely for this study. You can withdraw your participation if you do not feel comfortable at any point of the time. The contact number of the institute would be provided to you in case you have any query. The result of the study would be communicated to you once the study is completed.

Please mention- Consent-Accepted/ Rejected

If you accept to participate in this study,

Please sign here………......………………

Date……………………………...

Code.no-

QUESTIONNAIRE

A. Background Information

- Name (Confidential)

- Sex: Male/Female

- Age: _____ Yrs.

B. What is the highest level of education attained?

☐ None

☐ Primary Incomplete

☐ Primary complete

☐ Secondary incomplete

☐ Secondary complete

☐ Tertiary

C. Main Occupation……………………………………………….

D. SLI score ……………………. [low (0-14)/middle (15-24)/high (25-67)]

	Household characteristic	Scores			
1	House type	- pucca =4		- semi pucca=2	- kachha=0
2	Separate room for cooking	- yes=1		- no=0	
3	Ownership of house	- yes=1		- no=0	
4	Toilet facility	- own flush toilet=4	- public or shared flush toilet or own pit toilet=2	- shared or public pit toilet=1	- no facility=0
5	Source of lighting	- electricity=2	- kerosene, gas, oil=1	- other source of lighting=0	
6	Main fuel for cooking	- electricity, liquid petroleum gas or biogas=2	- coal, charcoal or kerosene=1	- other fuel=0	
7	Source of drinking water	- pipe, hand pump, well in residence/ yard/ plot=2	- public tap, hand pump or well=1	- other water source=0	
8	Car or tractor	- yes=4		- no=0	

9	Moped or scooter	- yes=3	- no=0
10	Telephone	- yes=3	- no=0
11	Refrigerator	- yes=3	- no=0
12	Colour TV	- yes=3	- no=0
13	Black and white TV	- yes=2	- no=0
14	Bicycle	- yes=2	- no=0
15	Electric fan	- yes=2	- no=0
16	Radio	- yes=2	- no=0
17	Sewing machine	- yes=2	- no=0
18	Mattress	- yes=1	- no=0
19	Pressure cooker	- yes=1	- no=0
20	Chair	- yes=1	- no=0
21	Cot or bed	- yes=1	- no=0
22	Table	- yes=1	- no=0
23	Clock or watch	- yes=1	- no=0
24	Ownership of livestock	- yes=2	- no=0
25	Water pump	- yes=2	- no=0
26	Bullock cart	- yes=2	- no=0

27	Thresher	- yes=2	- no=0

C. General practices

1. How many animals do you have?

   _____

2. Do you wash hands after touching animals?

   ☐ Yes

   ☐ No

3. Do you wash hands before serving the food?

   ☐ Yes

   ☐ No

4. Do you wash hands after disposal of waste?

   ☐ Yes

   ☐ No

5. Do you wash your feet after coming from the farm?

   ☐ Yes

   ☐ No

6. Do you agree that few diseases can be transferred from animal to man and vice-versa?

☐ Strongly agree

☐ Agree

☐ Don't know

☐ Disagree

☐ Strongly disagree

7. Do you know about any Diseases transferred from animals to humans?

☐ Yes

☐ No

8. If Yes, can you name few?

D. Specific Practices

1. Do you wash hands before milking?

☐ Yes

☐ No

2. While working with cattles, what do you wear?

☐ Same clothes

☐ Work related clothes

3. How often do you clean your work related/same clothes?

_____

4. How often do you cut your nails?

----

5. Do you agree that the food should not be taken near the animals?

☐ Strongly agree

☐ Agree

☐ Neither agree nor disagree

☐ Disagree

☐ Strongly disagree

6. How often do you clean the animal shelter?

_____

7. How often do you bath your animals?

----

8. Do you keep your animals close to your sleeping area overnight?

    ☐ Yes

    ☐ No

9. Do you graze your animals (sheep, goats and cattle) separately?

    ☐ Yes

    ☐ No

10. Do you assist your animals during reproduction?

    ☐ Yes

    ☐ No

11. During assistance of reproduction in your animals do you put on protective

gloves?

    ☐ Yes

    ☐ No

12. Do you clean the new born immediately after delivery?

    ☐ Yes

    ☐ No

13. If yes, what do you use for cleaning the new born?

☐ Only cold water

☐ Only warm water

☐ Warm water with antiseptic solution

☐ Any other, please specify---------------

14. After delivery generally how many days the animal needs cleaning with antiseptic solution?

----

15. Do you clean the new born every day?

☐ Yes

☐ No

16. If yes, how many times do you clean the new born?

----

17. How many times do you do milking per day?

☐ Once

☐ Twice

☐ Thrice

18. Do you wash udder before milking?

☐ Yes

☐ No

19. Do you use any medication on udder before the milking stops?

☐ Yes

☐ No

20. How do you handle placenta material?

☐ Buried

☐ Burnt

21. Do you allow your animals to eat placenta?

☐ Yes

☐ No

D. Observational Checklist

SR.NO	OBSERVATIONS	SCORES		
		0	**1**	**2**
1.	Washes hand after animal handling/touching			
2.	Washes hand before milking			
3.	Washes hand after milking.			
4.	Washes udder before milking			
5.	Washes udder after milking.			
6.	Nails are clean and short			
7.	Wears different cloths while milking			
8.	Animals are kept outside the house.			
9.	Food is not taken near animals			
10.	Animal shelter is clean, free of dung.			
11.	Animals are clean and bathed.			

0= Never, 1= Occasional, 2= Always

Annexure 3- Final Questionnaire after pre-test

<u>**Questionnaire**</u>

A. Background Information

- Name (Confidential)

- Sex: Male/Female

- Age: _____ Yrs.

B. What is the highest level of education attained?

☐ None

☐ Primary Incomplete

☐ Primary complete

☐ Secondary incomplete

☐ Secondary complete

☐ Tertiary

C. Main Occupation……………………………………………………….

D. Kuppuswamy score for socioeconomic status.............

Score

*i)*Education

Professional or Honours   7

Graduate or Post-Graduate   6

Intermediate or Post-High-School Diploma   5

High School Certificate   4

Middle School Certificate   3

Primary School or Literate   2

Illiterate   1

*ii)*Occupation

Profession   10

Semi-Profession   6

Clerical, Shop-owner, Farmer   5

Skilled worker   4

Semi-skilled worker   3

Unskilled worker   2

Unemployed   1

iii)Family Income Per Month (in Rs)*

>39020   12

19510-39019   10

14633-19509   6

9755-14632   4

5853-9754   3

1971-5852   2

<1970   1

Total Score Socioeconomic Class

26 – 29 Upper (I)

16 – 25 Middle Upper Middle (II)

11 – 15 Lower Middle (III)

5 – 10 Lower Upper Lower (IV)

< 5 Lower (V)

C. General practices

9.   How many animals do you have?

      _____

10. Do you wash hands after touching animals?

☐ Everytime

☐ Occasionally

☐ Never

11. Do you wash hands before serving the food?

☐ Everytime

☐ Occasionally

☐ Never

12. Do you wash hands after disposal of waste?

☐ Everytime

☐ Occasionally

☐ Never

13. Do you wash your feet after coming from the farm?

☐ Everytime

☐ Occasionally

☐ Never

14. Do you agree that few diseases can be transferred from animal to man and vice-versa?

☐ Strongly agree

☐ Agree

☐ Don't know

☐ Disagree

☐ Strongly disagree

15. Do you know about any Diseases transferred from animals to humans?

☐ Yes

☐ No

16. If Yes, can you name few?

D. Specific Practices

1. Do you wash hands before milking?

☐ Everytime

☐ Occasionally

☐ Never

2. While working with cattles, what do you wear?

☐ Same clothes

☐ Work related clothes

3. How often do you clean your work related/same clothes?

_____

4. How often do you cut your nails?

----

5. Do you agree that the food should not be taken near the animals?

☐ Strongly agree

☐ Agree

☐ Neither agree nor disagree

☐ Disagree

☐ Strongly disagree

6. How often do you clean the animal shelter?

_____

7. How often do you bath your animals?

----

8. Do you keep your animals close to your sleeping area overnight?

☐ Yes

☐ No

9. Which animals do you have? If all the below, then ans, Q. no. 10.

☐ Goats

☐ Sheep

☐ Cattle

10. Do you graze your animals (sheep, goats and cattle) separately?

☐ Yes

☐ No

11. Do you assist your animals during reproduction?

☐ Yes

☐ No

12. During assistance of reproduction in your animals do you put on protective
   gloves?

☐ Yes

☐ No

13. Do you clean the new born immediately after delivery?

☐ Yes

☐ No

14. If yes, what do you use for cleaning the new born?

☐ Only cold water

☐ Only warm water

☐ Warm water with antiseptic solution

☐ Any other, please specify---------------

15. After delivery generally how many days the animal needs cleaning with antiseptic solution?

----

16. Do you clean the new born every day?

☐ Yes

☐ No

17. If yes, how many times do you clean the new born?

----

18. How many times do you do milking per day?

☐ Once

☐ Twice

☐ Thrice

19. Do you wash udder before milking?

☐ Everytime

☐ Occasional

☐ Never

20. Do you use any medication on udder before the milking stops?

☐ Yes

☐ No

21. How do you handle placenta material?

☐ Buried

☐ Burnt

22. How do you avoid your animals from eating placenta?

D. Observational Checklist

SR.NO	OBSERVATIONS	SCORES		
		0	**1**	**2**
1.	Washes hand after animal handling/touching			
2.	Washes hand before milking			
3.	Washes hand after milking.			
4.	Washes udder before milking			
5.	Washes udder after milking.			
6.	Nails are clean and short			
7.	Wears different cloths while milking			
8.	Animals are kept outside the house.			
9.	Food is not taken near animals			

10.	Animal shelter is clean, free of dung.		
11.	Animals are clean and bathed.		

0 = Never, 1= Occasional, 2= Always.

1= Yes, 0= No (except one question)