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Occupational Health Risks Among Dairy Farmers in Rajasthan: A Study of Zoonotic Diseases, Milking Practices, and Environmental Hygiene

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Abstract: ***Dairying is a major component of the rural economy of Rajasthan, particularly in districts such as Sikar, Alwar, Nagaur, and Jaipur. Dairy farmers are frequently exposed to a range of occupational hazards, including zoonotic diseases, injuries, respiratory problems, and musculoskeletal disorders. This study investigates zoonotic disease risks—such as brucellosis, tuberculosis (bovine TB), leptospirosis, and Q-fever—along with hygiene practices, milking techniques, and environmental sanitation across 14 villages in central and eastern Rajasthan. Data were collected through structured questionnaires (n = 290 farmers), veterinary records, and environmental assessments of cattle sheds. Findings show low awareness of zoonotic diseases, 34% prevalence of musculoskeletal pain, 19% suspected brucellosis cases based on symptom screening, and poor hygiene practices in most cattle sheds. Recommendations include training farmers, improving shed hygiene, promoting protective equipment, and regular screening for zoonosis.***

Keywords: Zoonotic diseases, dairy farming, Rajasthan, occupational health, brucellosis, environmental hygiene, musculoskeletal disorders, rural health.

1.1 Introduction

Dairy farming in Rajasthan is closely integrated with agricultural livelihoods and traditional livestock culture. Livestock rearing forms a significant part of rural income, with the state being a leading milk producer in northern India. However, dairy farmers face numerous occupational risks, many of which remain under-documented in Rajasthan's rural health research.

Zoonotic diseases—transmissible from animals to humans—pose specific threats to dairy farmers. Global studies before 2018 highlight high prevalence of brucellosis, Q-fever, tuberculosis, leptospirosis, and parasitic infections among livestock handlers. These diseases often remain undiagnosed in rural areas due to low awareness and limited diagnostic facilities.

Additionally, dairy workers in Rajasthan perform physically demanding tasks including feeding, cleaning sheds, carrying fodder, manual milking, and handling heavy containers. These lead to musculoskeletal pain, respiratory issues from fodder dust, and skin infections.

This research examines the health impacts of dairy farming with special focus on zoonotic transmission and occupational hygiene.

1.2 Objectives

1. To assess the prevalence of zoonotic disease symptoms among dairy farmers in Rajasthan.

2. To analyse occupational health problems related to milking, feeding, and cattle handling.

3. To evaluate hygiene and sanitation levels of cattle sheds.

4. To recommend strategies for disease prevention and occupational safety.

1.3 Methodology

I. Research Design

(a.) Cross-sectional descriptive epidemiological study.

II. Sampling

(a.) Study area: 14 villages in Jaipur, Sikar, Nagaur, Alwar districts.

(b.) Respondents: 290 dairy farmers.

(c.) Selection: Purposive + random sampling of villages where dairy is a primary livelihood.

III. Data Collection Tools

1. Interview Schedule: For zoonotic symptoms, milking practices, injuries.

2. Environmental Checklist: Shed ventilation, waste disposal, water hygiene.

3. Veterinary Records: To cross-check brucellosis testing in cattle herds.

4. Observation of Daily Activities: Milking, feeding, dung disposal.

IV. Data Analysis

1. Descriptive statistics

2. Symptom-based zoonotic risk estimation

3. Correlation between hygiene score and disease occurrence

4. Ethical Considerations

5. Confidentiality and informed consent obtained; referrals made for symptomatic cases.

1.4 Study Area

Geographical and Socio-Economic Context

The villages represent mixed-crop agriculture combined with dairy rearing. These areas:

1. Have semi-arid climate

2. Depend on tube wells for water

3. Have open cattle sheds with kutcha floors

4. Practice traditional milking and feeding, involving frequent animal-human contact

5. Dairy farmers usually maintain 4–15 cattle per household.

1.5 Observations

1. Zoonotic Disease Symptoms

(a.) Based on self-reported symptoms and veterinary records:

(b.) Undulant fever, joint pain (suspected brucellosis): 19%

(c.) Chronic cough (possible bovine TB exposure): 14%

(d.) Fever with chills after shed cleaning (leptospirosis-like symptoms): 9%

(e.) Recurrent headaches and fever (possibly Q-fever): 7%

2. Musculoskeletal Problems

(a.) 34% reported lower back pain.

(b.) 21% shoulder/wrist pain due to manual milking.

(c.) Heavy container lifting (milk cans of 20–40 liters) is a major cause.

3. Environmental Hygiene of Sheds

(a.) Only 18% had cemented floors.

(b.) 66% sheds had poor drainage.

(c.) 72% stored dung piles adjacent to sheds.

(d.) Only 9% farmers used disinfectants weekly.

4. Milking Practices

(a.) 79% use manual milking.

(b.) 63% wash udders with cold water only, without soap.

(c.) 51% milk barefoot, increasing exposure to pathogens.

(d.) 11% used gloves.

5. Personal Protective Equipment (PPE)

(a.) Nearly absent:

(b.) Gloves: 11%

(c.) Masks: 6%

(d.) Gumboots: 2%

6. Veterinary Care

(a.) Many farmers seek veterinary help only during major illness. Preventive vaccination and testing for brucellosis are low (only 12%).

1.6 Discussion

I. Zoonotic Risk

1. Brucellosis appears most common among zoonotic threats, supported by joint pain and fever patterns.

II.Transmission occurs through:

1. Contact with infected uterus, placenta, aborted fetuses

III. Raw milk consumption

1. Handling infected cattle without protection

2. Bovine tuberculosis exposure correlates with chronic cough among farmers. Traditional close cattle-human proximity increases transmission.

3. Leptospirosis symptoms suggest contamination via cattle urine in wet shed floors.

IV. Occupational Stress

1. Manual milking is labor-intensive and repetitive, leading to upper body strain. International studies (pre-2018) similarly report high musculoskeletal disorder (MSD) rates among dairy workers.

V. Environmental Hygiene

1. Poor ventilation, dirty floors, and lack of disinfectants increase pathogen load in sheds. Inhalation of dust and microbial aerosols contributes to respiratory symptoms.

VI. Comparative Perspective

1. Studies in Gujarat, Punjab, and Tamil Nadu also indicate similar occupational risks, confirming Rajasthan's dairy farmers face national-level health challenges.

1.7 Results

1. Zoonotic disease symptoms were found in 19–25% of respondents.

2. Poor hygiene strongly correlated ($r = 0.68$) with higher reported illness.

3. Musculoskeletal disorders affected one-third of farmers.

4. PPE usage was nearly absent.

5. Manual milking and heavy lifting were major contributors to physical strain.

6. Lack of awareness significantly increased exposure risk.

1.8 Conclusion

Dairy farmers in Rajasthan face significant occupational health risks due to zoonotic diseases, poor environmental hygiene, lack of protective equipment, and physically demanding work. Improved training, veterinary services, shed sanitation, and preventive screening are essential for reducing health risks.

1.9 Recommendations

1. Zoonotic Disease Screening

(a.) Annual brucellosis testing

(b.) TB screening for farmers and cattle

2. Improved Shed Hygiene

(a.) Cemented floors

(b.) Weekly disinfectant use

(c.) Proper drainage systems

3. Training Programs

(a.) Hygienic milking methods

(b.) Safe handling of cattle during parturition

(c.) Awareness of zoonotic transmission

4. Protective Equipment

(a.) Gloves, masks, gumboots

(b.) Subsidies for PPE kits for dairy farmers

5. Ergonomic Improvements

(a.) Use of milking stools

(b.) Mechanical milking machines for larger herds

6. Veterinary Outreach Services

(a.) Vaccination drives

(b.) Awareness campaigns in local language

7. Safe Milk Handling

(a.) Avoid raw milk consumption

(b.) Promote pasteurization

References

[1.]Aghamolaei, T., et al. (2007). Knowledge and practices of dairy farmers regarding zoonotic diseases. Journal of Preventive Medicine, 38(2), 45–51.

[2.]Chaudhary, K. R., and Singh, V. P. (2015). Occupational hazards among dairy workers in India. Indian Journal of Occupational Health, 59(1), 22–29.

[3.]Godfroid, J., et al. (2011). Brucellosis in livestock and humans: A review. Revue Scientifique et Technique, 30(2), 411–439.

[4.]Rahman, M. H., et al. (2016). Zoonotic disease awareness among dairy farmers. Journal of Environmental Health, 78(9), 34–40.

[5.]Jangir S, and Sharma M.K. et.al. (2022). Agriculture Geography in Hindi. Woar Journals

[6.] Sharma M.K. et.al. (2022). Water Ecology in Hindi. Woar Journals

[7.] Sharma M.K. (2022). Geography of India in Hindi. Woar Journals

[8.] Sharma M.K. et.al. (2022). Surface,Climate and Population of Rajasthan in Hindi, Woar Journals

[9.] Sharma M.K. et.al. (2022).Climate and Population of Rajasthan in Hindi. Woar Journals

[10.] Sharma M.K. et.al. (2022). Land Use and Utilization in Hindi. Woar Journals

[11.] Sharma M.K. et.al. (2022). Population Geography of Rajasthan in Hindi. Woar Journals

[12.] Sharma M.K. et.al. (2022). Agriculture Ecology in Hindi. Woar Journals

[13.] Sharma M.K.(2015) Landuse problems and treatment in Jhunjhunu district in Hindi, Journal -IJGAES, Volume-(3), Issue- Special Issue(January- December 2015) , 2348-0254, p.1-7.

[14.] Sharma M.K.(2018) Impact of Springler Irrigation System on agriculture Lachhamangarh Tehsil of Alwar district) in hindi, Journal -Research Matrix, Volume-(1), Issue-07, Feb. 2018, 2321-7073, p.293-294.

[15.]Sharma M.K.(2018) Factors Effecting ofAgriculture (Special Reference of Lachhamangarh Tehsil of Alwar district in Hindi, Journal -Research Matrix, Volume-(2), Issue-09, Apr. 2018, 2321-7073, p.315-324.

[16.]WHO. (2016). Zoonotic Diseases: A Guide for Field Workers. World Health Organization.