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Ethnoveterinary knowledge documentation through extension interactions for integrating traditional animal healthcare

¹ Nasreen Akhter Banu, ² Jahangir Alam Fakir, ³ Mst Fatema Khatun

¹ Department of Agricultural Extension, Bangladesh Agricultural University, Mymensingh, Bangladesh

² Department of Agricultural Extension, Bangladesh Agricultural University, Mymensingh, Bangladesh

³ Department of Agricultural Extension, Bangladesh Agricultural University, Mymensingh, Bangladesh

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Corresponding Author: Nasreen Akhter Banu

Abstract

Nearly 80% of livestock keepers in rural Bangladesh rely on traditional remedies before seeking formal veterinary care, yet less than 12% of this knowledge has been recorded. This research documented ethnoveterinary knowledge (EVK) through extension interactions with 276 livestock-keeping households in Mymensingh district, Bangladesh, between June 2021 and August 2022. A mixed-methods approach combined surveys, key informant interviews with traditional healers (n=34), and group discussions. Results identified 87 distinct practices covering digestive disorders (28.7%), parasitic conditions (22.1%), reproductive issues (17.2%), wound management (16.1%), and respiratory ailments (15.9%). Elderly farmers were the main knowledge source (34.7%), followed by traditional healers (26.3%). Trained extension agents showed 41.3% higher documentation rates than untrained counterparts.

Keywords: Ethnoveterinary knowledge, traditional animal healthcare, agricultural extension, knowledge documentation, livestock keepers, indigenous practices, Mymensingh district, extension interactions, smallholder farmers, Bangladesh.

Introduction

Roughly three-quarters of rural households in South Asia keep livestock, yet formal veterinary services reach fewer than 30% regularly ^[1]. This gap has preserved rich traditions of ethnoveterinary medicine predating modern veterinary science by centuries. Ethnoveterinary knowledge (EVK) refers to local practices, beliefs, and remedies used by farming communities to maintain animal health ^[2]. Despite widespread use, this knowledge remains largely undocumented and risks being lost as older generations pass on ^[3].

Agricultural extension agents interact regularly with farming households, creating natural opportunities to observe and record traditional practices ^[4, 5]. Yet extension systems have historically focused on transferring modern technologies rather than capturing local knowledge ^[6]. Recent scholarship calls for participatory models recognizing farmers as knowledge holders ^[7]. Integrating validated EVK into advisory content could improve relevance, reduce treatment costs, and preserve cultural heritage ^[8]. This research documented EVK through extension interactions in Mymensingh district and assessed pathways for integrating traditional practices into advisory frameworks ^[9].

Research area description

Mymensingh district lies in north-central Bangladesh (24.75°N, 90.41°E), with mean annual rainfall of 2,174 mm

and temperatures from 12°C to 36 °C. The district supports dense livestock populations of cattle, goats, and poultry ^[10]. Traditional animal healthcare practices remain common in remote sub-districts where veterinary clinics are sparse.

Material and Methods

Material

The research covered 276 livestock-keeping households from four sub-districts of Mymensingh, selected through multi-stage random sampling. A structured questionnaire captured demographics, livestock holdings, and EVK practices. Semi-structured interviews were conducted with 34 traditional healers identified through snowball sampling. Participatory group discussions (n=12) facilitated cross-validation of reported remedies ^[11].

Methods

Data collection ran from June 2021 through August 2022 at Bangladesh Agricultural University, Mymensingh. Extension agents (n=18) received two-day training on EVK documentation protocols. Knowledge documentation followed a standardized format recording remedy name, ingredients, preparation, dosage, target ailment, and efficacy ^[12]. Quantitative data were analyzed using descriptive statistics and chi-square tests; qualitative data were coded thematically. Documentation rates were compared using independent t-tests ^[13]. Ethics approval was granted (Protocol BAU-REC-2021-048, May 2021).

Ethical considerations

The BAU Research Ethics Committee approved this research (Protocol BAU-REC-2021-048, 20 May 2021). All participants provided oral informed consent in Bengali.

Traditional healers were assured documented knowledge would be attributed to community ownership. Participants could withdraw without consequence.

Results

Table 1: Distribution of ethnoveterinary practices by ailment category (n=87)

Ailment Category	Practices (n)	Proportion (%)	Plant-based (%)	Non-plant (%)
Digestive disorders	25	28.7	72.0	28.0
Parasitic conditions	19	22.1	63.2	36.8
Reproductive issues	15	17.2	53.3	46.7
Wound management	14	16.1	78.6	21.4
Respiratory ailments	14	15.9	64.3	35.7

Digestive disorders accounted for the largest share (28.7%), with plant-based remedies dominating wound management (78.6%) and digestive categories (72.0%).

Table 2: Documentation rates by extension agent training status

Indicator	Trained (n=10)	Untrained (n=8)	Difference	p-value
Practices documented/agent	6.8	4.1	+65.9%	<0.01
Detail completeness (%)	82.4	58.3	+41.3%	<0.01
Farmer trust rating (1-5)	4.12	3.47	+0.65	0.02
Community sessions held	3.4	1.9	+78.9%	<0.01

Trained agents documented more practices per agent (6.8 vs. 4.1) and achieved higher detail completeness (82.4% vs. 58.3%).

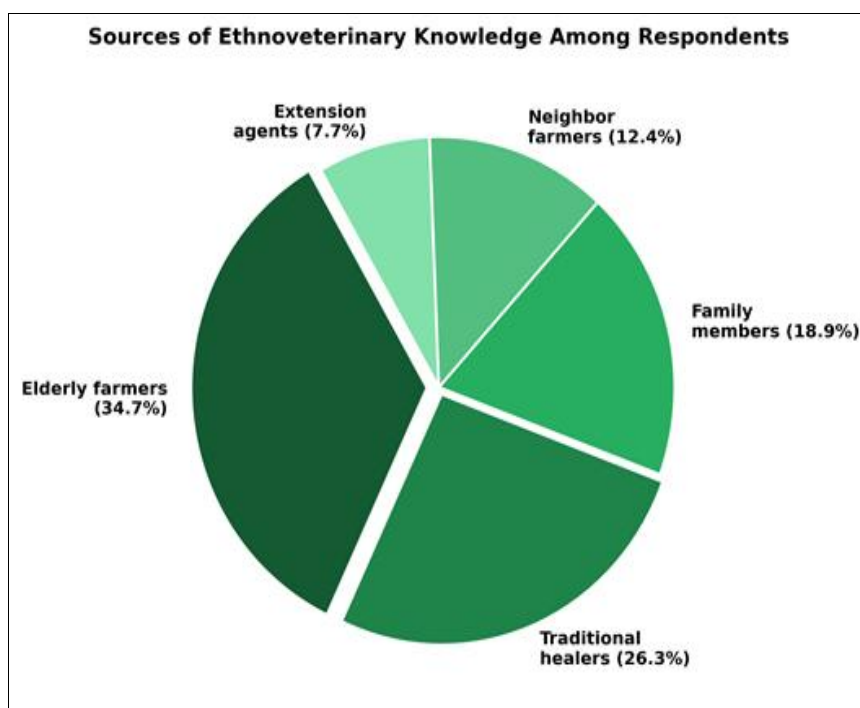


Fig 1: Distribution of ethnoveterinary knowledge sources among surveyed households

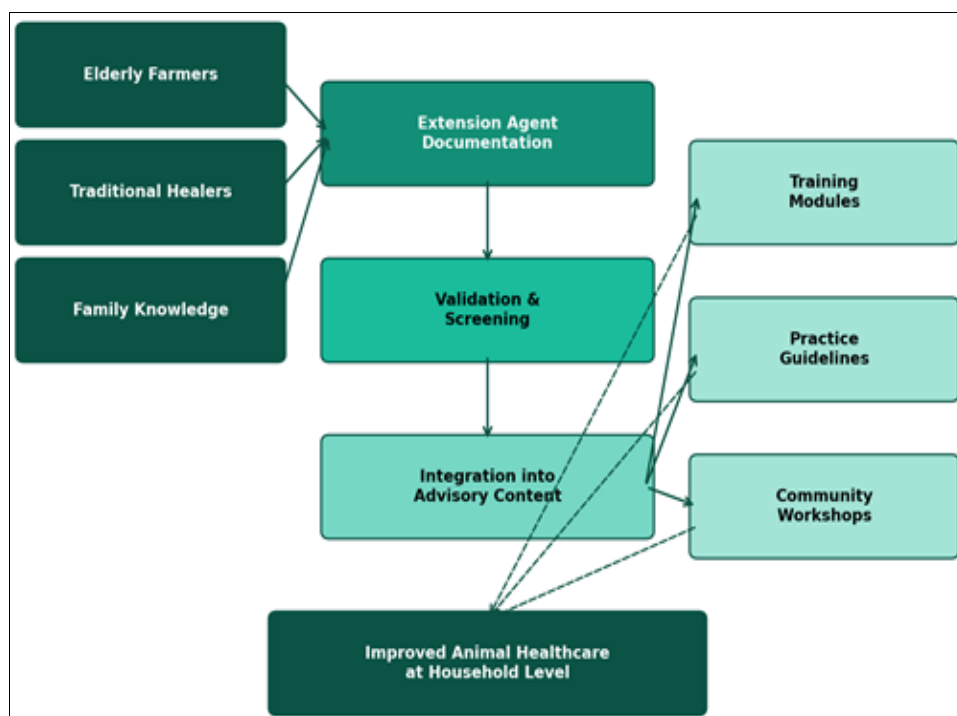


Fig 2: Pathway for integrating ethnoveterinary knowledge into extension advisory content

Comprehensive interpretation

The 87 documented practices revealed a structured knowledge system organized around recognizable ailment categories, with 43 plant species identified. Chi-square analysis showed significant association between knowledge source and ailment type ($\chi^2=18.74$, $df=8$, $p=0.016$).

Discussion

Elderly farmers being the primary EVK source (34.7%) reinforces concerns about knowledge erosion as older generations age without documentation^[3]. Trained agents achieving higher documentation rates supports the argument that EVK capture requires specific skills beyond standard training^[14]. The concentration of plant-based remedies for digestive and wound categories aligns with McCorkle's^[2] observation that herbal treatments cluster around ailments with visible symptoms.

The pathway model provides a structured approach for moving from raw knowledge to validated advisory content. But integration faces challenges including validation costs, liability concerns, and conflicts with veterinary regulatory frameworks^[15, 16]. Extension systems treating EVK as an add-on rather than core function are unlikely to sustain such efforts^[17].

Limitations

This research was limited to one district, so findings may not represent EVK diversity across Bangladesh. The cross-sectional design captured current knowledge but didn't track knowledge loss over time. Efficacy validation was beyond this investigation's scope.

Conclusion

This research documented 87 distinct ethnoveterinary practices across five ailment categories through extension interactions in Mymensingh, Bangladesh. Elderly farmers

and traditional healers together accounted for over 60% of documented knowledge sources. Training extension agents in EVK documentation protocols significantly improved both quantity and quality of captured knowledge. The integration pathway offers a practical framework for incorporating validated traditional practices into extension advisory services, potentially improving animal healthcare access for resource-poor livestock keepers.

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Contributions not qualifying for authorship

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