

Research Article



Women's Participation and Constraints in Livestock Management: A Case of Khyber Pakhtunkhwa Province Pakistan

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Abstract | Women are the prime contributors of agriculture sector including livestock across the developing world including Pakistan. However, their extent of participation (time allocation) and constraints in livestock management have not been properly explored yet. To fill in the gap, the present research study was carried out to determine women's participation in the types of livestock rearing, their livestock possession, participation in livestock activities, and the major faced constraints in livestock management in Khyber Pakhtunkhwa province of the country. For this, a sample size of 117 women respondents was selected through multistage sampling technique and data were collected from the selected respondents using a pre-tested semi-structured questionnaire through face to face interview. The collected data were subjected to analysis using descriptive statistics, frequencies, percentages, and rank orders. The results revealed that women were involved in buffalo, cattle, goats and sheep rearing with higher possession of small ruminants (goats and sheep), while men were found dominant in large ruminants' possession (buffalo and cattle). Women's higher time allocation to livestock management activities depicted their higher level of participation in livestock management was found high as compared to their male counterparts. Women's participation was found high in the indoor activities of livestock management like feeding, shed cleaning, and milking of animal's women's participation was found high, while recorded low in the outdoor activities of fodder cutting and marketing of dairy products due to their restricted mobility. Costly veterinary services and feed items, credit need for feed and livestock purchase, and training in animal health care were the major reported constraints in livestock management. Provision of credit, training in animal health care, and increasing women's livestock possession are suggested not only for the increased participation of women in livestock management but also for the development of domesticated livestock enterprise in the study area.

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Introduction

Livestock rearing is a popular activity among rural households to meet their food and other demands. Other than food, livestock provides cash income (from the sale of dairy and by products),

organic fertilizer, and the most important of all financial security during shocks to rural households and thus supporting their livelihoods (Luqman et al., 2014). It also generates employment opportunities for a large population of the world. The importance of livestock has been widely acknowledged

in the literature for its multiple benefits at household, local, regional and national accounts (Naz and Khan, 2018; Ahmed, 2014; Issac, 2012; Luqman et al., 2014). Livestock is extensively reared in the developing countries and Pakistan is not an exception.

The country is blessed with both large ruminants (such as buffalo and cow) and small ruminants (goats and sheep) of livestock and it provide livelihood to a large number of rural households. Nationwide, about 8 million families are involved in livestock rearing and derived more than 35 percent income from livestock production activities. At national accounts, livestock contributed for 11.4 percent of GDP with approximately 58.3 percent of the value added to agricultural products are coming from the processing of livestock products such as milk made into butter, livestock processed into meat, etc. (GoP, 2016-17).

It is evident that livestock is extensively reared and managed in the rural areas of the country (Naz and Khan, 2018; Andaleeb et al., 2017; Batool et al., 2014). Livestock management requires substantial amounts of time, labour and specialized activities in which both men and women of the household members involve (Zahoor et al., 2013). Among the household labour in livestock management, women play a crucial role by carrying out various livestock activities. However, the labour provided by women are mostly unpaid (Ahmad, 2014). Livestock management has always been perceived as the traditional responsibility of women. They generally, contribute more labour inputs in the activities of fodder cutting, water serving, animals' cleaning and their sheds, milking, and milk processing. Women's participation was also reported for manure collection, preparation of dung cakes and maintenance of animal sheds in rural areas of the country (Andaleeb et al., 2017; Ahmad, 2014; Batool et al., 2014). In the Punjab province, both the small and large ruminants' management and livestock products processing is considered the traditional responsibility of women (Hashmi et al., 2007). In Punjab, it has also been reported that women were participated in more livestock activities as compared to their male counterparts and other family members (Ahmed, 2014). Women's participation in livestock management offer them numerous opportunities.

It is vital to know that livestock served as an asset for women (Grace, 2007). They mostly own small ruminants e.g. goats, sheep and poultry which provide

them with financial security. Other than this, livestock not only provide employment opportunities to women but also make them worthy by contributing in cash from the sale of dairy products and food provision in their households. Apart from this, women also lower the farm budget by providing farm yard manure to fields by manging livestock (Naz and Khan, 2018; Ahmad, 2014; Batool et al., 2014). Women's higher participation in livestock management leads to their increased decision-making power and thus their empowerment (Mahadi et al., 2014). Thus, women's participation in livestock management can be used as tool for their poverty reduction.

Literature confirms the livestock management at household level with the active involvement of women in the province of Punjab (Ahmad, 2014; Batool et al., 2014; Luqman et al., 2014; Zahoor et al., 2013), Baluchistan (Raziq et al., 2009 and Khan, 2006), Sindh (Rizwana et al., 2017; Rais et al., 2013), and somehow in Khyber Pakhtunkhwa province (Ali, 2016 and Khan et al., 2012) of the country. However, there is scarcity of literature regarding their workload in terms of time contribution to the various livestock management activities (Andaleeb et al., 2017; Ahmad, 2014; Khan et al., 2012). These studies also did not cover the women's livestock possession and the constraints faced by women in livestock management (Ali, 2016). Seeking to this, the present research study was carried out to assess the women's participation in livestock management in Khyber Pakhtunkhwa province of the country. The study specifically answered the five research question. 1) What are the demographic or socioeconomic characteristics of women involved in livestock management; 2) What type of livestock are reared in the study area; 3) What type of livestock are possessed by women; 4) How much women participate (time allocation) in livestock management activities; and 5) What are the major constraints faced by women in livestock management in the study area?

Materials and Methods

Study site

The study was conducted in Khyber Pakhtunkhwa province of the country. The province was selected due to several reasons. Livestock rearing is done at household level and women are involved (Khan et al., 2009). However, it has been largely unexplored that to which extent women are participating (time allocation) in livestock management. Secondly, there is also

scarcity of literature on women's livestock possession. Thirdly, the constraints faced by women in livestock management also needs to be explored as the solution towards them can achieve livestock development and women empowerment as well. To conduct the research study, district Mardan of Khyber Pakhtunkhwa province was randomly selected. The district is a part of Peshawar valley and the second largest city of the province. At south of the district, Risalpur is located, Charsadda is located to the west, Yar Hussain to the east and Takht Bahi and Katlang to the north.

Sampling and data collection

Multistage sampling technique was used to select the study site and sampled respondents. In the first stage of sampling technique, district Mardan was randomly selected as mentioned above. The district is blessed with a range of livestock types reared both at commercial and domestic levels. Women were regarded as the prime contributors in domesticated livestock rearing (Andaleeb et al., 2017). Women manage livestock both at the farm and household levels, however their livestock possession and participation (time allocation) have not been measured (Ahmad, 2014). Moreover, the constraints faced by women in livestock management has also not been explored in the district. So, conducting the present research study in the district Mardan made it valuable not only for the women's specific concerns but also for the local livestock enterprise development.

In the second stage of sampling, Tehsil Katlang was selected randomly out of three tehsils. In the third stage, a union council named Qasmi was selected randomly. In the fourth stage, two villages were selected randomly from the respective union council where the livestock rearing was found high as compared to other villages depicted by the Nazim (local elder) of the union council. In the fifth and final stage of sampling technique, households were selected randomly for data collection from the targeted households who had more involvement in livestock management. The list of targeted households has been made by the help of the Nazim of the respective union council. Data were collected from the women respondents who had active involvement in livestock management activities at household level. The data were collected using a pre-tested and semi-structured questionnaire from 117 women respondents through face to face interview method. Formal permission was sought before initiating the interviews and explaining the purpose

and data usage for the research purpose (Khan et al., 2017). The respondents who refused to provide any answer at the briefing stage were replaced with another household. The questionnaire included information about the demographic and socioeconomic characteristics of the respondents, major livestock types, livestock possession by men and women, time allocation to the eight selected livestock management activities described below by women and their male counter parts, and the major constraints during livestock management.

Description of livestock management activities

For the current study, eight distinct types of livestock activities were selected. Their selection was made due to its occurrence at daily basis. The detail of eight selected livestock management activities is given below;

Fodder cutting: This activity denotes the harvesting/moving of forage crops, plants or grass which and provided to the animals as feed. The activity was mostly carried out manually using hand tools such as sickle, spade etc.

Feeding: In this activity, animals were provided with green chopped or dry fodder or a mixture of both in the feed containers or managers.

Water Serving: In this activity, animals were provided with drinking water either at their living place or leading them to a nearby water source e.g. canal etc.

Shed Cleaning: In this activity, the excrement of animals was accumulated to make their living place clean. The collected excreta were further used either as farm yard manure for further use in the agricultural fields as organic fertilizer or to make dung-cakes to use as fuel and thus to lower the household or farm budget. This activity is done manually and/or by using hand implements.

Young animal care: The activity of young animal care refers to the taking care like feeding, health care of the limb, calf etc. at household level.

Milking: In this activity, from a dairy animal usually female animal such as buffalo, cow, goats and sheep the milk was manually extracting from her udder/teats.

Milk Products Preparation: In this activity, the surplus milk was converted into milk products such as yogurt, butter, butter oil, cheese etc.

Marketing of dairy products: In this activity, the milk and its products such as yogurt, butter and butter oil etc. were sold out to earn cash income.

Data analysis

The collected data were entered in the Statistical Package for Social Sciences (SPSS) version 20 and presented in tabulated form. Percentages, frequencies, mean, and ranking were used for data analysis. Time allocation method was used to record the women's time allocation in livestock management activities (Khan et al., 2012).

Limitations of the study

The current research study is limited to one district of the province due to scarcity of time, financial and other resources, therefore, the study cannot be representative of the whole province due to small sample size also. The responses against time allocation in livestock management activities of the respondents were based on their recall ability which may be not very accurate as most of them have low educational backgrounds. However, the results of the study are applicable and can be generalized for the areas having similar backgrounds.

Results and Discussion

Socioeconomic characteristics of the respondents

The socioeconomic data were collected from the study sample earlier to formatting the main quarry of women's participation in livestock management. The data regarding the socioeconomic characteristics of respondents are presented in Table 1. Data show that 29%, 44%, and 27% respondents lie in the age group of 20-30 years, 31-40 years, and above 40 years, respectively. The results show that most of the women livestock keepers were young. The literature confirms that most of young women participated in livestock management (Yisehak, 2008). In the case of marital status of respondents, data show that 20%, 68%, 9%, and 3% respondents were single, married, widow, and divorced, respectively. The results imply that mostly married women participated in livestock management. majority of the respondents were literate (70%) and among them 24%, 23%, 33%, and 20% were educated up to primary, middle, matric and above matric level, respectively. The data regarding livestock rearing experience show that women were reasonably skilled in livestock management as most of them (34%) have experienced between 11-15 years.

Major types of livestock

The major types of livestock in the study area included buffalo, cattle, goats, and sheep. The data regarding major types of livestock in the study area are presented in Table 2. Data show that a total of 347 mentioned types of livestock were reared at household level in the study area. About 3 animals per household was found. A total of 25%, 38%, 31%, and 6% of buffalo, cattle, goat, and sheep were reported as seen in Table 2. The cattle were the main type of livestock with an average 1.12 number per household followed by goat (0.92). Results revealed that cattle and goats were mostly reared due to their easy management and low feed requirements than buffaloes in the study area.

Table 1: Socioeconomic characteristics of the Respondents (n=117).

Socioeconomic characteristics	Frequency	Percentage
Age (in years)		
20-30	34	29
31-40	52	44
Above 40	31	27
Marital status		
Single	23	20
Married	80	68
Widow	11	9
Divorced	03	3
Literacy status		
Literate	82	70
Illiterate	35	30
Primary	20	24
Middle	19	23
Matric	27	33
Above Matric	16	20
Livestock rearing experience (in years)		
1-5	12	10
6-10	33	28
11-15	40	34
Above 15	32	27

Livestock possession

Livestock possession is a key factor in influencing women's' participation in livestock management (Yisehak, 2008) and it also improves their decision-making power within the household (Mahadi et al., 2014). Livestock was mainly possessed by men and women at household level. Majority of animals (68%) were possessed by men, while women had only 32% of the animals in the study area (Table 3). The

results are in conformity with (Yisehak, 2008) who found that most of the animals at household level were mainly owned by male in Ethiopia. It was further found that men were dominant in the possession of large ruminants such as buffalo (89%) and cattle (79%) were possessed by men, while women were in small ruminants like goats (56%) and sheep (70%). It was also endorsed by Issac et al. (2012) and Grace (2007) that men own large ruminants, while women small ruminants in developing countries. The small ruminants further provide financial security at household level and it can also be used as a pathway out of poverty among women.

Table 2: Major types of livestock in the study area.

Types of livestock	Frequency	Percentage	Average number of livestock/household
Buffalo	88	25	0.75
Cattle	131	38	1.12
Goat	108	31	0.92
Sheep	20	6	0.17
Total	347	100	2.96

Table 3: Livestock possession by men and women in the study area.

Livestock types	Livestock possessed by			
	Men		Women	
	Frequency	Percentage	Frequency	Percentage
Buffalo	78	89	10	11
Cattle	103	79	28	21
Goats	48	44	60	56
Sheep	6	30	14	70
All livestock	235	68	112	32

Women's participation in livestock management

Data regarding women's participation in livestock management activities are presented in Table 4. Data show that an average of 4.25 hours/day was allocated to the eight selected livestock activities. Of the total time, an average of 5.5 hours/day, 8 hours/day, 4 hours/day, 4.5 hours/day, 3 hours/day, 4.75 hours/day, 2.5 hours/day, and 1.75 hours/day were allocated to the activities of fodder cutting, feeding, water serving, shed cleaning, young animal care, milking, milk products preparation, and marketing of dairy products, respectively by both men and women in the study area. The results indicate that the activity of feeding accrued more time followed by fodder cutting, and milking. Being further specific, it was found that women

Table 4: Women's participation (average time allocation in hours/day) in livestock management activities.

Livestock activities	Average time allocation (hours/day) by		Total time allocation (hours/day)
	Men	Women	
Fodder cutting	3	2.5	5.5
Feeding	2	6	8
Water serving	0.5	3.5	4
Shed cleaning	.5	4	4.5
Young animal care	.50	2.5	3
Milking	.75	4	4.75
Milk products preparation	--	2.5	2.5
Marketing of dairy products	1	.75	1.75
All activities	1.03	3.22	4.25

allocated more time to all livestock activities (3.22 hours/day) than men (1.03 hours/day). It is in conformity with Khan et al. (2014) who found women's higher rate of participation in livestock management in India. Women were participated in all the livestock management activities, while men participated in all the activities except in milk products preparation. This activity was exclusively carried out by women with an average time allocation of 2.5 hours/day. Women's participation was found high in the indoor activities of feeding (6 hours/day), milking (4 hours/day), and shed cleaning (4 hours/day) in the study area. The literature confirms that women in Indonesia allocated higher number of hours to the feeding activity (Utami and Seroni, 2013). Rais et al. (2013) also found that women were mostly participating in the indoor activities of shed cleaning and milking of animals in the Sindh province of the country. Men's participation was found high in the outdoor activities of fodder cutting (3 hours/day) and marketing of dairy products (1 hour/day). The reason behind men's higher participation in these activities are their free mobility due to the patriarchal society. Both the activities are carried out outside the home premises and involves travel. While, women have restricted mobility in the traditional Pashtun society, which hinders their participation in the outdoor activities (Andaleeb et al., 2017). In the traditional societies where patriarchy exists, women's mobility was not free and rests with the will of the household head (male). Thus, in these societies, women mostly work inside home premises which includes livestock management and other household chores like cooking, washing, child care etc. (Utami and Seruni, 2013). The results of the

present research study imply that men have high level of participation in indoor activities, while women highly participated in the outdoor activities of livestock management.

Major constraints in livestock management

The major constraints faced by women in livestock management in the study area are given in Table 5. Data show that six major constraints including credit need, decision-making in animals' marketing, training, costly feed items, costly veterinary services, and other workload were faced by women in livestock management. Among these constraints, costly veterinary services in the study area were the major ranked constraint as 68% respondents reported it. The second and third major constraints reported by women respondents were costly feed and credit need. Training need, decision-making in animal's marketing, and workload of other household activities (such as child care, cooking, house cleaning, dish washing etc.) were 4th, 5th and 6th major reported constraints in the study area. The costly veterinary services and feed items hindered women's participation in livestock management because most of rural women livestock keepers were poor and they often don't have access to credit. Thus, provision of credit and training in animal health care can boost the domesticated livestock development.

Table 5: Major constraints in faced by women in livestock management.

Constraints	Frequency	Percentage	Rank orders
Credit need	74	63	3 rd
Decision making in animals' marketing	60	51	5 th
Training	65	55	4 th
Costly feed	76	65	2 nd
Costly veterinary services	80	68	1 st
Other workload	35	30	6 th

Conclusion and Recommendations

The study concluded that women are playing a significant role in livestock management by rearing four major types of livestock such as buffalo, cattle, goat, and sheep in the study area. Regarding animal's possession women were found dominant in small ruminants (goats and sheep), while men in large ruminants (buffalo and cattle). Women's participation in livestock management was found high as compared to their male counter parts as depicted by their high-

er time allocation to the eight livestock management activities. Women's participation was found high in the indoor activities of feeding, shed cleaning and milking, while low in the outdoor activities of fodder cutting and marketing of dairy products due to their restricted mobility. Costly veterinary services and feed items, credit for feed and livestock purchase and training in animal health care were the major reported constraints faced by women in the study area. Provision of credit, training in animal health care, and increasing livestock possession of women are suggested not only for the increased participation of women in livestock management but also for the development of domesticated livestock enterprise in the study area.

Author's Contribution

SN generated the idea, perform data analysis and contributed towards all the sections of the research study. N.P. K. refined the idea of the study and provided technical guidance during at every stage of the research study. H. K. further improved the idea of the study and provided technical guidance towards data analysis mainly. N.A. contributed towards data collection and writing of the introduction and methodology sections. A.A.S. contributed towards the writing of the results and discussion section and also provided technical guidance in the overall management of the study.

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