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RESEARCH PAPER

Gender Disparities in Livestock Management and Control over Livestock Income in Erstwhile, FATA, Khyber Pakhtunkhwa-Pakistan

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ABSTRACT

Current study examined gender disparities in livestock management and control over livestock income in erstwhile FATA (Federally Administered Tribal Areas), Khyber Pakhtunkhwa, Pakistan. For this, data were collected from 323 women respondents through questionnaire. Data were analysed using frequencies, percentages, and dummy variable approaches in simple regression. Results demonstrated the existence of gender inequality in livestock ownership, with men exhibiting a higher percentage of total livestock ownership. But, it was found that women had a more challenging workload in livestock management activities than men did. The dummy variable approach showed that women allocated more time than men. Women are responsible for managing more livestock because they work more hours, which gives them more control over livestock earnings as compared to men. To make a fair division of resources for gender equality both in the livestock sector and for broader development, the study recommends distributing resources based on their merit instead of according to gender.

Keywords: Erstwhile FATA, Gender Disparities, Livestock Income, Livestock Possession, Time Allocation to Livestock Activities

Introduction

Gender disparities in the livestock sector are attributed to various cultural and socio-economic norms and circumstances faced by women across the developing world. These disparities between men and women are found in livestock possession, care, management, production, processing, and sale of products (Assan, 2014). These disparities also decide about the access and control over livestock resources within a household. The more a woman or a man had expertise and control over a resource, the more he or she enjoys the decision-making power regarding the resource use (Naz et al., 2021; Naz et al., 2020; Mahadi et al., 2014). Gender based participation in livestock sector is influenced by a society's social, cultural, religious, and even political structures (Bajracharya, 1998) and thus women had varied control over their own labour.

Women play an important role in livestock management and production in developing countries because of the gendered division of labour. (Assan, 2014; Njuki and Saginga, 2013; Paudel et al., 2007). They perform a variety of livestock management tasks including animals feeding, shed cleaning, watering of animals, compost manure, milking, milk products preparation and are responsible for the breeding and tending to the health of smaller animals (GIZ, 2012; Khan et al., 2012; Yisehak, 2008; Younus et al., 2007; Paudel et al., 2007). While, men participate in fodder cutting, animals marketing, and feeding mainly (Naz et al., 2018; Andaleeb et al., 2017; Mahadi et al., 2014; Njuki and Saginga, 2013; Javed et al., 2006However, research studies quantifying gendered roles and responsibilities in terms of time allocation to livestock management activities are scarce. (Ahmad, 2014).

Despite of women's active involvement in livestock management than their male counterparts, women livestock keepers are being two third of the world's most poor (Naz et al., 2021; Naz et al., 2018; Njuki and Saginga, 2013; Kristjanson et al., 2010).

By rearing livestock, women support rural livelihoods by providing food, cash, farm yard manure, etc. The sale of livestock products provides with the cash income which was controlled by men and women varying across cultures (Assan, 2014). The livestock income retained by women is further used within the household for food, children educations etc. by the consultation of men and women spend a little on their own selves (ILRI, 2013. The livestock income retained by male is completely spend on his own will without considering women views (Njuki and Saginga, 2013). Despite of these gendered inequalities in control over livestock income, livestock has some significant contribution to women's lives (FAO, 2011).

Livestock served as an asset that women which could easily acquire. This crucial role of livestock as an asset for women was analysed in the various developing countries i.e. Tanzania, Kenya, and Mozambique and the findings provided a better understanding of livestock's potential role in improving women's welfare and well-being. (Njuki and Mburu, 2013). Moreover, it is also reported that livestock can reduce the gender asset gap within the household (Njuki and Saginga, 2013; Njuki and Mburu, 2013) however, evidence on livestock ownership for women in most of the under develop countries is scant due to the lack of sex aggregated data in agricultural surveys. Only, a few studies are found on comparison of livestock ownership between female and male headed households (FAO, 2011 and Doss et al., 2007). Within a household livestock ownership studies between men and women are scarce (Doss et al., 2007) which promotes gender inequalities.

The gender inequalities existed among ownership of different species of livestock. Women mostly own small ruminants such as goats, sheep, poultry etc. while, men own large ruminants like cattle, and buffalo (Yisehak, 2008; Grace 2007; Heffernan et al. 2003). The livestock ownership further indicates the control over livestock products and its sale. A study conducted in Zimbabwe reported that due to men's control over cash income from the crop and livestock, a total of 60% women lacked the capital to purchase livestock (Njuki and Mburu, 2013). Thus, the low level of livestock ownership among women not only limit their access to credit and extension services but they also exercise little control over sale of livestock products and thus comprised of world's most poorer (IFAD, 2009). This lack of control over assets and its proceeds are attributed to cultural norms (Njuki and Saginga, 2013).

It is significant to note that if women have equal access to resources as men, then agricultural productivity and agricultural output will go up by 10 to 30 percent and 4 percent, respectively (FAO, 2011). However, it is found that with increased productivity women lost control as the men took dominance (Kergna et al., 2010). Despite all these gender inequalities in livestock ownership and control of proceeds, livestock served as a pathway out of poverty for women in the developing countries (Njuki and Mburu, 2013; Njuki and Saginga, 2013; Kristjanson et al., 2010).

The importance of livestock in developing countries such as Pakistan's rural economies is well documented. (Naz et al., 2021; Awan et al., 2021; Saba et al., 2020; Naz and Khan, 2018; Andaleeb and Khan, 2017; FAO, 2015; Zahoor et al., 2013; Ahmad, 2014). Livestock support rural livelihoods in various aspects of cash, food, draught power and fertilizer provision. It is also carried out for generating employment opportunities, financial security at bad timings and as a source of wealth in the country (Naz and Khan, 2018; FAO, 2015; Ahmad, 2014). At national accounts, livestock contribute 11.6 percent to GDP (Gross Domestic Product) with about 58.6 percent to the value addition of agricultural products. Livestock is providing employment opportunities to approximately 8 million families t hroughout the nation and accounted for 35 percent of their income (GoP, 2020-21).

It is critical to understand that the country has both large and small ruminants of livestock. (GoP, 2020-21; Naz and Khan, 2018). Domesticated livestock rearing is predominantly done by women (Awan et al., 2021; Naz et al., 2021; Saba et al., 2020; Andaleeb et al., 2017; FAO, 2015; Ahmad 2014). Similarly the other parts of the country, such as Khyber Pakhtunkhwa province, a large number of households are involved in livestock rearing and they accrue multiple benefits not only for home and farm consumption but also cash income (Saba et al., 2020; Naz et al., 2018; Andaleeb et al., 2017; Andaleeb and Khan, 2017; Khan et al., 2009) and thus making significant contribution to their livelihoods. In the province, women are also actively involved in livestock management (Naz et al., 2018; Andaleeb et al., 2017; FAO, 2015).

It is evident by a few studies, that women are extensively involved in livestock management in Khyber Pakthukhwa than their male counterparts (Naz et al., 2021; Naz et al., 2018; Andaleeb et al., 2017; Khan et al., 2009). Similarly, the tribal belt of the country also provides ample evidence of their participation in livestock management (Na et al., 2021; Naz et al., 2020; Naz and Khan, 2018; FAO, 2015). The Khyber Pakhtunkhwa-Pakistan tribal belt is rural in nature, with extensive livestock rearing. Livestock served a crucial element of tribal area's economy and served as the second major source of income (Naz and Khan, 2018). Both the small and large ruminants are reared in the area with the active involvement of women along with men (FAO, 2015). However, the studies carrying a gender lens is scant (Naz et al., 2021).

The gender disparities are viewed as the root cause of low production, poverty, hunger, malnutrition, and low levels of empowerment among women which calls for improving their capabilities to combat with the mentioned problems (Agarwal, 2018; Njuki and Mburu, 2013). Women's empowerment requires their inclusion in rural institutions, and decision-making bodies (Naz et al., 2020; United Nations, 1999). However, despite of women's prime contribution in household core and livestock etc., they were most often ignored in the developmental policies, plans, programs, and projects and where only men were consulted (Saba et al., 2020). It further makes the research and developmental activities in the livestock sector ineffective (Naz et al., 2021; Awan et al., 2021; Saba et al., 2020). The situation is worse in the tribal areas due to the cultural, religious and political structure. Therefore, understanding of gender dimensions in livestock sector is required not only to achieve rural women empowerment but also for the attainment of sustainable rural livelihoods. Therefore, complete perspectives are required on the gender dimensions in livestock possession, workload and control over livestock income.

Although the role of livestock in erstwhile FATA. Khyber Pakhtunkhwa is well-recognized (Naz et al., 2021; Naz et al., 2020; Naz and Khan, 2018; FAO, 2015). However, the gender dimensions relating to livestock possession, workload in terms of time allocation and control over income in the livestock sector has not been explored yet. The present research study fills the gap by addressing the issue in Mohmand district of Tribal belt of Khyber Pakhtunkhwa-Pakistan with the aforementioned research question. 1) What are the existing gender differences in livestock possession? 2) what is the existing gendered division of the workloads (time allocation) in livestock management? and 3) gender differences in control over livestock income existed in the study area?

Material and Methods

Study Area

The current study is being conducted in the Mohmand district of Tribal Areas (formerly known as Federally Administered Tribal Areas) of Khyber Pakhtunkhwa-Pakistan as mentioned above. The selection of the study site is made due to several reasons. First, livestock were the study area's second most important source of income. (Naz & Khan, 2018). Second, although the data about number and types of livestock are available however, gender-wise livestock possession at regional and household level in the study area is

unknown. Third, it has been observed and assumed that livestock is mainly stocked at household level and managed by women in the study area (Naz et al., 2021; Naz et al., 2020; FAO, 2015) however, there is scarcity of literature with respect to gender-wise livestock possession, workloads (time allocation) and control over livestock income in the study area. Thus, erstwhile FATA was selected as the universe for this research study, and the district Mohmand was randomly selected as the study site. The district is bordered to the north, east, and south-east by the districts of Bajaur, Dir, and Peshawar to the north, east, and south-east, respectively. While at the west district Mohmand is bordered with Afghanistan.

Sample Size and Sampling Procedure

For the selection of study site and sampled respondents the study used a multistage sampling technique. In the first stage of sampling, one district i.e. Mohmand from erstwhile FATA was selected randomly. In the second stage, two tehsils i.e. Halimzai and Pindiali were selected randomly from a total of 3 tehsils. In the third stage, a random selection of three villages from each tehsil was done. Households were randomly selected from the selected villages in the final stage of sampling using a list issued from the Planning and Development Department of FATA and Livestock and Dairy Department of District Mohmand. A sample size of 323 households was derived through the use of Cochran formula (1963) which was further proportionally distributed among the selected villages.

Data Collection

To achieve the study's objectives, primary data were collected from women respondents through a pre-tested and semi-structured questionnaire during the period of February and May 2016. Women being the respondents of the current study were chosen for various reasons. First, they were perceived to have high level of participation in livestock management (Naz et al., 2021; Naz et al., 2020). Second, these women have higher participation in livestock as compared to men and they have less economic opportunities to excel and prosper (Naz et al., 2021; FAO, 2015). Through interview method, data were collected by the use of a questionnaire from the respondents. Before interviews, confidentiality and purpose of data (Naz et al., 2022c; Khan et al., 2017) were discussed with the respondents as well. Only willing respondents were interviewed (Afridi et al., 2022), and those who were unwilling were replaced by willing respondents (Naz et al., 2022b). The questionnaire asked about livestock size, types, breeds and their possession by male, female and both; gender-wise workloads (daily time assigned to livestock management activities), and gendered control over livestock income.

Description of Livestock Management Activities

For the better assessment, the livestock activities were specified in seven categories such as fodder cutting, feeding of animals, water serving, shed cleaning, milking of animals, milk products preparation, and marketing of milk and milk products (Table 5). These activities were briefly explained as follow;

Fodder Cutting: This activity refers to the harvesting or cutting of grass/plants grown for forage/hay, which is then fed to animals. The activity is typically performed manually with hand tools such as a sickle and spade.

Feeding Animals: The activity refers to offering chopped dry or green fodder in feed containers to animals.

Water Serving: The activity is defined as providing drinking water to animals either at their home or by leading them to a drinking water source such as a tube-well, etc.

Shed Cleaning: The activity refers to the accumulation of animal excrement and the cleaning of their living quarters or sheds, which is typically done by hand with hand tools.

The animals extracts are further used for making farmyard manure served as the organic fertilizer in agricultural fields or in making of dung-cakes used as fuel in households.

Milking of Animals: The activity in which milk extraction has been made usually manually from the female mammal i.e. cow, goat, and sheep.

Milk Products Preparation: A process that converts milk into products such as yoghurt, butter, and butter oil.

Marketing of milk and milk products: An activity in which surplus milk and its products were sold to buyers in marker or locality to support livelihoods.

Analytical techniques

To highlight gender disparities, the collected data was analyzed using both descriptive and inferential statistics such as frequencies, percentages, and a simple regression model with a dummy variable. The existed livestock types, breeds and possession among male, female and both (male and female) were analyzed using frequencies, percentages and descriptive statistics. While, dummy variable approach in simple regression was used for the estimation of gendered disparities in workloads (time allocation) and control over livestock income.

Gendered division of workload/labour in livestock management

As mentioned above, for the analysis of gendered division of workload in livestock management dummy variable approach in simple regression was employed (equation 1) as follow;

$$TT = \beta_0 + \beta_1 D_1 + e_i \quad \ldots\ldots 1$$

Where:

TT = Total time assigned to livestock activities by male and female (hours. /day)

β_0 *= Intercept*

β_1 *= Coefficient of Dummy variable*

D_1 *= 1, if female 0, otherwise*

e_i *= Error term*

2.5.2 Gender-wise control over livestock income

In this study, the control over livestock income is associated to receiving a significant share of livestock income by either male or female in the sampled households. Equation 2 shows the estimation of gender-wise control over livestock income using dummy variable approach in simple regression.

$$TI = b_0 + b_1 D_1 + e_i \quad \ldots\ldots 2$$

Where:

TI = Average household income from livestock (PKR. /annum)

b_0 *= Intercept*

b_1 *= Coefficient of Dummy variable*

D_1 *= 1, if female 0, otherwise*

e_i = *Error term*

Results and Discussion

Livestock Types

Table 1 displays descriptive statistics for livestock types in the study area. Data show that an average of about 7 number of animal heads per household was being reared with a standard deviation of 6.78. An average number of 1.40, 3.85, and 0.70 cattle, goats and sheep per household were possessed with the standard deviations of .668, 6.156 and 2.204, respectively in the study area.

Table 1
Types of livestock

Livestock type	Mean	Standard deviation
Cattle	1.40	0.668
Goats	3.85	6.156
Sheep	0.70	2.204
All animals	5.95	6.788

Breed-Wise Types of Livestock

Table 2 shows that both local and improved animal breeds were discovered in the study area.. The facts indicate that a total of 1923 animals were found in the selected households, out of which 23%, 65% and 12% were cattle, goats and sheep, respectively. A total of 74% of animals were of local breed and 26% of improved breed animals. Among the local breed animals, 272, 941, and 212 were cattle, goat and sheep while, 181, 304, 13 were improved breed cattle, goat, and sheep, respectively. In the case of cattle, 60% were of local breed and 40% of improved breed, while 76% of goats were of local breed as compared to 24% of improved breed. Similarly, 94% sheep were of local breed, while 6% of improved breed.

Table 2
Breed-wise types of livestock

Type of livestock	Local breed		Improved breed		Total animals	
	No.	%	No.	%	No.	%
Cattle	272	60	181	40	453	23
Goats	941	76	304	24	1245	65
Sheep	212	94	13	6	225	12
All animals	1425	74	498	26	1923	100

Gender-wise livestock possession

The livestock ownership was recorded for female, their male counterparts and for both (male and female joint ownership) in the study area (Table 3). Data show that 63% of the total animals were owned by male, while 35% by female, and 2% jointly. In the case of cattle, 71% cattle were owned by male, 20% by female, and 9% by both. For goats' possession, 58.40% were owned by male, 41.20% by female, and 0.40% by both. Similarly, in the case of sheep possession, 73% were owned by male and 27% by female with no joint ownership.

Table 3
Gender-wise livestock ownership

Livestock type	Male		Female		Both		Total
	No.	%	No.	%	No.	%	
Cattle	320	71	92	20	41	9	453

Goats	727	58.4(	513	41.2(	05	0.40	1245
Sheep	164	73	61	27	--	--	225
Total	1211	63	666	35	46	2	1923

Gendered division of workload in livestock activities

Gendered division of workload was recorded in as many as seven livestock management activities (Table 4) as described earlier in material and methods section. The results show that on the average daily basis, a good part of time (5.207 hours) was allocated to all the seven livestock activities specified both by male and female. Being further specific, the average time per day was spent as; 6.22 hours, 9.882 hours, 3.346 hours, 4.272 hours, 4.232 hours, 2.89 hours, and 0.405 hours for fodder cutting, animal feeding, water serving, shed cleaning, animal milking, milk product preparation, and marketing of milk and milk products., respectively. It was further denoted that female allocated an average of 4.557 hours/day while, men 0.65 hours/day to all the livestock management activities.

On the average daily basis, female allocated their time to the activities of cutting of fodder (3.548 hours), feeding (9.059 hours), watering (3.168 hours), shed cleaning (4.159 hours), milking (4.211 hours), and marketing (0.307). The results also show that females performed the activity of milk product preparation exclusively, with an average time share of 2.89 hours per day.

Fodder cutting, feeding, watering, shed cleaning, milking, and marketing received 2.669 hours, 0.823 hours, 0.178 hours, 0.113 hours, 0.21 hours, and 0.098 hours, respectively, of the average daily time allotted to livestock activities by male.

Table 4
Gendered division of workload (average time allocation hours/day) in livestock management activities

Livestock management activities	Male	Female	Total time
Fodder cutting	2.669	3.548	6.22
Feeding animals	0.823	9.059	9.882
Water serving	0.178	3.168	3.346
Shed cleaning	0.113	4.159	4.272
Milking of animals	0.021	4.211	4.232
Milk products preparation	--	2.89	2.89
Marketing of milk and milk products	0.098	0.307	0.405
All activities	0.65	4.557	5.207

Gender Disparities in Workload

Table 5 presents the data regarding the existence of gender disparities in workload (time allocation) in livestock activities estimated by the comparison of male and female time allocation through dummy variable approach in simple regression. The results show a high F-ratio of 337.806 with an R-square value of 0.334, indicating that the dependent variable in explanatory variable explains 34.4% of the variation.. The values of Co-efficient show for 4.55hours/day (0.65+3.90) as female time allocation to livestock activities, while for men 0.65 hours/day.

Table 5
Gender disparities in workload

Variables	Co-efficient	Std. Error	t-ratio	p-value
Constant	0.65	0.150	4.32	000***
D_1(Female)	3.90	0.212	18.38	000***

Highly Significant R-squared =0.344 F-statistic=337.806 P-value (F) =.000

Livestock Income

Data regarding average annual livestock income/household (Table 6) show that PKR 75963/- has been derived from the various livestock sources included milk (PKR 23824/-), milk products (PKR 23683/-), and by-products (PKR 28456/-). Milk products included yogurt (PKR 11699/-), butter (PKR 2915/-), and butter oil (PKR 9069/-), while by-products comprised of the sale of animals (PKR 25683/-), farm yard manure (PKR 2270/-), and fuel (PKR 503/-).

Table 6
Average annual livestock income per household

Livestock products	Income (in PKR)
Milk	**23824**
Milk products	**23683**
i) Yogurt	11699
ii) Butter	2915
iii) Butter oil	9069
By-products	**28456**
i) Animals	25683
ii) Farm yard manure	2270
iii) fuel (dung cakes)	503
Total income	**75963**

Gender-wise control over livestock income

Data regarding gender-wise control over livestock income have been presented in Table 7. Results show that the F-ratio was significant with a value of 49.63. The co-efficient of determination (R2) of 0.072 indicates that the independent variable explained 7.2% of the variation in the dependent variable. At a 95% confidence level, the independent variable was found to be significant (t-ratio=7.04). According to the findings, females received a total of PKR. 55408.28/- (PKR. 20553.11+34855.17) per household on an annual basis, while men received PKR. 20553.11/- from livestock income.

Table 7
Empirical Results of gender-wise control over Livestock income using Dummy Variable Approach

Variables	Co-efficient	Std. Error	t-ratio	p-value
Constant	20553.11	3498.34	5.87	000***
D_1(Female)	34855.17	4947.41	7.04	000***

Highly Significant, R-squared =0.072 F-statistic=49.63 P-value (F) =.000

Discussion

This study has assessed the gendered disparities in livestock management and control over livestock income in erstwhile FATA, Khyber Pakhtunkhwa-Pakistan. Cattle, goats, and sheep were discovered to be the most common livestock types in the study area. However, the small ruminants like goats and sheep outnumbered the large ruminant i.e. cattle. The common preference for rearing small ruminants i.e. goats and sheep at household level was due to the fact that small ruminants can be easily managed and involve low risks in their rearing. Moreover, these animals further provided financial security with their easier sale in blue hours. These facts are supported by Isaac et al., (2012), Ahmed (2014), Naz and Khan (2018), Saba et al., (2020), and Awan et al., (2021). Because of poverty, a lack of credit, and ignorance about the numerous benefits of rearing improved breeds, the majority of the reared animals or livestock types were of local breeds. However, it was discovered that a greater number of improved breed cattle were reared in the area than improved breed goats and sheep.

In the case of gender disparities in livestock ownership, results showed for male dominancy in case of all types of livestock. Several researchers have confirmed that in most developing countries, female access to and ownership of livestock assets is lower than that of men, limiting their role not only in the development of the livestock sector but also in their own empowerment. (Issac et al., 2012; Assan, 2014; Ali and Khan, 2013; Naz et al., 2020). However, in terms of workload in livestock management activities, women outnumber men. These findings are consistent with those of a study conducted in India by Khan et al., (2013). Similarly, Andaleeb et al., (2017) found that women have more workload in livestock management in Khyber Pakhtunkhwa's district Mardan than their male counterparts. Various other studies in the literature have also confirmed that women participate heavily in the livestock rearing in erstwhile FATA, Khyber Pakhtunkhwa (Naz et al., 2021; Naz et al., 2020; Naz and Khan, 2018; FAO, 2015). However, the current study quantified the gender-wise workload in livestock management which is a unique characteristic of the study which supported the fact that gender-disparities existed in performing various livestock management activities.

The current study's findings also revealed that men's workload (time allocation) in livestock management activities was low due to their involvement in fewer activities. The lowest workload of men was associated with the activity of milking of animals and the high workload was found for the activity of fodder cutting. The reason behind the high and low performance of men in these activities was associated with the nature of activities. In the traditional societies, the outdoor activities were mostly done by male, while the indoor activities by women. The findings are consistent with those of Utami and Seruni (2013), who discovered that in Indonesia, men devote more time to fodder cutting. The findings also suggested that outdoor activities in livestock management like marketing of milk etc. mainly come under the domain of men, while the indoor activities like shed cleaning, watering, feeding, milking of animals etc. were mostly performed by women. The same fact has been supported in the literature where it has been found that indoor activities in livestock management were mostly performed by women, while outdoor activities by men due to the restricted mobility of women (Naz et al., 2022a; Awan et al., 2021; Naz et al., 2021; Saba et al., 2020; Andaleeb et al., 2017b; Naz et al., 2018).

The majority of female time was spent on livestock management activities such as feeding, milking, and shed cleaning. The findings are consistent with other studies conducted in the developing world. (Utami and Seruni 2013; Yasmin and Ikemoto, 2015; Naz et al., 2018; Saba et al., 2020; Awan et al., 2021; Naz et al., 2021). According to a study conducted by Hassan et al., (2007), women in Pakistan were primarily responsible for animal feeding and milking. According to Rais et al. (2013), the most common activities performed by women are animal milking and shed cleaning. Furthermore, a study conducted by Simon et al., (2016) found that feeding of animals and shed cleaning were the most time-consuming activities on the part of women. These results of gendered division of workload in the study area show that women were found as the prime work loader/labour contributor in the livestock management as compared to men as women have allocated more time to the livestock management activities and were found to be involved in all the activities.

Despite their low levels of livestock ownership in the study area, the results of the dummy variable approach in simple regression analysis confirmed that gender disparities existed in livestock management, with females allocating more time to livestock management activities than males. Thus, it confirms that women's access to and control on the livestock resources has been limited or negligible. On the top of all, their contribution has remained invisible and therefore unrecognized, as well. These results have been supported by the literature as well (Andaleeb et al., 2017; Naz et al., 2018; Saba et al., 2020; Naz et al., 2021; Naz et al., 2022a).

Livestock rearing served as the income generating activity as an average of Rs.75963/- has been accrued from it. The sale of by products contributed the most to

livestock income, followed by the sale of milk and its derivatives.. A vast variety of literature confirmed that in the developing countries livestock served as the income generating activity to support rural livelihoods and the major income share derived from the sale of milk and its products (Issac et al., 2012; Heror et al., 2012; Zahoor et al., 2013; Mahadi et al., 2014; Ahmad e al., 2014; Yasmin and Ikemoto, 2015; Simon et al., 2016; Naz et al., 2018; Naz and Khan, 2018; Saba et al., 2020; Naz et al., 2020; Naz et al., 2021). Furthermore, the results for control over livestock income revealed that women received a greater share of total annual livestock income than men and thus have greater control over financial resources derived from livestock. It implies that as female allocated more time to livestock management activities thus they enjoyed more control over livestock income. Control over livestock income provides a sense of empowerment, allowing them to better care for their families (Naz and Khan, 21018; Naz et al., 2020). However, the use of these funds by women requires further investigation.

Conclusions

Gender disparities in erstwhile FATA, Khyber Pakhtunkhwa are common in education, health, economic sectors and others as well which is associated with its cultural, religious, economic, and political structure. These women have only 12.5% literacy rate perhaps the lowest in the world (Planning and Development Department, FATA, 2014). Despite these gender inequalities, these women are participating in various economic activities including livestock rearing. However, the exploration of gender disparities in the livestock sector of tribal areas, Khyber Pakhtunkhwa- Pakistan requires investigation not only for livestock development but also for women's empowerment. The present study aimed to explore the gender disparities in livestock sector by focusing livestock possession, workload and control over its income.

The study concluded that there was a high variation in livestock ownership based on gender, with males being dominant in all types of livestock ownership, including cattle, goats, and sheep. However, the gendered division of labour in livestock revealed that women contributed more than men. The dummy variable approach confirmed that females allocated significantly more time than their counterparts, confirming gender disparities in workload. Women have more control over livestock income than men due to their higher workload (time allocation) in livestock activities, as evidenced by the results of the dummy variable approach. To make a fair division of resources for gender equality both in the livestock sector and for broader development, the study recommends distributing resources based on their merit instead of according to gender. Hence, serious efforts in this area are required from both government and non-governmental organisations in order to achieve effective development outcomes.

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