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Capacity Building and Skill Enhancement of Rural Females through Livestock Extension Education

Abstract

This paper analyzed capacity building and skill enhancement of females on basic animal husbandry practices through livestock extension education in rural Punjab, Pakistan. A survey was carried out from a sample of 197 females who participated in awareness sessions on basic animal husbandry practices initiated by Livestock and Dairy Development Department (L&DD) Government of the Punjab under livestock extension education program in the year 2017. The respondents of the present study were selected from two randomly selected female secondary schools of two randomly selected rural union councils of Raiwind Tehsil selected randomly from five Tehsils of district Lahore, Punjab, Pakistan and information was gathered in the month of March, 2018. The data of the present paper have been extracted from first author's academic research.

The findings of the present study showed that awareness sessions enhanced livestock management skills of two-third females. More than two-third females were involved in taking care of feed and health related issues of their animals at home. A substantial proportion of respondents (69%) was aware about quality and content of animal food for increased dairy productivity. A large proportion of respondents reported that their training contributed in enhancing livestock management knowledge of their family members, particularly females. However, respondents' interest and choice to attend this awareness program was associated with availability of livestock at home. The findings of this study underscored the importance of livestock awareness program in capacity building of not only respondents but also other members of their families. The study recommends policy for coordination between education department and L&DD for capacity building of rural females with regard to livestock management skills for increased productivity in livestock sector of agriculture-economy.

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Introduction

Pakistan is an agro-based economy with 11 percent share of livestock that constitutes 56 percent of the total agriculture sector in total GDP of the country^{1,2}. Capacity building remains one of the major components to help enhance livestock sector of the agricultural economy of Pakistan. Livestock training and awareness program has been initiated by the Livestock Dairy and Development Department (L&DD) under extension education service, in all districts of Punjab. The current research endeavored to see how successful livestock training was for female respondents' capacity building in rural Punjab, Pakistan.

Education and training are integral to help develop capability of individuals to achieve productivity and economic growth. Education and skill training have been given special emphases in Sustainable Development Goals (SDGs) and are seen as important components of poverty alleviation³. In other words, human capital and economic progress of society are intertwined with capacity building measures, which in turn can contribute significantly towards poverty reduction in rural settings.

Livestock extension education is specialized communication to help rural people to improve their living by enhancing their resources, knowledge and skills in order to improve their income⁴. Livestock extension education exposes people to latest technologies being used in livestock sector and trains people to utilize new technologies and innovative techniques to increase livestock production⁵.

Livestock and labour are major sources of livelihood for two-third population of Pakistan and improvement in the quality of life of people as well as economic growth can be achieved through capacity building measures in livestock sector^{1,6}. Around one-third (34%) rural farmers in Pakistan depend on livestock for their livelihood and 80 per cent of these farmers comprise smallholder with a share of 90 per cent involved in milk production⁵ and livestock serves as capital assets, source of livelihood and family welfare⁷. Hence, Pakistan ranks fourth largest milk producing country in the world^{1, 2} and growth in milk production could be attributed to an increase in overall quantity of milk producing animals⁵.

Nearly sixty percent females in rural Punjab, Pakistan are engaged in husbandry related activities of livestock sector⁸. Females in rural Punjab perform chores like milking, feeding animals, collecting/making dung cake and other husbandry works related to livestock management. These chores are considered soft activities because they are carried out within home premises and their contributions are not much acknowledged and valued at any level⁸. World Bank¹⁰ reported disadvantageous position of females, particularly rural, with regard to equal access to education and capacity building training programs. The rural females are not provided with equal opportunities of education and training to improve their capacity building regarding livestock management and production^{11, 12}. Livestock and Dairy Development Department (L&DD) Government of the Punjab⁸ and National Education Policy¹³ emphasized capacity building of rural females through livestock extension education. Livestock extension education can improve the skills of rural people for increased productivity in dairy industry⁵. Hence, it is very essential that education system must focus on capacity building of livestock owners especially at small scale through formal, non-formal, extension education,

training and community awareness programs. This needs cooperation and mutual efforts to ensure inclusiveness in agriculture sector for better production, and greater self-reliance to save foreign exchange^{3, 7}.

Objectives

The current study was an attempt to see the role of livestock awareness program in capacity building of female participants from rural secondary schools. In so doing, this research analysed what influenced their choice to participate in livestock extension education to enhance their livestock management skills. Another objective of the study was to analyse participants' interest and involvement in husbandry related activities at home and as to how their training contributed in enhancing the knowledge of other members of their families, particularly females.

Material and Methods

Quantitative approach has been used to accomplish the present research. A cross-sectional survey was conducted to obtain data from the female respondents who participated in short-term training and awareness sessions initiated by Livestock Dairy and Development Department (L&DD) Government of the Punjab in 2017¹⁴. Multistage sampling technique was used to select final sampling units. In the first stage, central zone was selected randomly from three zones of Punjab: south, central and north¹⁵. In the second stage, Lahore district was selected randomly from 15 districts of central zones. In third stage, the researchers selected Raiwind Tehsil randomly from five tehsils (Shalimar, Raiwind, Model Town, Lahore City and Lahore Cantt) of Lahore District¹³ and in the fourth stage two public sector secondary schools (Government Girls' High School Ali Raza Abaad and Government Girls' High School Chung) of two randomly selected rural union councils (Ali Raza Abaad and Chung) were selected from 15 union councils of Raiwind Tehsil. Final sampling units of this study were selected through purposive sampling technique.

More than two hundred respondents (9th and 10th class) of the selected schools attended livestock awareness program in 2017. These respondents were approached through the office of principals of respective schools. The participants of training program were informed about the purpose of research and their voluntary participation in survey was ensured. Out of total 216 females, 197 females participated in survey. Interview schedule was used to collect data from respondents. Tool of data collection was developed in English language but the respondents were briefed about the questions in local language, so that they can understand the nature of questions and properly respond to the questions being asked.

RESULTS AND DISCUSSION

Socio-demographic characteristics

Socio-economic profile of the respondents show age, grade of the respondents, family size, family income, number of and type/breed of animals at home. The data show that 54 and 45 percent respondents from grade IX and X respectively participated in livestock and animal husbandry practices (Table 1). Short-term training and awareness sessions for young individuals (aged 14-15 years) can go a

long way to contribute towards good animal welfare practices for increased productivity in livestock sector. The data show that nearly one-half respondents (48 percent) had monthly income 25000-40000 PKR (Pak Rupee currency unit of Pakistan) and 110 PRP= 1US \$ at the time of survey income. Income profile of the respondents ranged from 227-363 US\$ (approximate 7.5-12 \$ per day) which indicates that livestock is not only source of livelihood but can also play a substantial role in poverty reduction of rural population. This finding of the study corroborates with¹⁶.

Analysis reveals that more than one-half (55.8 %) of the respondents hailed from joint family system with a size of 5 to 8 members. The data in Table 2 (SD=1.286, N=197) show that more than 90 percent of respondents had livestock. This finding corroborate with Ahmed et al⁵ that a large proportion of rural people rear livestock.

Finding of the study reveals that large number of respondent (42.6 %) has four or more livestock at home, with cattle's as the most (47 %) reared animal followed by 31percent of cattle and poultry rearing (Table 3 & 4). This finding is in agreement with Ahmad et al ⁵ that a larger proportion of rural people are small livestock holders.

Table 1: *Distribution of respondents by their school and grade enrolment*

Name of School	Respondents participated in Livestock awareness Program		Total	Respondents participated in survey		Total
	9 th class	10 th class		9 th class	10 th class	
Government Girls' High School Ali Razabaad	60	49	109	54	42	96
Government Girls' High School Chung	55	52	107	54	47	101

Table 2: *Distribution of respondents by livestock rearing*

Livestock at home	
N	197
Mean	2.89
Median	3.0
Mode	4
SD	1.286

Table 3: *Distribution of respondents by their livestock possession*

Livestock possession	Responses	Percent
No livestock	16	8.1
1-2 livestock	49	24.9
3-4 livestock	84	42.6
5 livestock and above	48	24.4
Total	197	100.0

Table 4: *Distribution of respondents by the type/breed of their livestock*

Type/breed of livestock	Responses	Percent
NA	16	8.1
Cattle	92	46.7
Goat	4	2.0
Poultry	8	4.1
Cattle & Poultry	61	31.0
Cattle, Poultry & Goat	16	8.1
Total	197	100.0

The respondents reported that livestock not provided them food security but also helped their families to earn money from the sale of dairy and poultry products like milk and eggs. This finding of the study corroborates with previous research¹⁷. Data presented in Table 5 indicate that the major purpose of rearing livestock at home was food security (97.8 %) and as a source of additional income for family (79%). Most of additional income generated from livestock was spent on children's education and their health care.

In Punjab livestock is also taken as asset which could be used in case families face some financial crisis and that financial crisis is coped with the sale of either cattle or poultry. In agreement with Khan, et al¹⁸ a significant number of respondents (34.8%) reported that by selling livestock (cattle or poultry) their families dealt with some emergency situation.

Table 5: Distribution of respondents by their about opinion about livestock rearing purpose (n=197)

Livestock rearing purpose	Frequency	Percent
As a major source of income	12	6.6%
An additional source of income	143	79%
Food security	177	97.8%
Used in family emergency	63	34.8%

Opinion of respondents about livestock awareness program

The data in Table 6 show that a little more than one-half (55.3%) respondents agreed strongly that the awareness sessions enhanced their learning with regard to animal husbandry practices. A large proportion of respondents (73.6%) opined that program curriculum was well designed especially in accordance with level of understanding and more than two-third respondents expressed that subject matter/ contents of the program were easy to understand. The data clearly suggest that materials and modules of program were designed according to the age of respondents which made it easier for majority (70.1%) to grasp the subject being delivered. These awareness programs can be used by education department especially by Technical Education and Vocational Training Authority for the capacity building of respondents across rural areas of Pakistan. Overall, negligible percentages of the respondents disagreed with overall efficacy of the program.

Table 6: Distribution of respondents by their opinion about livestock awareness program (n=197)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Awareness program was informative	3.0	7.6	4.1	29.9	55.3
Curriculum was according to respondents' capacity	3.0	6.6	5.6	11.2	73.6
Subject matter was easy to understand	2.5	7.6	4.1	15.7	70.1

Respondents' involvement in animal husbandry practices

Data in Table 7 presents frequency of respondents' involvement in animal husbandry practices following their participation in livestock extension awareness education. Animal husbandry practices in terms of health care of animal,

identification of animal sickness and visiting Veterinary Civil Hospital (VCH) for the treatment of animal or getting some medicine for animal. The data present encouraging picture that greater percentages of respondents involved themselves in animal husbandry practices following their participation in livestock extension education program. However, smaller proportions of females reported frequent visits to VCH in connection with getting medicine or treatment of their animals. It is important to mention here that male member of the family accompanied females visiting VCH for getting the medicine or treatment of their animal. Given the patriarchal structure, this is understandable that females are not encouraged to visit VCH.

Table 7: *Distribution of respondents by frequency of involvement in animal husbandry practices (n=197)*

Involvement in animal husbandry practices	N.A	Very Rarely	Rarely	Neutral	Frequently	Very Frequently
Animal care	0.0	0.5	8.0	1.5	44.0	46.0
Identification of sick animal	8.0	4.0	17.5	4.0	57.5	9.0
Visiting VCH for medicine or treatment of the animal	8.0	14.0	28.5	5.5	31.0	13.0

Respondents' opinion about their practical learning

The respondents were asked how far they agreed that livestock extension education enhanced their practical learning on animal husbandry related activities. A large proportion of respondents agreed that their participation in livestock education program enhanced their learning and they not only applied their knowledge for animal husbandry practices (data corroborate with that in Table 7) but also shared it with other family members, particularly females (Table 8 & Figure 1).

Table 8: *Distribution of respondents by their opinion about practical learning*

	Frequency	Percent
Strongly Disagree	7	3.6
Disagree	25	12.7
Neutral	9	4.6
Agree	68	34.5
Strongly Agree	88	44.7
Total	197	100

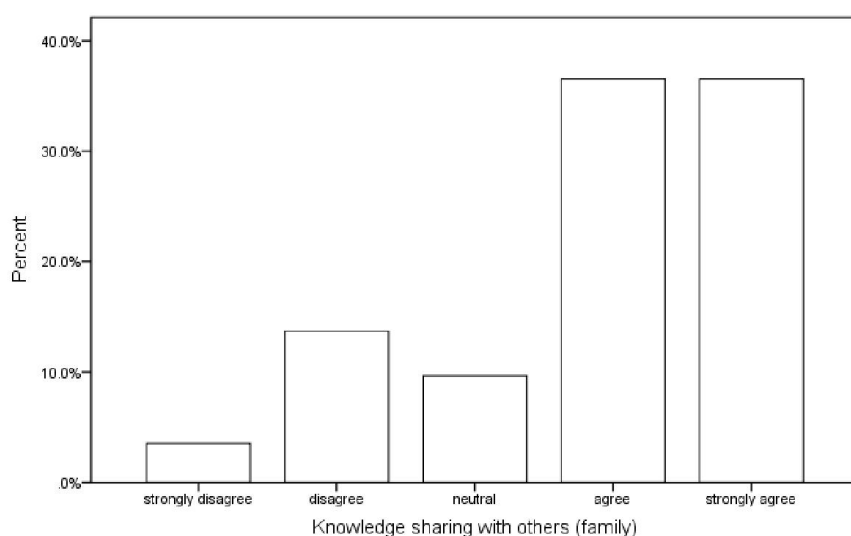


Figure 1: Knowledge sharing with family (n=197).

Respondents' opinion about skill improvement

The data in Table 9 present similar pattern indicated in Tables 7 & 8. Larger proportions of respondents agreed strongly that livestock extension education improved their skill in husbandry related practices with slight variation in underscored statements. The statements covered skill improvement in: preventive methods, general management, animal breed, animal production, symptom identification of animal disease/sickness and nutritional aspect of livestock. In line with L&DD policy⁸, this finding advocates that capacity building through extension services in livestock sector for small scale livestock farmers, particularly females who mostly carry out activities like milking, feeding animals, collecting/making dung cake and other husbandry works related to livestock management.

Table 9: Distribution of respondents by their opinion about skill improvement

Skill improvement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
in preventive methods	6.1	12.7	15.2	12.7	53.3
in general management	5.6	12.2	12.7	13.7	55.8
about animal breeds	7.1	11.2	13.2	12.7	55.8
about animal production	6.1	10.7	9.1	26.4	47.7
about symptoms identification	6.6	12.2	11.7	21.3	48.2
about nutrition aspect of animal source food	4.1	12.7	12.7	23.9	46.7

The result of correlation (Spearman's rho) shown in Table 10 presents moderate to strong relationship among variables; choice of receiving livestock awareness program, taking care of animals, knowledge sharing with family, practice after training and livestock at home with the selected value of ($p = < 0.001$). The data in correlation matrix show significant relationship between underscored variables. The choice of receiving training was significantly related with availability of livestock. Respondents' practices about animal husbandry were associated with their training. Respondents' training and capacity building contributed towards the learning other family members. The results of correlation show the association between taking care of animals and knowledge sharing with family members ($r=.327$).

The findings from this study reveal that majority of respondents agreed that livestock extension education/awareness program was helpful and productive for them in terms of capacity building. The program module was well designed keeping in mind the age group and interest of respondents. This particular livestock awareness program not only enhanced respondents' knowledge but also their interest towards the livestock management. Respondents who had livestock at home were more likely to show interest in receiving livestock awareness program with the correlation coefficient value of .362. Similarly, respondents' interest to participate in training was linked their involvement livestock related tasks ($r=.515$).

Table 10: Correlation matrix

	1	2	3	4	5
1. Choice of receiving livestock awareness program	1				
2. Taking care of animal	.515**	1			
3. Knowledge sharing with family	.758**	.327**	1		
4. Practice after awareness program	.707**	.295**	.589**	1	
5. Livestock at home	.362**	.257**	.336**	.375**	1

**, Correlation is significant at the 0.01 level (2-tailed).

Discussion

The major finding of the present study is in agreement with studies¹⁷ that a large proportion of smallholder livestock farmers contribute in dairy production and more than sixty percent of female directly manage livestock related activities. In

agreement with Naz & Khan¹⁶ value of domestically used livestock product is high as compared to their sale. Livestock is not only an additional source of income for rural families but it also provides them with food security. Another finding of the present study corroborate with researches^{1,2,5} that livestock remains major source of livelihood for a substantial proportion of population with a greater share of small livestock farmers in rural areas and livestock serves as capital assets, source of livelihood and family welfare⁷. In agreement with L&DD Government of the Punjab⁸ nearly sixty percent females in rural area perform chores like milking, feeding animals, collecting/making dung cake and other husbandry works related to livestock management. This study indicated that most of animal husbandry related tasks are carried out by young females and their capacity building is needed to uplift their lives as well as national economy^{1, 6}. This study indicated that livestock extension education campaigns significantly contributed in capacity building of respondents in terms of their productive role relating to animal husbandry practices such as milking, feeding animals, and taking care of animals. One of the important finding of the present study was that more than ninety percent respondents were involved in taking care of animals and were able to identify sickness of animals. However, respondents' interest in participating livestock extension education program was significantly related with the availability of livestock at home. Overall, a large proportion of respondents were small livestock holders. In agreement with research⁵ the present study indicated that mostly youth participated in livestock management activities at household level. The present research suggests that awareness of young females about animal husbandry practices contributed in the learning of other family members.

CONCLUSION

Female in rural setting of Punjab are not encouraged to work outside their homes so they earn additional money to support their families through sale of livestock products. Children especially girls spend more time at home and are more involved in sharing responsibilities with their mothers related to livestock management chores. Their capacity building regarding husbandry practices can help produce skilled female entrepreneurs in livestock sector which can uplift of rural economy both at micro (family) and macro level (national) without compromising our cultural values.

The present study concludes that livestock education is important for rural youth and warrants incorporation of livestock education contents in the syllabi at elementary and secondary levels of education for capacity building of rural youth.

RECOMMENDATIONS

The findings of the present indicated that livestock extension education helped improve the skill of rural females enrolled at secondary level. Their learning enhanced livestock management skills, basic animal husbandry practices and also contributed to increase the awareness of other members of the family, particularly females. These findings underscore the need of launching short-term training programs across rural secondary schools of Pakistan. Such training program will not only enhance and build the capacity of females but will also empower them in terms of their strategic needs. This study recommends:

- Incorporation of some modules on basic animal husbandry practices in the syllabi of elementary and secondary educational levels;
- Introduction of optional or specialized courses on the subject at higher secondary level of education;
- Liaison of education and livestock and dairy department to initiate short-term training programs for capacity building and social entrepreneurship purposes;
- Policy should be framed to support young females who intend to start livestock farming or entrepreneurial activities in livestock sector;
- More researches should be carried out by the researchers to create evidence-based knowledge to help develop policy.

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