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An epidemiological analysis on prevalence of *Fasciola hepatica* among slaughtered sheep and goats

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Abstract

Liver fluke (*Fasciola hepatica*) are grey or brown, flat, leaf-shaped parasites that live in the bile ducts of sheep livers. Adult flukes are about 2cm long and 1cm wide. *Fasciola gigantica* is by far the predominant species of outstanding importance. This study has been carried out to explore the prevalence of *Fasciola hepatica* among slaughtered sheep and goats. In addition to this, the study was intended to investigate the impact of Fasciola hepatics on the anthropometric profile of sheep and goats. The study was carried in context of descriptive research. The total sample for the present study consists of 800 Sheep and goats. The uninfected were selected with the help of Random Sampling Technique (RST) and for gaining the descriptive analysis of the composite respondents, the sample was selected with the help of random sampling. The collected data was put to suitable statistical treatment by using descriptive as well as comparative statistics. The results of the study indicate that out of 400 sheep 110 (27.5%) were found infected and among 400 goats 90 (22.5%) were found infected, 200 (25%) were found infected. Thus, 25% respondents (sheep and goats) were found infected for liver fluke and 200 male sheep 59 (29.5%) were found infected for liver fluke whereas, 41 20.5% female sheep were found infected. In addition to this, the impact of liver fluke was reported significant on the weight and size of the respondents.

Keywords: *Fasciola hepatica*, slaughtered sheep, slaughtered goats

Introduction

Analysis

Fasciola hepatica, commonly known as the liver fluke, is a helminth parasite of mammals and a member of the Class Trematoda. It infects cattle, sheep, goat, horse, deer and humans as definitive hosts. The parasite has a worldwide distribution and is considered an important disease of domestic livestock, especially in temperate climatic zones. Fasciolosis has been estimated to account for annual losses of €90 million to the Irish livestock industry and 2.5 billion worldwide the pathogenic effect of this parasite is extended over a large number of domestic ruminants; cattle, sheep, goats and buffaloes are mostly affected and drain a substantial economic loss to the country annually. Infection with *Fasciola gigantica* is regarded as one of the most common single helminthic infection of ruminants in Asia and Africa. This disease causes enormous economic losses all over the world and these losses are due to reduction in milk and meat production, condemnation of liver, loss of draught power, reproductive failure and mortality. The overall prevalence of *Fasciola gigantica* in goats with gross and histopathological changes in the liver and also its relationship with age, sex and seasons has been described in this paper. So, for controlling the disease in this area, appropriate preventive control strategies have to be designed to reduce the impact of the disease on goat production in Kashmir. Production losses can be economically significant even in relatively light fluke infections as the fluke suck blood and affect sheep's ability to utilise feed on offer. In the abattoir, carcasses of affected animals are condemned if they show emaciation and oedema (watery accumulation in tissues of thin animals). Affected livers are condemned. The liver fluke parasites have a complex life cycle, subsequently, the disease is of paramount importance due to its broad distribution and definite hosts. It causes acute and chronic infections. In Kashmir valley, it has been observed that it occurs chiefly in cattle, sheep, goats, buffaloes and may affect man and other species (Bhat, *et al.* 2010). The parasites pass through different stages in sheep and goats before attaching themselves in the form of cysts to the ground vegetation. Thereon, it is taken up by the host during grazing.

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Large number of the research studies has been reported; however, multiple variations in the results have been reported. The notable research studies are; Bryman, A. (2001) [4], Denscombe, M. (1998) [5] Emiru B, Ahmed Y, Tigre W, Feyera T, Deressa B. (2013) [6] and Ferre I, Bursal CM, Manzanerat E, Rojo-Yazque FA, Buratovichr OF, Manteconr A.R. (1995) [7]. In context to same, the investigator considers it vital to explore the study which reads as:

Statement of the research problem: The statement of research problem is as under:

An epidemiological analysis on prevalence of *Fasciola hepatica* among slaughtered sheep and goats

Purpose: The objectives of the study are as under:

- 1) To explore the prevalence of *Fasciola hepatica* among slaughtered sheep and goats.
- 2) To explore the impact of *Fasciola hepatica* on the anthropometric profile of slaughtered sheep and goats.

Hypothesis: The present study consists of below mentioned hypothesis:

- 1) There seems the prevalence of *Fasciola hepatica* among slaughtered sheep and goats.
- 2) To exists the significant impact of *Fasciola hepatica* on the anthropometric profile of slaughtered sheep and goats.

Methodology: The methodology of the present study has been stated in the following heads-

- **Method of the study:** Keeping the nature of the study under consideration, the descriptive method will be used by the researcher for the present study.
- **Sample:** the total sample for the presents study consists of 800 slaughtered sheep and goats.
- **Method of inclusion and exclusion:** for determine the comparative analysis of sheep and goats on their anthropometric profile, 290 uninfected sheep and goats were selected for making comparative analysis and reaming sample was excluded through the method of inclusion and exclusion.
- **Sampling technique:** The required data of 800 respondents were selected with the help of purposive sampling technique.
- **Delimitations:** Present study has been delimited to only two type of parish's viz. Moniezia and Fasiolosis parasite. Besides, it has been delimited to Anantnag district of union territory of Jammu and Kashmir. Presents study has been delimited to two hoists only viz. sheep and goats.

Analysis and interpretation of the data: The data has been analysed with the help of descriptive and comparative analysis. The detailed analysis and interpretation is reported as under:

Table 1.1: Showing the prevalence of Liver fluke (*Fasciola*) among sheep and goats. (N=400 each)

Variable	Sheep		Goats	
	Frequency	Percentage	Frequency	Percentage
Liver Fluke Fasciolosis				
N= 400 Each	110	27.5	90	22.5

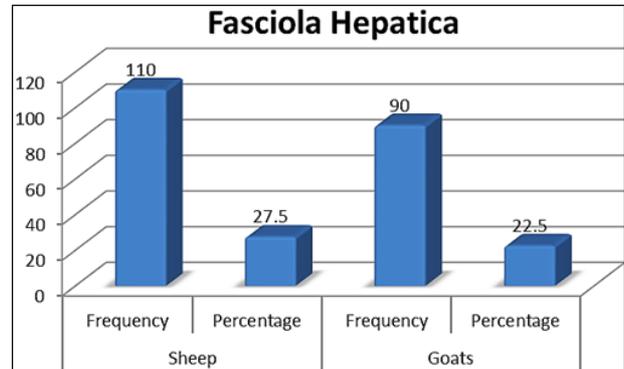


Fig 1.1: Showing the graphical representation on the basis of prevalence of liver fluke (*Fasciola*) among sheep and goats

Interpretation: The perusal of the table 1 (Please refer fig. 1) gives information about the frequency and percentage analysis of sheep and goats on liver fluke. The results indicate the 400 sheep and 400 goats were examined for the process of liver fluke. The obtained results indicate that out of 400 sheep 110 (27.5) were found infected. In pursuance to same among 400 goats 90 (22.5%) were found infected. The results reveal that sheep were found more prone towards liver fluke as compared to goats.

Table 1.2: Showing the impact of liver fluke among sheep and goats on their anthropometric profile. (N=200 each)

Variable	Uninfected		Infected		't' value
	Mean	SD	Mean	SD	
Liver fluke	21.64	2.39	20.36	3.06	4.65@@

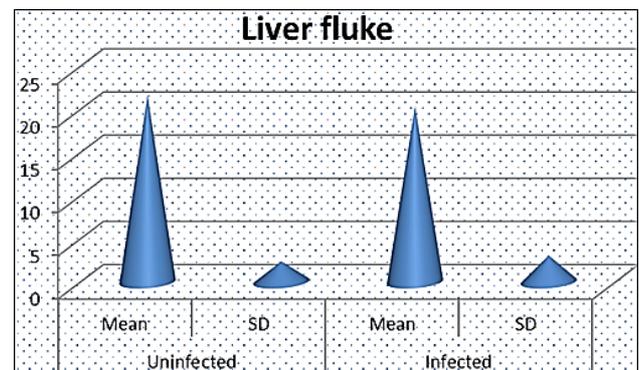


Fig 1.2: Showing the graphical representation impact of Moniezia among goats on their anthropometric profile. (N=200 each)

Interpretation: The results obtained in above reported table (Please refer table. 1.2 Fig. 1.2) gives the significant of mean difference between liver fluke infected and uninfected sheep and goats on their anthropometric profile. The results reveal that the mean score of uninfected sheep and goats was seen higher (M=21.64), than the mean score of liver fluke infected sheep and goats (M=20.36). Besides, when the both group of students were comparatively analysed with the help of independent 't' test, the 't' value came out be 4.65, which is significant at 0.01 level of significance. Thus, the perusal of the above reported results indicate that there exists significant difference between liver fluke infected and uninfected sheep and goats on their anthropometric profile. Non-infected goats and sheep were found high weight achievers as compared to their counterparts (liver fluke infected). Thus from the above discussion the status of the hypothesis is reported as under:

Hypothesis: There exists significant difference between liver fluke infected and uninfected sheep and goats on their anthropometric profile

.....Status: Accepted

Conclusion

The results of the study indicate that out of 400 sheep 110 (27.5%) were found infected and among 400 goats 90 (22.5%) were found infected, 200 (25%) were found infected. Thus, 25% respondents (sheep and goats) were found infected for liver fluke and 200 male sheep 59 (29.5%) were found infected for liver fluke whereas, 41 20.5% female sheep were found infected. In addition to this, the impact of liver fluke was reported significant on the weight and size of the respondents.

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