Study On Prevalence of Helminth Parasite of Small Ruminant at Pishin Balochistan

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Abstract
Helminthiasis is a significant issue in small ruminants, causing low productivity and financial losses. This study assessed the prevalence of helminth parasites in small ruminants in the Pishin district of Balochistan. A total of 400 fecal samples, 200 each from sheep and goats, were collected from each tehsil of Pishin and analyzed using direct, flotation, and sedimentation methods. The overall prevalence of helminths in small ruminants was 28.50%, with goats showing a slightly lower prevalence (26.50%) compared to sheep (30.50%). Prevalence varied among tehsils, with Barshore showing the highest (36.00%) and Saranan the lowest (21.00%). Infection rates were lower in males compared to females and varied by age, being highest in 1-2-year-old animals (46.2%). Haemonchus was the most prevalent helminth in both goats (64.15%) and sheep, followed by Trichostrongylus (22.65%) and Ostertagia (13.21%). Animals raised outdoors on free-range systems had a higher infection rate (35.20%) compared to those housed in cottages (30.40%) or cemented buildings (24.60%). Farmers primarily used Ivermectin (53.03%), Levamisole (28.40%), and Levamisole HCL (14.39%) for treatment, while a small percentage (4.16%) used the Neem plant. The study concludes that helminth infections are prevalent in small ruminants in Pishin, particularly in outdoor-reared animals. Effective management strategies, including proper housing and regular deworming with appropriate anthelmintics, are essential for controlling these infections and improving productivity in the region.

INTRODUCTION

Pakistan's economy is significantly reliant on livestock species like cattle, buffaloes, sheep, goats, and camels, which contribute 11.8% of the country's GDP (Khanet al., 2021). These animals produce milk, meat, animal fat, fibers, butter, hides, manure, and other goods for humans, boosting the economy. Livestock is a significant source of food and revenue for rural communities globally (Yitbarek., 2014). The agricultural industry is also significant due to its overall contribution. Livestock also plays a crucial role in poverty reduction initiatives. The latest Economic Survey of Pakistan (2019–20) reported 78.2 million sheep, producing 47.3 million metric tons of wool, 41 metric tons of milk, and 748 metric tons of meat annually (GOP, 2021).Baluchistan is Pakistan's largest province and is primarily reliant on livestock for milk and beef production (Dostain et al., 2021). With 2.3 million cattle and 3.19 million buffaloes, livestock contributed 5.9% of agriculture's value-added and 11.8% of the country's GDP (Pakistan Economic Survey 2013-14). However, raising livestock in Baluchistan faces challenges such as extreme dryness, a lack of range vegetation, and variations in disease incidence (Ashraf & Routray, 2013). These factors negatively impact animal production yields and contribute to the country's economic struggles (Rojas et al.,2017).Baluchistan faces challenges in raising livestock due to extreme dryness, lack of vegetation, and disease incidence Khan et al., (2020). They are impacting the income of smallholder dairy farmers.The worldwide cattle sector is seriously threatened by helminths, especially in underdeveloped countries (Rehman & Abidi, 2022). According to Strydom et al. (2023), these parasites particularly nematodes and trematodes cause poor weight growth, mortality, treatment expenses, morbidity, and inadequate feed utilization. Some parasites, such as intestinal

nematodes, which infect temperate small ruminants and have significant economic effects, pose a concern to the livestock business (Charlier et al., 2018). Moreover, helminth infections reduce the natural resistance of small ruminants to a variety of diseases. Helminths pose a severe risk to the global livestock industry as a result (Hamid et al., 2023).Bricarello et al., (2023) report that GI nematodes experience production losses as a result of reduced feed intake and utilization for growth, wool production, and reproduction. Small ruminant economic nematode species that belong to the Trichstrongyloidae family and order Strongylida include Haemonchus,Ostertagia, and Trichostrongylus (Tariq, 2015). There is substantial evidence of trematode and cestode prevalence, as well as major nematodes, in the ruminant population (Ntonifor et al., 2021).Sheep helminth infection is influenced by age, breed, kind of parasite, and epidemiological trends (Dafur et al., 2020). Nematode eggs grow best in conditions of optimal temperature, humidity, and rainfall; in these conditions, the number of infecting larvae grows rapidly (Heckler & Borges, 2016). Important nematode species found in ruminant populations in tropical countries include Haemonchus, Trichostrongylus axei, Trichostrongylus colubriformis, Cooperia, Bunostomum, Gaigeria, and Oesophagostomum (Tariq, 2015).Researchers from all across the world have discovered common helminth worms in sheep, including Bunostomum trigonocephlum, Chabertiaovina, Cooperia cuticei, Gaigeriapachyscelis, Gongylonem apulchrum, Haemonchus contortus, Nematodirus filicollis, Nematodirus oiratianus, Oesphagostomum columbianum, Oestertagia circumcincta, Oestertagi, Strongyloides papillosus, Trichostrongylus axei, Trichostrongylus colubriformis, Trichostrongylus probolorus, Trichuris globulosa and Trichostrongylus ovis (Tariq et al., 2017). There have been reports of up to 78% of Pakistan's small ruminant helminth prevalence (Shah et al., 2022). The egg per gram (EPG) excrement is crucial for animal care and productivity. It helps herders decide whether or not to drench their sheep. (Mpofu et al., 2023).Debeffe et al., (2016) worked on the enteraction among the mean EPG and worms buredens. This is just because of parasites makes just small groups among populations of hostas. The larger sample sizes are important to detect the parasite presence, and load of worms is important technique toquantify the GIT neamtodes. (Zug & Hammerstein, 2012). While Mohammad et al. (2016) describes that there was positive relation among parasite burden and EPG. Human health and while animal welfare, termadodes and nematodes both helminths cause diseases , mortality also costs managemental and medical expendatures (Abubakar et al., 2022) explains the small ruminants which are closed to helminths parasites may anorexia, poor weight gain, decrease fertility while in serious cases, mortility occurs.Several helminth parasites are common in small ruminants throughout most of Pakistan, however their frequency has not been investigated.

MATERIALS AND METHODS

Study area

This cross-sectional study was conducted to record the prevalence and control practices of helminths in small ruminants in four tehsils (Karazat, Huramzai, Saranan, and Barshor) in the district Pishin of province Balochistan, Pakistan.

Figure 1 Map of province Balochistan Pakistan

Sampling

A total of 400 fecal samples were collected randomly from the rectum of goats and sheep using disposable gloves in four tehsils of Pishin district: Karezat, Huramzai, Saranan, and Barshore. Each sample was preserved in 10% formalin in airtight containers and transported to the Department of Veterinary Parasitology, Faculty of Animal Husbandry and Veterinary Sciences, Sindh Agriculture University Tandojam, for further investigation.

Table I Tehsil-wise distribution of sampling of sheep and goats in district Pishin

Specie	Sex	Karazat	Huramzai	Saranan	Barshor
Goat	Male	25	25	25	25
	Female	25	25	25	25
Sheep	Male	25	25	25	25
	Female	25	25	25	25

Coprological Examination
All fecal samples were analyzed for helminth eggs using standard techniques (Urquhart et al., 1988). Microphotographs of positive samples were taken for identification purposes.

Microscopic Diagnosis
The fecal samples were examined using three qualitative methods:

Direct Smear Method:
A small amount of feces was mixed with water on a microscopic slide to create a homogeneous mixture. A cover slip was placed over the mixture, and after a brief settling period, the slide was examined under a low-power microscope (10x) for helminth eggs.

Floatation Method:
Approximately 2.0 g of feces were mixed with 10 ml of flotation solution (NaCl) to form a homogeneous suspension. The mixture was strained into a test tube, filled to the brim with more flotation solution, and covered with a cover slip. After 10-15 minutes, the cover slip was placed on a slide and examined under a microscope.

Sedimentation Method:
About 1.0 g of feces was emulsified in 10-12 ml of saline, filtered, and centrifuged at 2000 rpm for 2-3 minutes. This process was repeated twice, with the supernatant discarded. The sediment was mixed with 7 ml of 10% formalin and 2-3 ml of ether, then centrifuged for 5 minutes at 2000 rpm. The supernatant was removed, and the remaining sediment was diluted with formalin and examined under a microscope.

Quantitative Examination
The McMaster slide method was used to determine eggs per gram (EPG) of feces for quantitative analysis (Soulsby et al., 1982; Zafar et al., 2006).

McMaster Technique Procedure:
A mixture of 4.0 g feces and 56 ml saturated salt solution was strained, and a sample was taken with a pipette to fill both chambers of a McMaster slide. After waiting for 30 seconds, the eggs in both chambers were counted under a microscope. The average number of eggs was multiplied by 100 to calculate EPG.

Identification of Eggs
Eggs were identified based on keys described by Soulsby et al. (1982) and Zafar et al. (2006).

STATISTICAL ANALYSIS
Data were analyzed using Chi-square analysis with GraphPad Prism (GraphPad Software Incorporated, 2000).

RESULTS
The overall prevalence of helminth parasitein small ruminants was noted as 28.50% in district Pishin followed by 26.50% in goats, and 30.50% in sheep. Respectively (Table II). Statistical proportion of overall prevalence was Non-significantat $p>0.05$ level (ChiSq = 0.561, dF=1, and P value =0.4537).

Table II.. The overall prevalence percentage of helminth parasite of small ruminants in district Pishin, Balochistan.

S.No.	Small Ruminants	No. Animal Examine	No. of Animal Infected	Prevalence Percentage
1	Goat	200	53	26.50
2	Sheep	200	61	30.50
Total		400	114	28.50

Chi Sq.= 0.561, dF=1 and P Value=0.4537.Non-Significant at P>0.05 Level.
The overall area-wise, prevalence was observed in Barshore (36.00%) followed by 30.00%, 27.00%, and 21.00% in Huramzai, Karezat, and Saranan, respectively (Table III). The statistical proportion of the overall prevalence of helminth infection in tehsils was Non-significant at P>0.05 level (Chi Sq. =4.205, dF=3 and P Value=0.2503) (Appendix-2)

Table III. The overall area-wise prevalence percentage of helminth parasite of small ruminants in the district of Pishin Balochistan.

S.No.	Tehsil	Sample examined	Sample infected	Prevalence Percentage
1	Barshore	100	36	36
2	Huramzai	100	30	30
3	Karezat	100	27	27
4	Saranan	100	21	21
Total		400	114	28.5

Chi Sq.= 4.205, dF=3 and P Value=0.2503. Non-Significant at P>0.05 Level.

Tehsil-wise prevalence of helminth parasite in goats is high in Barshore (32.00%) followed by 26.00%, 24.00%, and 24.00% in Huramzai, Karezat, and Saranan, respectively (Table IV). The prevalence of helminth infections in tehsils was not Statistically Non-significant (Chi-square = 0.811, dF=3, and P Value=0.084) at the P>0.05 level. (Appendix-3)

Table IV. Tehsil-wise prevalence of helminth parasite of goat at district Pishin Balochistan.

S.No.	Tehsil	Sample examined	Sample infected	Prevalence Percentage
1	Barshore	50	16	32
2	Huramzai	50	13	26
3	Karezat	50	12	24
4	Saranan	50	12	24
Total		200	53	26.5

Chi Sq. =0.811, dF=3 and P Value=0. 084.Non-Significant at P>0.05 Level.

Tehsil-wise prevalence of helminth parasite in sheep is high in Barshore (40.00%), followed by 34.00%, 30.00%, and 18.00% in Huramzai, Karezat, and Saranan, respectively (Table V). The prevalence of helminth infections in tehsils was not statistically non-significant (Chi Sq.= 4.246, dF=3 and P Value=0.2361). At the P>0.05 level. (Appendix-4)

Table V. Tehsil-wise prevalence of helminth parasite of Sheep in district Pishin Balochistan.

S.No.	Tehsil	Sample examined	Sample infected	Prevalence Percentage
1	Barshore	50	20	40.0
2	Huramzai	50	17	34.0
3	Karezat	50	15	30.0
4	Saranan	50	9	18.0
Total		200	61	30.5

Chi Sq.= 4.246, dF=3 and P Value=0. 2361.Non-Significant at P>0.05 Level.

Infection with helminth parasites in male and female goats and sheep was generally less common in males (22.0%) and more prevalent in females (35.0%), respectively (Table VI). The percentage of goats and sheep with helminth parasite infections was significant (Chi Sq.= 5.930, dF=1, and P Value=0.0149) at the P>0.05 level (Appendix-5)

Table VI. The overall gender-wise prevalence of helminth parasite infection in small ruminants in district Pishin Balochistan.

S.No.	Gender	Sample examined	Sample infected	Prevalence Percentage
1	Male	200	44	22.0
2	Female	200	70	35.0
Total		400	114	28.5

Chi Sq.= 5.930, dF=1 and P Value=0.0149. Significant at P<0.05 Level.

Comparing male and female goats, we find that males had a lower (20.00) as compared to female (30.00) prevalence of helminth parasite infection. (Table VII). The percentage of goats with helminth parasite infections was non-significant (Chi Sq. = 3.189, dF=1, and P Value=0.0741), At the P>0.05 level, (Appendix 6).

Table VII. Gender-wise prevalence of helminth parasite infection in goats indistrict Pishin Balochistan.

S. No	Sex	Examined animals	Infected animals	Prevalence Percentage
1	Male	100	20	20.0
2	Female	100	33	30.0
Total		200	**53**	26.5

Chi Sq.=3.189, dF=1 and P Value=0. 0741.Non-significant at P>0.05 Level.

The gender-wise helminth parasite infection in both sexes of sheep was recorded as low in males (24.00%) as compared to females (37.00%) respectively (Table VIII). The proportion of sheep infected with helminth parasites according to gender was non significant. Chi squared = 2.770, dF = 1, and P value = 0.0960. At the P>0.05 level, (Appendix 7).

Table VIII. Gender-wise prevalence of helminth parasite infection in sheep in district Pishin Balochistan.

S. No	Sex	Animal examined	Infected animals	Prevalence
1	Male	100	24	24.0
2	Female	100	37	37.0
Total	200		**61**	30.5

Chi Sq.=2.770, dF=1 and P Value=0. 0960.Non-Significant at P>0.05 Level.

The overall age-wise prevalence of helminthiasis in 1-2 years was high (46.2%) as low (20.0%) in above 2 years. While in 1-12 months prevalence was (27.6%) (Table IX). Chi Sq.= 12.690, dF=2, and P Value=0.0018 indicate the percentage of age-specific Helminth parasite infection. Significant at a P-value of <0.05. (Appendix-8)

Table IX. Overall Age-wise prevalence of helminth parasite infection in district Pishin Balochistan.

S.No.	Age	Sample examined	Sample infected	Prevalence Percentage
1	1-12Months	170	47	27.6
2	1-2 years	80	37	46.2
3	>2 years	150	30	20.0
Total		400	**114**	28.5

Chi Sq.=12.690, dF=2 and P Value=0.0018. Significant at P<0.05 Level.

The age-wise prevalence of helminthiasis in 1-2 years goat was high (46.5%) as low (15.2%) in above 2 years goat. While in 1-12 months goat prevalence was goats (25.8%) (Table X). Age-related helminth parasite infection rates in goats were not statistically significant at the P>0.05 level. Chi-squared is 9.662, dF is 2, and P=0. 0018. Significant at a P-value of< 0.05 (Appendix 9).

Table X. Age-wise prevalence of helminth parasite infection in goats in district Pishin Balochistan.

S. No	Age	Animal examined	Animals' infection	Prevalence
1	1-12 months	85	22	25.8
2	1-2 years	43	20	46.5
3	Above 2 years	72	11	15.2
Total		200	**53**	26.5

Chi Sq.=9.662, dF=2 and P Value=0.0018. Significant at P<0.05 Level.

Infection with helminthic parasites was more common in sheep between the ages of 1-2 years (34.5%) and 1-12 months (25.0%) than it was in sheep older than 2 years (32.4%) (Table XI). Chi Sq.= 1.068, dF=2, and P Value= 0.5862 indicate the percentage of age-wise helminthic parasite infection in sheep. Non-Significant at a P-value of >0.05 (Appendix 10)

Table XI. Age-wise prevalence of helminth parasite infection in Sheep in district Pishin Balochistan.

S. No	Age	Animal examined	Animal infection	Prevalence
1	1-12 months	68	17	25.0
2	1-2 years	55	19	34.5
3	Above 2 years	77	25	32.4
Total		200	**61**	30.5

Chi Sq.=1.068, dF=2 and P Value=0. 5862.Non-Significant at P>0.05 Level.

During the present study, different types of helminth parasite were found ingoats at the research region. The three types of helminths with the highest frequencies were Haemonchus (64.15%), Trichostrongylus (22.65%), and Ostertagia (13.21%).as shown in (Tble XII).

Table XII. Different types of helminth parasites in goat.

S. No	Types of helminths	Goat	
		Animals infected	Frequency
1	Haemonchus	34	64.15
2	Trichostrongylus	12	22.65
3	Ostertagia	7	13.21
Total		**53**	100

Different types of helminths were found in sheep during the present study. The highest frequency percentages were determined as Haemochus (64.15%), Trichostrongylus (22.65%), and Ostertagiacir(13.21%).as shown in (Table XIII).

Table XIII. Different types of helminths parasites in sheep.

S. No	Types of helminths	Sheep	
		Animals infected	Frequency
1	Haemonchus	38	62.31
2	Trichostrongylus	15	24.59
3	Ostertagia	8	13.12
Total		**61**	100

The burden of gastrointestinal helminth in sheep were catogarized as high infection burden (>1500 EPG), a medium burden (500-1000 EPG), and a low burden (<500 EPG). The infection burden was recordes as 60.71%,25.00%, and 14.28% high, medium and low infected sheep, respectively. The frequency pattern indicates that the sheep population is more prevalent in the medium-load areas. as showb in (Table XIV)

Table XIV. Severity/burden of disease of helminth parasite in sheep.

S. No	Severity/burden of disease	Sheep	
		Animals infected	Frequency
1	High (>1500 EPG)	38	62.31
2	Medium (500-1000 EPG)	15	24.59
3	Low (<500 EPG)	8	13.12
Total		**61**	100

A high infection load was detected in goats (>1500 EPG), a medium infection burden (500-1000 EPG), and a low infection burden (<500 EPG) in 35.85%, 54.72%, and 9.45% of infected goats, respectively. The frequency pattern reveals that the goat population is more prevalent in the medium-load areas. as shown in (Table XV).

Table XV. Severity/burden of disease of helminth parasite in goat.

S. No	Severity/burden of disease	Goat	
		Animals infected	Frequency
1	High (>1500 EPG)	19	35.85
2	Medium (500-1000 EPG)	29	54.72
3	Low (<500 EPG)	5	9.45
Total		**53**	100

The risk of helminthic parasite infection in sheep and goats was found to be significantly higher (35.2%) in those animals that were raised outdoors, followed by 30.4% and 24.6% in cottage/chhpra and cemented structures, respectively (Table XVI), although they were not statistically significant (P>0.05). (Chi =squared is 3.168, dF is 2, and P is 0. 2051). Non-Significant at a P-value of< 0.05 (Appendix 15)

Table XVI. Effect of animal housing on the prevalence of helminth parasite infection in sheep and goats at Pishin balochistan.

S. No	Animal housing	Sheep, goats		
		Animals examined	Animal infected	Prevalence
1	Open	235	58	24.6
2	Cottage	119	42	35.2
3	Cemented	46	14	30.4
Total		400	**114**	28.5

Chi Sq.=3.168, dF=2 and P Value=0. 2051.Non-Significant at P<0.05 Level.

According to the data collected from the owners of small ruminants, they treat their sheep and goats for helminths using a variety of sources. Ivermectin (140/264; 53.03%), Nilzan Plus (75/264; 28.40%), and Nil Verm (38/264; 14.39%) were used by the majority of owners, whereas the Neem plant (11/264; 4.16%) was utilized by just a small number. as shown in (Table XVII).

Table XVII. Frequency percentage of different types of medication of Helminth parasite infection in small ruminants at Pishin, Balochistan.

S No	Medication	No. of respondents/ owners	Route of administration	Frequency %
1	Ivermectin	140	SC	53.03
2	Nilzan plus	75	Orally	28.40
3	Nilverm	38	Orally	14.39
4	Neem plant	11	Orally	4.16
Total		**264**		**100**

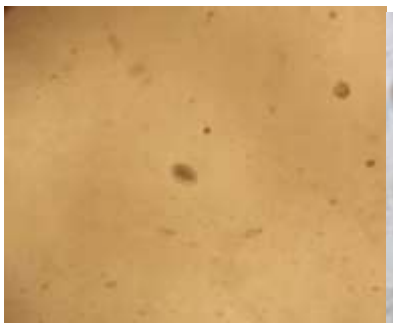
Figure I Haemonchus


Figure II Trichostrongylus

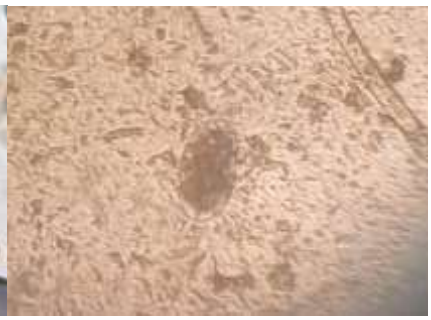
Figure III Ostertagia

DISCUSSION

This study was carried out in the Pishin district of Balochistan to determine the prevalence of parasites in small ruminants (sheep and goats). It was found that 28.50% of small ruminants had an over all parasitic infection. Sheep had a higher infection rate of 30.50% compared to goat, which had a 26.5% rate. According to the results, Sheep were more likely than goats to become infected. Sheep and goats had a non-significantly different prevalence at the P=>0.05 level. It means helminths can be harmful to both kinds of animals. This study found no relationship between the location and prevalence of small ruminants due to the highly similar agroecologies of the research areas and the generally similar management practices used by farming communities. The results of this investigation are in line with earlier research that discovered high prevalence rates of 30.5% and 26.5% in sheep and goats, respectively. Mpofu et al., (2020) suggested that sheep exhibit a significantly stronger immune response against helminth parasites compared to goats. In tehsil Barshore (32.00%), the rate of infection in goats was higher than in tehsil Huramzai (26.00%), Karezat (24.00%), and Saranan (24.00%). Infection rates among sheep were likewise higher in the tehsil Barshore (20.00%). In Saranan, the incidence of infection was low in both kinds of tiny ruminates. This could be because the city has more veterinary clinics and veterinarians than other Tehsils, in addition to being the district's administrative hub. Barshorehad the highest infection prevalence, possibly because it is different from other Tehsils due to its distinct habitat and lack of veterinary services, having no awareness of extension education, and the main factorisit's a border area majority of the people having small ruminants are nomads migrating seasonally from one country to other.In goats between the ages of one and two years, the age-specific infection rates were found to be 25.8%, 46.5%, and 15.2%, respectively. The findings of this study showed a non-significant difference in the prevalence of infection among the various ages of the animals, in contrast to what Aliyu et al., (2020) reported, which showed a significant difference between the ages of the animals but a non-significant difference between the sex and season of the breeds.For sheep between the ages of one and two years, the prevalence percentages were found to be 25.0%, 34.5, and 32.5%. The results of this investigation deviate from those of Haddawee et al. (2018), who found that the age of the animals had no significant effect on the prevalence of infection. According to their report, the incidence of infection in sheep and goats' male and female counterparts varied from 24.0% to 37.00% and 20.0% to 30.0%, respectively, It is different from the findings of the Iranian province of Mazandaran, but similar to Sokoto, Nigeria, and within Ethiopia. Infected sheep had an annual infection rate between 25.8% and 46.5%, which is comparable to both Burkina Faso and the center of Ethiopia.

The infection rate for goats under a year old was 25.0–34.5 percent, which was consistent but different from Ethiopia and Egypt. For goats over a year old, the infection rate was 25.8%–50 percent, according to Khan et al., (2015), which was consistent but not the same as Ethiopia or Iraq. Gofwan et al., (2021) discovered a higher rate of infection in children between the ages of two and three. The study found that the frequency of helminth parasites was higher in older animals compared to young and adult animals, albeit the difference was statistically insignificant. The present study's results are in line with those of Garedaghi et al. (2013), who found that Helminth parasite infection was more common in older animals. These findings contradict the empirically supported hypothesis, supported by additional research (Gamble & Zajac 1992), that older animals may become immune to Helminth parasites. In a similar vein, several authors have demonstrated that young individuals are more likely than older people to encounter it (Raza et al., 2007).The infection rate in male goats was 20.00%, while the infection rate in female goats was 30.00%. Research by Dagnechew et al. (2011) supports the finding that there is no statistically significant correlation between the incidence of helminth parasites and sex. But it doesn't line up with other results, like those of (Maqsood et al., (1996). Sex is thought to be a significant factor influencing the occurrence of parasitism during pregnancy and the postpartum period because of stress and lowered immune function. who found that there was a significant difference between the sexes and that female mice had more infections than male mice (Urquhart et al., 1996).The infection rates in sheep, both male and female, were found to be 22.0% and 35.0%, respectively. Furthermore, it was noted by Babják et al. (2017) that helminth infection was more common in female animals. Helminth parasites were common in both species of all ruminants that were recruited from different locations, even though the current investigation did not find a statistically significant correlation (P>0.05) between prevalence and locations. The most common parasite in small ruminants in the current study was Haemonchus. The prevalence percentages of Haemonchusin sheep and goats were 13.12%, 62.31%, 24.59%, 64.15%, 22.65%, and 13.21%, respectively. Trichostrongylus was found in 62.31% of sheep and Gorgons. Many researchers have reported that most helminth species, such as, Bnostomum trigonocephalum, Chabertia, Haemonchus contortus, Oesophagostomum

columbianum, Strongyloides papillosus, Trichostrongylus colubriformis, Fasciola hepatica, and Paramphistomum, are present in sheep and goats (Mursyidah et al., 2017).The anthelminthic medication most frequently reported was ivermectin, a well-known and affordable alternative to the pricy nilverm. Interviews in the current study scored lowest for nilverm. A strong antiphrastic, ivermectin is administered as an injection and is effective against both ecto and endo helminths, based on user reports.

CONCLUSIONS

The overall prevalence of helminth parasite was 28.50% in sheep and goats.The highest rate of infection, (30.00%) and (26.50%) was recorded in sheep and goats respectively.Age group of 1-2 years animals are more infected as compared to young ones and more than 2 years. Females were more susceptible to GIT helminth parasite infection than their males.Animals living in open spaces were more infected with the helminth parasite than those housed in the cemented construction area, but the proportion of infection was non-significant.Only a few owners recognize the effect of the helminth parasite causing ill health problems.

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Statement of conflict of interest

The mentioned authors have declared no conflict of interest

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