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Investigating The Rate of Human-Born Zoonotic Diseases

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Abstract

A zoonosis is a contagious disease that can spread from animals to people involuntarily. Zoonoses are the causative agents of around 60% of all human illnesses. This contains a wide range of infectious microorganisms, including fungus, parasites, viruses, protozoa, and bacteria. Numerous factors, including urbanization, tourism, human variables, animal mobility, vector biology and natural factors, climate change, trade, and travel and tourism, are significantly impacting the spread, emergence, reemergence, and patterns of zoonoses. Zoonotic diseases are on the rise; this article explores the reasons for this, the factors that contribute to their transmission, and potential solutions. According to statistics from the main medical office in Bhopal, there are seven blocks: Huzur, Berasia, Phanda Rural, Phanda Urban, Raisen, Sehore, and others. Many people and animals lose their lives to zoonotic illnesses every year. These include brucellosis, rabies, anthrax, and TB. There has been a lot of death and illness due to zoonotic illnesses in the Bhopal Chambal region. In these regions, people have reported illnesses such as rabies, dengue, chikungunya, swine flu, and bird flu; however, the majority of these people do not know what causes these diseases or how to cure them.

Keywords: Human, zoonotic diseases, animal and illnesses

Introduction

The term "zoonotic disease" will be used throughout this study to refer to any illness that may be passed from one species of animal to another, is present in animals naturally, and is not suited to being transferred from humans. When a zoonosis is "newly recognized or newly evolved, or that has occurred previously but shows an increase in incidence or expansion in geographical, host or vector range," according to the World Health Organization, we say that it is developing. One factor that affects the spread and prevalence of zoonotic illnesses is how sensitive they are to changes in the climate. Pathogens, hosts, vectors, or ecological factors-or oftentimes a mix of these-are the driving forces behind the development and dissemination of zoonotic illnesses. Developing nations are the focus of this article's literature review on the topic of zoonotic disease transmission and the effects of climate change, humans, and other natural and anthropogenic variables. Because of the increased interplay between humans, animals, and the environment in our increasingly globalized world, zoonotic diseases, both new and old, have emerged as a major public health issue in recent years. Public health, economy, and ecosystems are all greatly endangered by zoonotic infections, which are passed from animals to people.

More than 60% of infectious illnesses and 75% of new infectious diseases are thought to be zoonotic, according to the World Health Organization (WHO). The dynamics of zoonotic disease transmission have changed due to urbanization, deforestation, climate change, and the industrialization of industrial animal husbandry. This has created significant problems for health systems across the world. A combination of factors, including alterations in animal husbandry practices, changes in climatic conditions, and human expansion into wildlife areas, has led to an upsurge in zoonotic infections. One area where the danger of pathogen spillover has grown is in urban areas, where people are more likely to come into touch with wild animals. The rapid worldwide spread of infectious illnesses is a stark reminder of the dangers posed by zoonotic diseases, as the COVID-19 pandemic demonstrated. The significance of comprehending the transmission dynamics and controlling zoonotic viruses has been brought to light by other illnesses including avian flu, Zika, Ebola, and Zika.

There is a wide range in the severity, transmission

pathways, and effects on human health of zoonotic illnesses produced by various microorganisms such as bacteria, viruses, parasites, and fungi. Some, like rabies, are easily recognized, while others, like new coronaviruses or the Nipah virus, are still in their early stages and can cause havoc with little warning. A major worry is the potential for zoonotic illnesses to become epidemics or even pandemics if human contact with wildlife grows and urban development persists. Improving monitoring, early identification, and focused preventive efforts are all necessary responses to the alarming increase in zoonotic illnesses. Human actions, animal well-being, and environmental variables all interact in intricate ways, and this reality demands prevention techniques that take this into account. A "One Health" strategy, which acknowledges the interdependence of human, animal, and environmental health, is necessary to control the development of zoonotic diseases. Policy frameworks and public health initiatives that educate the public about the dangers of zoonotic diseases and encourage actions that lessen interaction between humans and animals are also critically needed. To reduce the risk of these illnesses, it is essential to implement evidence-based preventative measures, such as regulating wildlife trafficking, improving food safety procedures, and strengthening public health infrastructure.

Zoonotic illnesses are becoming more of a problem, and this article takes a look at why that is, what causes them to spread, and how to stop them. The social cost of zoonotic illnesses can be reduced by the identification of transmission factors and the implementation of collaborative initiatives across the fields of animal, human, and environmental health. This concept paper lays the groundwork for a future discussion on the importance of zoonotic diseases and climate change in relation to public health in the US by outlining the key points of this topic. Unprecedented changes in ecosystems, increased temperatures, and new weather patterns have all resulted from human-caused climate change. The transmission of zoonotic diseases-infectious illnesses that may spread from animals to humans-is profoundly affected by these environmental changes. The severe effects of zoonotic infections on human health, biodiversity, and economic stability make them a major public health problem on a worldwide scale. In this first section, we see how the connections between zoonotic disease emergence, transmission, and dissemination and climate change are being more acknowledged.

Literature Review

Hassell, James *et al*. (2016) [1] The epidemiology of infectious diseases can be significantly affected by the fast development of agriculture, socioeconomic change, and ecological fragmentation that are hallmarks of urbanization. Anthropogenic stresses can cause different wildlife-livestock-human interactions in urban settings; thus, we take a look at the epidemiology and causes of new wildlife-borne zoonoses in this context. We contend that these interfaces are key entry points for diseases to enter new host populations and for cross-species transmission to occur; consequently, it is important to understand their structure and function in order to find treatments that might reduce the likelihood of disease onset. In order to do this, it is necessary to see interfaces as intricate multiport communities shaped by biological and anthropogenic forces.

Mackenstedt, Ute *et al*. (2015) [2]. Natural and rural landscapes have undergone tremendous transformations as a result of urbanization in several nations throughout the past century. A loss of biodiversity is often attributed to urbanization in regions where development has taken place, as many animal species are incapable of adjusting to these changes in their natural habitat. But, owing to the abundance of food and sheltering buildings, several wild animal species are drawn to peri-urban and urban settings. Foxes and raccoons, which are more abundant in urban and peri-urban parts of Europe, can achieve much larger numbers than they do in their native environments. Foxes and dingoes face the same fate in several Australian cities. Tragically, a few of these incredibly versatile species also serve as hosts for certain parasites that are significant to both public health and veterinary medicine. The relationships between people, domestic animals, and wild animals are not completely known since parasite life cycles involve several host species, which is complicated. You can't use data from rural regions to predict who may be a host for a zoonotic illness in urban or peri-urban settings.

Esposito, Michelle *et al*. (2023) [3]. The number of encounters between humans and other animals has grown substantially due to human activities including altering natural habitats and creating zoos and other tourist attractions featuring animals. An illness known as a zoonose-meaning "originating in animals"-is more likely to spread from person to person because of the rise in human-animal interaction. In this article, we will discuss the history of zoonoses and their impact on human health, as well as the significance of this field of research in the fight against zoonotic illnesses. Deforestation, urbanization, tourism, wildlife exploitation, and climate change are only a few of the human-caused activities that are spreading throughout the world and having serious implications for animal migration patterns and human-animal interactions. Because of these occurrences, particularly climate change, the arthropod vectors that accompany these animals may also be impacted. Human exposure to zoonotic diseases that animals may carry changes in response to shifts in animal behavior and human contacts, as shown by the COVID-19 pandemic and other major outbreaks over the years. It is crucial to investigate how human actions affect the spread and frequency of these infectious agents, as zoonotic infections account for around 75% of all new infectious illnesses and 60% of emerging human pathogens.

Bibi, Tahira. (2022) [4]. The transmission of zoonotic illnesses from animals to people poses significant threats to human health, animal welfare, and the world economy. Yet, zoonotic epidemics, such as COVID-19, are showing signs of increasing frequency and severity. To better understand what causes zoonotic illnesses and how they spread, this chapter delves into the interconnected web of human, animal, and environmental health. In addition to that, these also encompass the following: intensification of agriculture, habitat loss, climate change, and globalization. Additionally, this chapter covers a broad range of zoonotic diseases, including bacterial, viral, parasitic, and fungal infections, as well as their consequences for agriculture, human populations, and animal health. Additionally, the importance

of the One Health idea is emphasized as a crucial basis for reducing the dangers of zoonotic diseases. Disease surveillance, diagnosis, and management are all made easier when the human and animal health sectors are able to communicate with one another. Preventing and managing zoonotic epidemics requires early diagnosis, prompt response, and clear communication, as highlighted in the chapter. In conclusion, adopting a One Health approach and understanding the many origins of zoonotic diseases are critical to protecting public health and securing a sustainable future. The transmission of zoonotic illnesses from animals to people poses significant threats to human health, animal welfare, and the world economy. Yet, zoonotic epidemics, such as COVID-19, are showing signs of increasing frequency and severity. To better understand what causes zoonotic illnesses and how they spread, this chapter delves into the interconnected web of human, animal, and environmental health. In addition to that, these also encompass the following: intensification of agriculture, habitat loss, climate change, and globalization.

Bedenham, G. *et al*. (2022) [5]. This document is a continuation of the previous one, which was a position paper on "The Importance of Biodiversity Risks" that was put out by the Sustainability Board's volunteer group, the Biodiversity and Natural Capital Working Group. In order to get the actuarial community talking about how this should be a big deal for managing risks, this research investigates the connection between zoonotic diseases and biodiversity loss. The emergence of zoonotic illnesses, their connections to biodiversity loss, future consequences, and financial sector advancement are the main topics of this article. Included in a compilation of papers addressing various aspects of biodiversity risk concerns, this one was created by volunteers working under the auspices of the Sustainability Board.

Research Methodology

At study locations, which included 27 villages distributed across three districts, the present investigation was conducted in the Bhopal region of Central Madhya Pradesh in 2015–16 and 2016–17.

According to statistics from the main medical office in Bhopal, there are seven blocks such as Huzur, Berasia, Phanda Rural, Phanda Urban, Raisen, Sehore, and others. The first half of July through the end of August sees long, heavy rains, while the months of November through January see shorter, lighter downpours. The annual rainfall average is 1100 mm. Located at 23°12' N and 77°05' E, Sehore is around 45 km north-west of Bhopal.

The district of Raisen is comprised of eight blocks: Raisen, Sihora, Udaipura, Badi, Gairatganj, Silwani, Begamganj, and Bareli. The total population of the district is 1,331,597, with 898 males for every 1000 females. The average total literacy rate is 70.62%. The Bhopal region, which is home to 27 villages spread over three districts, was determined to be the focus of the comprehensive investigation.

Data Analysis

The well-being of both animals and humans is interdependent. While humans rely on animals for sustenance, economic growth, and companionship, numerous diseases may be transmitted from animals to humans, particularly those related to cattle. Many people and animals lose their lives to zoonotic illnesses every year. These include brucellosis, rabies, anthrax, and TB. The Bhopal region of central Madhya Pradesh was the subject of a cross-sectional research and participatory rural evaluation that examined zoonotic disease awareness, knowledge, and prevalence in 2015–16 and 2016–17.

Focus groups were utilized in agro-pastoral and small dairy homes for participatory rural assessment, whereas randomized household questionnaires targeting important zoonotic illnesses were employed in cross-sectional studies. Twelve villages were chosen from the Bhopal district, eight from the Sehore district, and seven from the Raisen district, for a total of twenty-seven (Table 1).

On average, each hamlet has an elevation of 1239.37±777.03 meters, with a population ranging from 182 in Khera to 2964 in Bijoli. Chakhari has a literacy rate of 30%, Nahtoli 86%, and an average of 64.56±12.69%. Female population per village was 540.51±362.68, while male population was 765.51±490.10.

Table 1: General Profile of Study Villages (n=27)

Location	Village name	Elevation (m)	Male population	Female population	Literacy rate (%)	Total
Bhopal	Badagaon	197	1486	1190	65	2676
	Bandholi	103	1055	876	62	1931
	Chhikari	197	377	254	30	631
	Hastanapur	213	1226	1030	63	2256
	Bamor	197	193	157	60	350
	Pawata	197	156	97	65	253
	Rairu	197	959	773	63	1732
	Ramaua	197	537	446	47	983
	Shankrupur	197	225	199	67	424
	Sigora	213	1187	1037	70	2224
	Sitholia	197	564	320	64	884
	Bijoli	213	1626	1338	63	2964
Sehore	Sikroda	176	356	132	56	488
	Sunawali	500	672	583	72	1255
	Khera	177	113	69	84	182
	Aroli	175	1096	852	57	1948
	Barhana	177	452	348	61	800
	Gadora	178	986	703	59	1689
	Husainpur	176	942	715	51	1657
	Kheda Mangarh	190	721	623	58	1344
Raisen	Baghedi	152	789	561	57	1350
	Rayatpora	151	560	441	69	1001
	Amratpura	165	200	170	93	370
	Baghpura	154	2111	51	65	362
	Barohi	157	993	819	84	1812
	Mahewa	158	655	503	72	1158
	Nahtoli	153	432	307	86	739
Overall Mean± SD			765.51±490.10	540.51±362.68	64.56±12.69	1239.37±777.03

The spread of zoonotic illnesses in the Bhopal region is heavily influenced by household characteristics. Agriculture, the location of the water supply (inside or outside), the building material (concrete, mud brick, dirt, or earthen), and the household's kind of housing are all characteristics (Plate 2). features of the homes that participated in the study's surveys at the locations where it was conducted (Table 2) On average, there were

145.667±28.537 dwellings made of concrete, accounting for 49.15% of the total. On average, 97.333±23.692 mud bricks were used to construct 32.84% of the dwellings. On average, almost 53,000 dwellings, or 17.99%, were constructed with dung and soil, with a standard deviation of 6.245. In a similar vein, over half of the homes polled (47.1%) found their water supply to originate from an outside source, such as a tube well, canal, or stream. The mean (with standard deviation) was 141.667±59.501, with a standard deviation of 154.333±59.501 due to the fact that 52.19 percent of the dwellings had water sources inside. A significant portion of the population at the research site was engaged in agriculture, accounting for around 70.19 percent of the total. The average number of people who regularly irrigated their fields was 202.000 with a standard deviation of 14.422. There is a strong correlation between zoonotic disease outbreaks and household behavior.

When it comes to household conduct, Plate 3, which displays the sleeping arrangements of humans and animals, and Table 3, which shows the usage of mosquito repellents, reveals that almost half of the households (43.41%) live in close proximity to their cattle, with an average Mean±sd of 128.6±62.9. On average, 167.6±18.5 percent of families had a designated area for their cattle, which accounted for 56.58% of the total. With an average Mean±sd of 146.0±46.1 during unpredictable summers, around 49.26% of households slept outside in an open area, while 50.73% slept inside their dwellings, with an average Mean±sd of 150.3±44.2. One-third of families do not use any kind of insect repellent, with an average Mean±sd of 106.0±42.3. Native mosquito repellents, such as smoke and leaves, are used by 12.14% of households, with an average Mean±sd of 36.0±17. As a precaution, around 52.08 percent of the population uses bed nets or mosquito coils, with an average Mean±sd of 154.3±70.9.

Table 2: Characteristics of Households Surveyed (n=889; % of households) - Bhopal Region

House characteristics	Bhopal	Sehore	Raisen	Total	%	Mean±SD
House (%)						
Concrete	178	124	135	437	49.15	145.667±28.537
Mud bricks	70	112	110	292	32.84	97.333±23.692
Dung and earthen	48	60	52	160	17.99	53.000±6.245
Water Source (%)						
Outside house	93	208	124	425	47.80	141.667±59.501
Within house	203	89	172	464	52.19	154.333±59.501
Agriculture (%)						
Yes	178	231	215	624	70.19	208.000±27.185
No	118	68	79	265	29.80	87.333±27.465
Have irrigated land (%)						
Yes	198	218	198	614	69.06	202.000±14.422
No	98	78	99	275	30.93	94.000±14.422

Table 3: Household's Behavior Associated with Zoonotic Diseases (n=889; % of households) - Bhopal Region

Parameter	Bhopal	Sehore	Raisen	Total	%	Mean±SD
Animals-Human co-residence (%)						
Yes	56	166	164	386	43.41	128.6±62.9
No	189	156	158	503	56.58	167.6±18.5
Place of night sleeping (%)						
Outside Room	105	196	137	438	49.26	146.0±46.1
Inside Room	189	102	160	451	50.73	150.3±44.2
Use any means to prevent mosquito bite (%)						
None	61	112	145	318	35.77	106.0±42.3
Leaf/Smoke	16	49	43	108	12.14	36.0±17.5
Bed net/mosquito coil	234	98	131	463	52.08	154.3±70.9

Table 4: Shows prevalence of vector-borne diseases among different house types in Bhopal region; highest cases observed in mud brick houses followed by dung and earthen houses.

S. No.	House Type	Malaria	Dengue	Chikungunya
01	Concrete	276	227	58
02	Mud bricks	360	310	236
03	Dung and earthen	564	657	187

Table 5: Characteristics of Respondents Surveyed (n=3250) - Bhopal Region

Parameters	n	%	Ratio
Gender (%)			
Male	2437	74.98	Male: Female 1:0.33
Female	813	25.01	
Place of Residence (%)			
Urban	910	28	Urban: Rural 1:2.5
Rural	2340	72	
Occupation (%)			
Professional	195	6	
Student	585	18	
Farmer	910	28	
Skilled	227	6.98	
Labour	520	16	
Cattlemen	650	20	
Housekeepers	163	5.01	

The agro-pastoral study population is susceptible to zoonotic transmission; 74.98% of the population is male, 72% live in rural areas, 28% are farmers (the highest occupation), and 20% are cattlemen.

The incidence of animal attacks across age groups is displayed in Table 6. The age group of 11–20 years had the highest reported incidence of animal bites (27.1%), followed by 41–50 years (18.4%), and ≦10 years (16.5%). In almost eighty years, the minimum will be 1.3%. There were notable variations (p<0.01) seen throughout the age brackets of 11–20, 21–30, 31–40, 51–60, and 71–80 years.

Table 6: Frequency of Animal Bites by Age Group (n=3250) - Bhopal Region

Age group	Male	Female	Total	Male: Female Ratio
≤10 (%)	185 (91.1)	18 (8.8)	181 (16.5)	1:0.29
11-20 (%)	305 (91.3)	29 (8.6)	334 (27.1)	1:0.29
21-30 (%)	140 (77.3)	41 (22.6)	203 (14.7)	1:0.31
31-40 (%)	96 (81.3)	22 (18.6)	118 (9.5)	1:0.27
41-50 (%)	182 (80.1)	45 (19.8)	227 (18.4)	1:0.32
51-60 (%)	78 (64.4)	43 (35.5)	121 (9.8)	1:0.32
61-70 (%)	19 (63.3)	11 (36.6)	30 (2.4)	1:0.20
>80 (%)	11 (68.7)	5 (31.2)	16 (1.3)	1:0.24
Total	1016	214	1230	

Table 7: Frequency of Animal Bites by Body Site (n=3250)

S. No.	Site of animal bite	Total (%)
1	Upper part (%)	
	Head	50 (4)
	Shoulder	60 (4.8)
	Neck	89 (7.3)
	Face	50 (4)
2	Main Body (%)	
	Upper arms	58 (4.7)
	Abdomen	98 (7.9)
	Back	59 (4.8)
3	Lower Part (%)	
	Thigh	98 (8)
	Buttocks	88 (7.1)
	Legs	204 (16.5)
	Foot	376 (30.5)
Total		1230

Table 8: Frequency of Animal Bites by Animal Type (n=1230) - Bhopal Region

Animal	Scientific Name	Urban	Rural	Total	Urban: Rural
Pet Dog (%)	*Canis familiaris*	102 (14.1)	166 (32.6)	268 (21.7)	1:0.41
Street Dog (%)	*Canis familiaris*	369 (51.1)	469 (92.3)	838 (68.1)	1:1.94
Cat (%)	*Felis catus*	11 (0.8)	27 (1.3)	38 (1.1)	1:2.45
Wild Fox (%)	*Vulpes*	0 (0)	02 (0.1)	02 (0.06)	0:2
Lizard (%)	Lacertilia	01 (0.07)	02 (0.1)	03 (0.09)	1:2
Human (%)	*Homo sapiens*	02 (0.1)	0 (0)	02 (0.06)	1:0
Goat (%)	*Capra aegagrus hircus*	01 (0.07)	06 (0.3)	07 (0.2)	1:6
Horse (%)	*Equus caballus*	02 (0.1)	03 (0.1)	05 (0.1)	1:1.5
Pig (%)	*Sus scrofa*	01 (0.07)	01 (0.05)	02 (0.03)	1:1
Monkey (%)	*Macaca mulatta*	19 (1.4)	42 (2.1)	61 (1.8)	1:2.2
Unknown (%)	-	0 (0)	04 (0.2)	04 (0.1)	0:4
Total		722	508	1230	

Various age groups were impacted by zoonotic diseases (Malaria, Dengue, and Chikungunya) during the research period, as shown in Table 9 of the present study. The age groups of ≦10 years and 21-30 years have the highest number of males and females afflicted by malaria, at 170 and 130 respectively. In contrast, the age groups of 31-50 have the lowest number of males and females affected, at 40 and 34 respectively. The age groups of 11–20 and ≦10 have the highest number of males infected by dengue (187) and the lowest number of females affected (11) are 61–70. Chikungunya affects a maximum of 87 men and 62 females in the 21–40 age bracket, a minimum of 32 males and 25 females in the 31–40 and 11–20 age brackets, respectively. Table 10 shows that the age range of 11–30 has the highest number of men afflicted by swine flu (10) and the lowest number of females affected by swine flu (03) in the Bhopal region.

Table 9: Gender distributions of zoonotic diseases (Malaria, Dengue and Chikungunya)

Age group	Malaria						Dengue						Chikungunya					
	Male		Female		Total		Male		Female		Total		Male		Female		Total	
≤ 10 (%)	170	62	104	38	274 [a]	23	149	19.5	116	26.5	265[a]	22.1	73	26.0	60	29.7	133[a]	27.5
11-20 (%)	88	63	50	36	138 [a]	11	187	24.5	108	24.7	295[a]	24.6	47	16.7	25	12.3	72[a]	14.9
21-30 (%)	81	38	130	62	211 [a]	18	78	10.2	56	12.8	134 [ab]	11.1	87	31.0	27	13.3	114[a]	23.6
31-40 (%)	40	53	36	47	76 ab	6	97	12.7	25	5.7	122 [c]	10.1	32	11.4	62	30.6	94[a]	19.5
41-50 (%)	67	66	34	34	101 [c]	8	81	10.6	65	14.8	146[d]	12.1	41	14.6	28	13.8	69[a]	14.3
51-60 (%)	137	62	83	38	220 [c]	19	98	12.8	56	12.8	154[e]	12.8	-	-	-	-	-	-
61-70 (%)	112	61	60	39	182 [d]	15	71	9.3	11	2.5	82[a]	6.84	-	-	-	-	-	-
Total							1202		1198		482							

Table 10: Gender Distributions of zoonotic diseases (Swine flu)

Swine flu						
Age group	**Male**		**Female**		**Total**	
≤ 10 (%)	07	18.4	0	0	07[a]	10
11-20 (%)	10	26.3	03	17.6	13ab	20.3
21-30 (%)	03	7.8	12	46.1	15[a]	23.4
31-40 (%)	04	10.5	11	42.3	15[a]	23.4
41-50 (%)	07	18.4	07	41.1	14[a]	21.8
Total	38		26		64	

Table 11: Percentage wise of Zoonotic diseases at study sites (n=3250)

Location	**Bhopal**			**Sehore**			**Raisen**		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Rabies	02 (0.06%)	01 (0.03%)	03 (0.09%)	03(0.09%)	01(0.03%)	04 (0.12%)	02(0.06%)	01(0.03%)	03 (0.09%)
Glander diseases	-	-	-	-	-	-	-	-	-
Malaria	329 (10%)	193 (5.93%)	522(16%)	236 (7.2%)	103 (3.1%)	339 (12.2%)	203 (6.2%)	138 (4.2%)	341(10.4%)
Plague	-	-	-	-	-	-	-	-	-
Chikungunya	233 (7.1%)	130 (4%)	363 (11.1%)	47 (1.4%)	12 (0.3%)	59 (1.8%)	38 (1.1%)	22 (0.67%)	60 (1.8%)
Tuberculosis	-	-	-	-	-	-	-	-	-
Dengue	222 (6.8%)	170 (5.2%)	392 (12.0%)	156 (4.8%)	234 (7.2%)	390 (12%)	252 (7.7%)	164 (5.0%)	416 (12.8%)
Parvo	-	-	-	-	-	-	-	-	-
Swine flu	12 (0.3%)	06 (0.1%)	18 (0.5%)	19 (0.5%)	08 (0.2%)	27 (0.8%)	16 (0.4%)	03 (0.09%)	19 (0.5%)
Bird flu	-	-	-	-	-	-	-	-	-
Brucellosis	-	-	-	-	-	-	-	-	-
Overall Mean±sd	319.40 ±267.33	229.60±221.30	561.60±612.22	381.80±431.32	273.60±295.21	655.40±719.05	288.20±274.92	186.60±186.26	474.8±451.44

Conclusion

The Bhopal Chambal region is a hotspot for zoonotic illnesses, which have taken lives and left many sicker. Most of the people surveyed in these regions do not know much about the causes or treatments for the diseases that they have reported, including rabies, dengue, chikungunya, swine flu, and bird flu. Despite their knowledge that mosquitoes and dogs are the vectors for rabies and malaria, respectively. Victims of animal attacks can access medical care and treatment at any of the district health centers in the research area that have a rabies division. Parasites, viruses, protozoa, bacteria, and fungi are only few of the infectious microorganisms found here. The development, patterns, and spread of zoonoses are being influenced by a multitude of factors. These include, but are not limited to, human variables, migration of animals, biology of vectors, commerce, tourism, climate change, and urbanization. The literature review in this article focuses on developing nations and how zoonotic diseases are spread as a result of human activity, climate change, and other natural and man-made factors.

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