



# A Study from the Ramnagar Area of Purba Medinipur District in West Bengal Evaluating the Knowledge of Undergraduate Students Regarding Common Myths and Perception of Snakes

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**Abstract.**—Snake myths have been prevalent in various cultures throughout history, and they continue to persist in modern times. Among students, these myths often take on a variety of forms and are fueled by a range of factors that include cultural beliefs, personal experiences, and media portrayals. I made an effort to evaluate the beliefs in snake myths of 500 undergraduate students at Ramnagar College along with their attitudes toward snakes. Almost two-thirds of students said they believed in at least some myths about snakes and cited twelve, of which revenge-taking by snakes was mentioned most frequently (85%). Sixty percent of students hinted at killing encountered snakes if possible. These beliefs in myth can lead to fear and misunderstanding, which can be detrimental to humans, snakes, and the natural environment. Education and awareness can play a crucial role in dispelling these myths and promoting a more accurate and positive understanding of snakes.

Myths, superstitions, and misunderstandings about snakes have existed for a long time, leading people to dread these reptiles and, in some cases, kill them needlessly (Whitaker and Captain 2004). Snakes play significant roles in many ecosystems as both predators and prey, and they provide a number of services to people, including rodent control, companionship as pets, wild meat, and leather products (Seigel and Mullin 2009). Regional differences in perceptions of snakes are influenced by religious customs, cultural beliefs, and educational attainment (Pandey et al. 2016; Pinheiro et al. 2016). Ramnagar, situated in the coastal zone of Purba Medinipur, is a semi-urban region characterized by a heterogeneous community involved mainly in agriculture, fishing, and small-scale enterprises (Department of Industry, Commerce & Enterprises, Government of West Bengal 2022). The district is renowned for its extensive cultural heritage, which is heavily influenced by religious practices and indigenous traditions. In this region, numerous communities uphold antiquated superstitions regarding snakes, linking them to Hindu deities such as Manasa, the serpent goddess, which in turn affects the attitudes and behaviors of individuals toward these reptiles. Both venomous and non-venomous snakes are well-suited to the landscape of Ramnagar, which

encompasses coastal plains, agricultural fields, and forested regions. The abundance of paddy cultivation, fishing, and horticulture leads to frequent interactions between humans and snakes. The daily lives of local residents have been influenced by these interactions, which have entrenched misconceptions about snakes. Some individuals consider snakes to be symbols of prosperity that should not be destroyed, whereas others perceive them as threats and act promptly to eliminate them (Kakunje et al. 2019). I surveyed students at Ramnagar College, which provides courses in commerce, science, and the arts. Traditional beliefs regarding snakes persist, despite the fact that the literacy rate in Purba Medinipur is relatively high in comparison to other districts in West Bengal (Census Organization of India 2011). Students studying biological sciences presumably have a better understanding of snakes, but individuals from non-science backgrounds likely are more influenced by cultural narratives and folklore. Knowledge of students about snakes can play a vital role in conservation and management of these reptiles (Mutya and Inocian 2024). Herein I present the results of a survey that included the creation of a questionnaire to assess students' beliefs and attitudes regarding snake myths (e.g., Alves et al. 2014; Jaman et al. 2020). The study seeks to elu-

cidate knowledge gaps, misconceptions, and determinants of beliefs to assess the efficacy of formal education in debunking myths and advancing snake conservation in the region.

### Materials and Methods

Using face-to-face interviews (Wood et al. 2022), I surveyed 500 randomly selected undergraduate students at Ramnagar College of Purba Medinipur District from 5 July to 20 December 2023 regarding snake myths. Of the 500 respondents, 280 (56%) were male and 220 (44%) were female. I also recorded the students' stream (i.e., course of study)

(arts, science, or commerce) and place of residence (urban or rural) (e.g., Attuquayefio 2006). The questionnaire I prepared included questions such as: Of what myths about snakes are you aware? How strongly do you believe in those myths? Do you think such myths are harmful or helpful to society?

During interviews conducted between 1000 h and 1700 h, I also asked students if they could match local names of various species of snakes native to the region with images (e.g., Fig. 1) (Chanda and Thakare 2022). All participants gave their written informed consent to participate in the study and for any related photos to be published (Pandey et al. 2016).



**Figure 1.** A sample of images used to determine if students could identify species of snakes native to the Ramnagar region by their local names: *Ahaetulla nasuta* (Loudoga) (top), *Daboia russelii* (Chandrabora) (lower left), *Naja naja* (Gokhro or Khorish) (lower center), and *Lycodon aulicus* (Ghar-chiti) (lower right). Photographs by Amila P. Sumanapala (<https://inaturalist-open-data.s3.amazonaws.com/photos/46250620/large.jpeg>) (top); Daniel Liepack (<https://www.inaturalist.org/observations/184865217>) (lower left); Aravinth (<https://www.inaturalist.org/observations/101466755>) (lower center); and Zeev NG (<https://www.inaturalist.org/photos/320615002>) (lower right).

Institutional permission was granted by Dr. Ananta Mohan Mishra, Principal of Ramnagar College. The survey data were analyzed using Microsoft Excel® and GraphPad prism8®.

### Results

Participating students mentioned a total of 12 myths about snakes (Fig. 2). Of the respondents, 66.4% believed myths about snakes, whereas 33.6% did not; 406 were from rural and 94 from urban areas; 39% of students were enrolled in the arts stream and 61% from the science stream (Fig. 3). About 60% of respondents indicated that they will kill snakes whenever possible (Fig. 4).

Recognition of species of snakes was greater in males than females (Pearson  $r = 0.79$ ) (Table 1), as was the identification of venomous versus non-venomous species (Table 2; Fig. 5). *Ahaetulla nasuta* was the most (94%) and *Cerberus rhynchops* was the least (2%) recognized species. *Dendrelaphis tristis*, *Oligodon arnensis*, and *Cerberus rhynchops* were three species not identified by any female students.

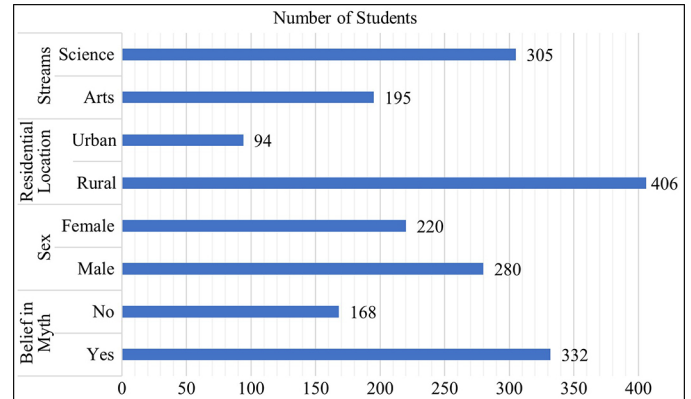
Eighty-seven percent of respondents replied that they fear snakes, whereas 13% do not (Fig. 6). Of the students believing in myths (332), 81% were from rural and 19% from the urban areas (Fig. 7). Most (55%) respondents will kill snakes because of fear followed by belief in various myths (35%) (Fig. 8).

### Discussion

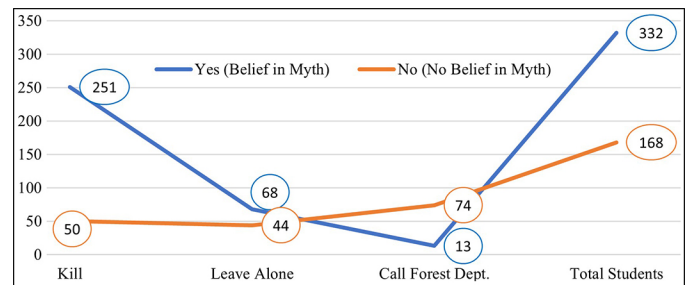
Of the 12 myths about snakes (Moore 1949; Takale 2005) (Fig. 2), snakes are vengeful, drink milk, dance to the tune of snake charmers, and possess nagmoni or gems on their head were most frequently cited, with snakes are venge-

ful most cited (85%) and possession of a Red Sandboa in the house brings wealth least frequently mentioned (3%).

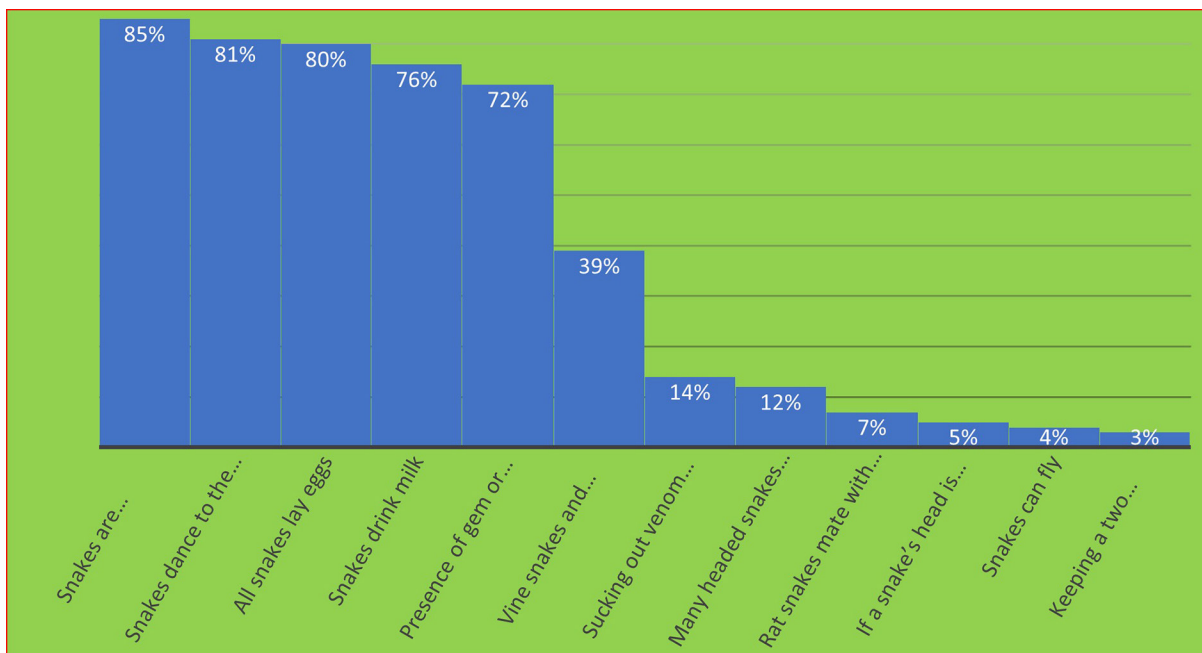
**Myth 1. Snakes are vengeful** (cited by 85% of students). The notion that snakes harbor vengeful tendencies is a myth



**Figure 3.** Student distribution based on belief in myths, sex, residential location, and academic stream.



**Figure 4.** Attitude toward snakes based on belief in myths. A significant correlation ( $\chi^2 = 143.82$ ,  $P < 0.0001$ ) was evident between beliefs in myths (yes or no responses) and attitudes of students toward snakes.



**Figure 2.** Myths about snakes cited by students. See the text for more details.



**Table 1.** Number of students who recognized images of species of snakes native to the region.

Species (local name[s])	Students (n)	Male (n)	Female (n)
<i>Ptyas mucosa</i> (Darash or Dhaman)	450 (90%)	235	215
<i>Amphiesma stolatum</i> (Hele or Halhale Sap)	401 (80.2%)	200	201
<i>Xenochrophis piscator</i> (Joldhora)	420 (84%)	220	200
<i>Indotyphlops braminus</i> (Andho Sap or Pue)	60 (12%)	50	10
<i>Dendrelaphis tristis</i> (Treesnake or Bbet Achra)	145 (29%)	145	0
<i>Lycodon aulicus</i> (Ghar-chiti)	410 (82%)	220	190
<i>Naja kaouthia</i> (Keute)	380 (76%)	280	100
<i>Oligodon arnensis</i> (Udoykal)	120 (24%)	120	0
<i>Daboia russelii</i> (Chandrabora)	437 (87.4%)	218	219
<i>Bungarus caeruleus</i> (Kalach)	301 (60.2%)	216	85
<i>Coelognathus flavolineatus</i> (Ghoralag)	140 (28%)	115	25
<i>Ahaetulla nasuta</i> (Loudoga)	470 (94%)	255	215
<i>Ophiophagus hannah</i> (King Cobra or Sankhochur)	190 (38%)	125	65
<i>Naja naja</i> (Gokhro or Khorish)	293 (58.6%)	200	93
<i>Enhydryis enhydryis</i> (Metuli)	370 (74%)	210	160
<i>Bungarus fasciatus</i> (Sakhamuti)	105 (21%)	91	14
<i>Chrysopelea ornata</i> (Kalnagini)	167 (33.4%)	135	32
<i>Eryx johnii</i> (Balibora)	110 (22%)	70	40
<i>Cerberus rhynchops</i> (Gangbora)	10 (2%)	10	0
Mean $\pm$ one SD	262.1 $\pm$ 152.5	163.9 $\pm$ 75.0	98.1 $\pm$ 86.1

and has no factual basis (Stanley 2008). Like other animals, snakes are motivated by survival instincts and they lack the cognitive ability to hold grudges or seek revenge. Snakes may defend themselves if they feel threatened, but they do not actively seek to harm humans or animals. Many species prefer to avoid confrontation and will attack only as a last resort. Although being cautious around snakes and taking appropriate safety measures are advised, nothing indicates that they are vengeful or vindictive.

**Myth 2. Snakes dance to the tune of snake charmers** (81%). Snakes are deaf to airborne sounds as they lack external ears. They instead rely on vibrations felt through their jaw-

bones and skin to perceive sounds. The swaying movements of the snake that appear to be in response to the music played by the charmer are a result of the snake feeling threatened and defensive (Sahu 2019). In reality, snake charming is a form of animal exploitation that can harm both the snake and the charmer. Snakes used for this purpose are often captured from the wild and kept in cramped, unsanitary conditions, which can lead to stress, injury, and disease. Additionally, the performance itself can be dangerous for both the snake and the

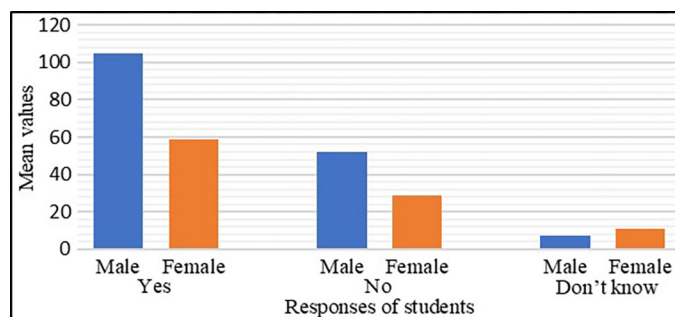
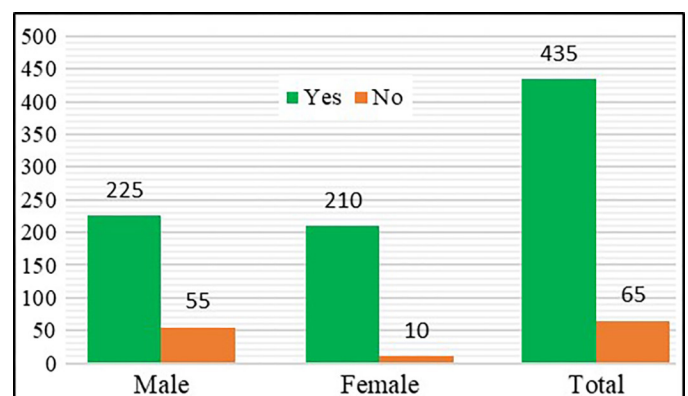
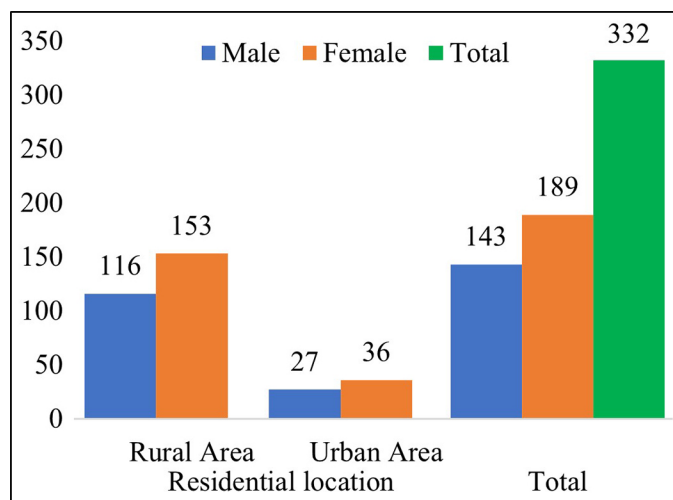
**Figure 5.** Students' responses to the question whether the snake is venomous or not.**Figure 6.** Yes or no responses by male and female students to the question whether they fear snakes or not.

Table 2. Responses of students to the question whether the species is venomous or not.

Species	Responses of Students					
	Yes		No		Don't Know	
	Male (n)	Female (n)	Male (n)	Female (n)	Male (n)	Female (n)
<i>Ptyas mucosa</i>	35 (14.9%)	75 (34.9%)	200 (85.1%)	100 (46.5%)	0	40 (18.6%)
<i>Amphiesma stolatum</i>	25 (12.5%)	51 (25.4%)	175 (87.5%)	125 (62.2%)	0	25 (12.4%)
<i>Xenochrophis piscator</i>	20 (9.1%)	30 (15.0%)	170 (77.3%)	150 (75.0%)	30 (13.6%)	20 (10.0%)
<i>Indotyphlops braminus</i>	30 (60.0%)	10 (100.0%)	20 (40.0%)	0	0	0
<i>Dendrelaphis tristis</i>	35 (24.1%)	0	100 (68.9%)	0	10 (6.9%)	0
<i>Lycodon aulicus</i>	120 (54.6%)	140 (73.7%)	80 (36.4%)	20 (10.5%)	20 (9.1%)	30 (15.8%)
<i>Naja kaouthia</i>	280 (100.0%)	100 (100.0%)	0	0	0	0
<i>Oligodon arnensis</i>	120 (100.0%)	0	0	0	0	0
<i>Daboia russelii</i>	218 (100.0%)	219 (100.0%)	0	0	0	0
<i>Bungarus caeruleus</i>	200 (92.6%)	75 (88.2%)	0	0	16 (7.4%)	10 (11.8%)
<i>Coelognathus flavolineatus</i>	115 (100.0%)	25 (100.0%)	0	0	0	0
<i>Ahaetulla nasuta</i>	200 (78.4%)	190 (88.4%)	35 (13.7%)	10 (4.7%)	20 (7.8%)	15 (6.9%)
<i>Ophiophagus hannah</i>	125 (100.0%)	65 (100.0%)	0	0	0	0
<i>Naja naja</i>	185 (92.5%)	80 (86.0%)	0	0	15 (7.5%)	13 (13.9%)
<i>Enhydryn enhydryn</i>	0	10 (6.3%)	210 (100.0%)	135 (84.4%)	0	15 (9.4%)
<i>Bungarus fasciatus</i>	91 (100.0%)	7 (50.0%)	0	0	0	7 (50.0%)
<i>Chrysopelea ornata</i>	135 (100.0%)	32 (100.0%)	0	0	0	0
<i>Eryx johnii</i>	55 (78.6%)	10 (25.0%)	0	0	15 (21.4%)	30 (75.0%)
<i>Cerberus rhynchops</i>	3 (30.0%)	0	0	0	7 (70.0%)	0
Mean $\pm$ one SD	104.8 $\pm$ 82.6	58.9 $\pm$ 64.6	52.1 $\pm$ 78.2	28.4 $\pm$ 53.5	7.0 $\pm$ 9.5	10.8 $\pm$ 12.9

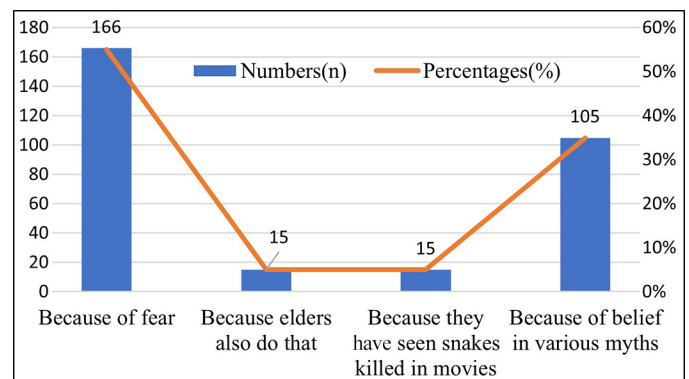
charmer, as the snake may feel threatened and lash out with a bite, which is venomous in some species. In recent times, many countries have banned snake charming as a form of ani-



**Figure 7.** Distribution of myth-believing students by sex and residential location.

mal cruelty, and people are encouraged to appreciate snakes in their natural habitat rather than in captivity.

**Myth 3. All snakes lay eggs (80%).** Although most species of snakes lay eggs, about 30% of species are viviparous (i.e., give birth to live young) (Blackburn and Stewart 2011). Viviparity is particularly common in species that live in colder climates, where environmental conditions are not conducive



**Figure 8.** Frequencies of responses citing various reasons for killing snakes.

for eggs to develop and hatch successfully. Examples of viviparous snakes (Neill 1964), include gartersnakes, many boas, and most rattlesnakes. Complicating the issue is that some species are ovoviviparous; these snakes retain eggs inside the body but they derive their energy from yolk before being born.

**Myth 4. Snakes drink milk** (76%). Snakes do not drink milk (Speck 1923). Although some snakes will consume milk in captivity, this is not a natural behavior in nature. Snakes are carnivorous and lack the enzymes required to digest lactose. This myth likely originated due to snakes seeking warm, dark places such as dairy barns.

**Myth 5. Presence of a gem or ‘Nagmoni’ in the head of snakes** (72%). No credible evidence suggests that snakes have any gem or stone-like substance in their heads. In some cultures, especially in India, the idea that some snakes possess a gem or “Nagmoni” (also “Nagamani”) in their heads is widespread (Stanley 2008). In Indian mythology, the “Nagamani” or snake gem (Vaidya 2018) is revered for its mystical powers and is highly coveted. According to the myth, extracting the gem from a snake’s head is thought to enable the cure of diseases, bring about wealth and prosperity, and possibly even grant eternal life. However, attempting to extract such a gem from a snake’s head could pose risks and harm both the snake and the person involved.

**Myth 6. Human eyes and heads can be pierced by Flying Snakes and Vinesnakes** (39%). Flying Snakes (*Chrysopelea* spp.) are capable of gliding (Yeaton et al. 2020) and are mildly venomous. They generally are not aggressive toward humans, usually resorting to biting only when threatened or trapped. Also, while gliding, the chances of a snake intentionally aiming for a person’s head or eyes are exceedingly low. Typical targets during gliding are small prey, such as insects and rodents. Vinesnakes (*Ahaetulla* spp.) are arboreal and mildly venomous. Neither species is particularly hazardous to humans, although refraining from handling them and exercising caution when approaching them in natural habitat is advisable since both are mildly venomous. The idea that they can pierce eyes or heads might have been a product of Vinesnakes in particular having long, pointed snouts.

**Myth 7. A snakebite victim can be saved by sucking the blood out of the bite** (14%). No evidence exists to support the myth that sucking blood and presumably venom from a snakebite can save the victim. In fact, attempting to do so can be dangerous, as it is ineffective and could potentially worsen the situation (Field 2006). Sucking venom by mouth could introduce venom into the rescuer’s bloodstream through any scratches or open sores in his or her mouth. Instead, in the event of a venomous snakebite (healthdirect 2025), remaining calm, immobilizing the affected limb or body part, and immediately seeking medical attention is crucial. Avoid using a tourniquet or applying ice to the wound,

as these measures can exacerbate the injury. Antivenom therapy, the most effective treatment for snakebites, requires specialized medical attention and should be administered only by trained healthcare professionals.

**Myth 8. Many-headed snakes exist** (12%). The existence of many-headed snakes lacks scientific evidence and is primarily confined to the realm of mythology and folklore (Tomažič 2011). Some ancient cultures might have derived inspiration for these mythical creatures from rare instances of physical deformities observed in real snakes, such as conjoined or mutated heads. However, such occurrences are extremely uncommon.

**Myth 9. Ratsnakes mate with cobras** (7%). The idea that ratsnakes (*Ptyas* spp.) mate with cobras (*Naja* spp.) is a myth (Titus and Pereira 2019). Ratsnakes and cobras are unrelated and not genetically compatible. Although some species of closely related snakes can hybridize, that is highly unlikely in the case of ratsnakes and cobras due to their significant genetic and ecological differences.

**Myth 10. If a snake’s head is severed, it will remain alive until sundown** (5%). When a snake’s head is severed, its body enters a state of shock, causing the heart to stop beating within seconds to a few minutes, depending on the species and method of decapitation (Attuquayefio 2006). Without a functioning heart to pump blood, the snake’s body rapidly shuts down, leading to death. However, bodies and heads of decapitated snakes can twitch and convulse for a short period (Palermo 2014), which can give the appearance of the snake being alive (Leahy 2018).

**Myth 11. Snakes can fly** (4%). Snakes cannot fly. Gliding over short distances, however, can occur (Editors of Encyclopaedia Britannica 2022). This is achieved through a process called “aerial undulation,” in which the snake uses its body to create a wave-like motion that propels it through the air while descending from a high perch. For example, the Paradise Treesnake (*Chrysopelea paradisi*), which occurs in Southeast Asia, can launch itself from tree branches and glide through the air for distances as far as 100 m — but gliding is not flying, and gliding snakes can only travel in a downward trajectory.

**Myth 12. Keeping a “two-headed” Red Sandboa brings wealth to the family** (3%). Red Sandboas (*Eryx johnii*) are sometimes called “two-headed snakes” because their blunt tails are similar in size and shape to their heads. Although rare cases of two-headed snakes exist, these are abnormalities and are not considered lucky or magical. Keeping any wild animal as a pet can be harmful to both the animal and the owner. Wild animals belong in their natural habitats, and keeping them in captivity can cause stress, illness, and even death (Mozer and Prost 2023). Also, many species of snakes are protected by law and keeping them as pets without proper permits is illegal.

My survey revealed that 66.4% of undergraduate students believe in myths about snakes, suggesting that such superstitions are prevalent. This is consistent with previous studies (e.g., Prokop et al. 2009; Pandey et al. 2016) showing that human perceptions of snakes are greatly influenced by traditional tales. Misconceptions about snakes that cause unjustified fear and hostility toward these creatures often are rooted in folklore (Stanley 2008).

The results showed a substantial difference in belief systems between students from rural and urban areas. More student respondents were from rural than from urban areas, reflecting that the Ramnagar area is mainly rural and that Ramnagar College is situated in a rural environment. Residents of rural areas might be exposed more frequently than those in urban situations to the traditional beliefs and practices that sustain snake myths (Ballouard et al. 2012). Perceptions, however, also are influenced by educational background; students enrolled in a science curriculum were more adept at identifying species of snakes and knowing which were venomous than those in an art stream, suggesting that exposure to scientific knowledge can reduce the incidence of beliefs in myths (da Silva et al. 2021).

About 60% of respondents admitted to killing a snake whenever possible, which is a troubling trend, but one that underscores the widespread phobias and negative attitudes toward snakes, which in turn can lead to a reduction in biodiversity and disturbance of ecosystems (Whitaker and Captain 2004). Consequently, to dispel myths about snakes and promote harmony with these ecologically important reptiles, conservation efforts must place a high priority on educational campaigns.

As in Özel et al. (2009), these data reveal a significant correlation between belief in myths and attitudes toward snakes. Previous studies have highlighted how misconceptions can create fear and hostility toward snakes, leading to unnecessary killing and challenges for conservation (Prokop et al. 2009; Ballouard et al. 2012). The findings further revealed that students who subscribe to myths are more inclined to kill snakes than those who do not share these views, substantiating the assertion that misinformation and fear-based narratives foster adverse perceptions of snakes. Conversely, students lacking myth-based beliefs demonstrated a greater inclination to communicate with the forest department, reflecting a more conservation-oriented perspective.

These results emphasized the need for targeted educational activities to debunk misconceptions about snakes (Pinheiro et al. 2016). Previous research (e.g., da Nóbrega Alves et al. 2007; Musah et al. 2021) indicated that incorporating scientific information about snakes into public awareness initiatives and educational curricula can significantly reduce anxiety and encourage conservation-oriented behaviors.

As in previous studies (e.g., Vaughn et al. 2022; Liordos et al. 2024), the predominance of respondents living in rural

regions is attributable to the higher prevalence of knowledge about snakes by males (Vaughn et al. 2022; Liordos et al. 2024). Men often are engaged in subsistence agriculture and pastoralism in these settings, where they frequently encounter snakes. On the other hand, females focus primarily on household chores, where the likelihood of encountering these creatures is minimal (da Nóbrega Alves et al. 2007). According to the survey, male respondents did better than female respondents in recognizing species of snakes. Ballouard et al. (2012), Prokop and Fančovičová (2010), and others already recognized similar patterns, which they attributed to more extensive engagement in outdoor activities and encounters with animals by males.

Probably because of its distinctive appearance and widespread distribution, *Ahaetulla nasuta* was the most frequently recognized species (94%). In contrast, the very low recognition rate (2%) of *Cerberus rhynchops* is likely attributable to its semi-aquatic behavior resulting in fewer encounters with the public. None of the female students could correctly identify *Oligodon arnensis*, *Cerberus rhynchops*, or *Dendrelaphis tristis*, pointing to a knowledge deficit that could be addressed through educational initiatives that specifically target snake identification. Kotsiotis et al. (2022) opined that incorrectly identifying species could cause people to be overly afraid of non-venomous snakes, undermining conservation efforts and putting public safety at risk.

Male students' abilities to correctly identify venomous species also was significantly greater than that of females (Table 2; Fig. 5), which is consistent with previous research (Prokop et al. 2009; Ballouard et al. 2012). Male students also had a lower mean response for "don't know" compared to females, indicating that female respondents displayed greater uncertainty in recognizing dangerous species. All respondents accurately identified several species, including *Naja kaouthia* (Monocled Cobra), *Daboia russelii* (Russell's Viper), and *Ophiophagus hannah* (King Cobra), as venomous, indicating a broad awareness of these deadly snakes. Non-venomous species like *Ptyas mucosa* and *Xenochrophis piscator* were sometimes misidentified as venomous, revealing widespread misconceptions that could lead to unnecessary anxiety and the extermination of snakes (Kotsiotis et al. 2022). *Enhydrys enhydrys* and *Bungarus fasciatus* also had high rates of incorrect identification, particularly among female respondents, presumably due to the low visibility of these species as well as a lack of formal education in snake identification (Pandey et al. 2020). The high rate of "don't know" responses among students has exacerbated concerns regarding the lack of knowledge about snakes, impeding conservation efforts and posing a threat to public health. The apparent inability of some students to identify potentially deadly snakes could lead to an increase in snakebite cases, needless killing of beneficial snakes, and increased fear-induced reactions (da Nóbrega Alves et al. 2007).



Fear and misinformation had a substantial impact on the way in which individuals perceive snakes. The fear of snakes is primarily derived from cultural beliefs, superstitions, and media representations (e.g., Nekaris et al. 2010). Consequently, individuals frequently adopt immediate protective measures, such as avoiding or even slaying snakes. Males were significantly less likely to fear snakes than females (Fig. 6). This is consistent with previous studies (e.g., Røskaft et al. 2007; Prokop and Fančovičová 2010) that have shown that females are more likely to be afraid of snakes than males, supporting theories based on evolutionary and social conditioning. This pattern likely is shaped by ingrained evolutionary characteristics that selected for the detection and evasion of snakes, traits that enhanced rates of survival (Öhman and Mineka 2003).

Cultural and socioeconomic variables also influence perceptions about snakes (e.g., Onyishi et al. 2020; Carter et al. 2024). In some regions, snakes are portrayed in popular culture and mythology as dangerous or mysterious creatures, which heightens fear, especially among people who are less knowledgeable about science (Pandey et al. 2020), possibly explaining at least in part why female respondents were more likely to fear snakes than males. Conversely, males frequently exhibited diminished anxiety, possibly attributable to more frequent direct interactions with snakes in rural or outdoor environments (Ballouard et al. 2012).

The motivations of respondents for killing snakes exhibited significant variability, highlighting the influence of fear, misinformation, as well as perceived threats in human-snake interactions (Have et al. 2022). Öhman and Mineka (2003) claimed that the predominant rationale for killing snakes is fear, aligning with the longstanding evolutionary perspective that humans possess an inherent phobia of snakes. In addition to fear, many students said they killed snakes because they think that all snakes, including those that do not bite, are dangerous. Pandey et al. (2020) indicated that persons who are adequately trained to differentiate between venomous and non-venomous snakes exhibit a marked reduction in the propensity to kill snakes indiscriminately. Another important reason for killing snakes was concern for the safety of family members and livestock, especially in rural regions where contacts with snakes is more prevalent (da Nóbrega Alves et al. 2007).

In contrast, however, snakes have many ecological benefits (Shine and Koenig 2001), one of which is that they control rodent populations, which protects crops and food storage. Some respondents admitted to murdering snakes based on long-held beliefs, such as the belief that specific snake species bring bad luck or death. Røskaft et al. (2007) found that these beliefs are still common in societies where folklore is a common component of daily life. Kotsiotis et al. (2022) and Munshi et al. (2024) proposed that, in order to reduce unnec-

essary snake deaths and encourage coexistence with these reptiles, these beliefs must be addressed through education, public awareness campaigns, and community engagement.

## Conclusion

This study identified common myths and misconceptions about snakes among undergraduate students of the Ramnagar area (Pandey et al. 2016). These included the vengeful behavior of snakes, possession of gems in the heads of snakes, and the efficacy of sucking blood and venom out of a snakebite. Such myths can have serious consequences, as they can lead to unnecessary fear and anxiety, as well as ineffective treatment of bites (Fita et al. 2010). The importance of this study is in emphasizing the potential to improve education and public awareness about snakes (e.g., Musah et al. 2021), particularly in rural areas. By dispelling common myths and providing accurate information, we can reduce the incidence of snakebites and promote a more positive attitude toward these important and fascinating animals. Future research should investigate further the factors that contribute to the development and persistence of myths about snakes and the effectiveness of different strategies for correcting them.

## Acknowledgements

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## Literature Cited

- Alves, R.R., V.N. Silva, D.M.B.M. Trovão, J.V. Oliveira, J.S. Mourão, T.L.P. Dias, Á.G.C. Alves, R.F.P. Lucena, R.R.D. Barboza, P.F.G.P. Montenegro, W.L.S. Vieira, and W.M.S. Souto. 2014. Students' attitudes toward and knowledge about snakes in the semiarid region of northeastern Brazil. *Journal of Ethnobiology and Ethnomedicine* 10: 30. <https://doi.org/10.1186/1746-4269-10-30>.
- Attuquayefio, D.K. 2006. The snakes of Ghana: myth, science and reality. *Ghana Journal of Science* 44: 73–86. <https://doi.org/10.4314/gjs.v44i1.15903>.
- Ballouard, J.-M., G. Provost, D. Barré, and X. Bonnet. 2012. Influence of a field trip on the attitude of schoolchildren toward unpopular organisms: An experience with snakes. *Journal of Herpetology* 46: 423–428. <https://doi.org/10.1670/11-118>.
- Blackburn, D. and J.R. Stewart. 2011. Viviparity and placentation in snakes, pp. 119–181. In: D.M. Sever and R.D. Aldridge (eds.), *Reproductive Biology and Phylogeny of Snakes*. CRC Press, Boca Raton, Florida, USA. <https://doi.org/10.1201/b10879-6>.
- Carter, H., X. Glaudas, R. Whitaker, G. Chandrasekharun, K. Hockings, and A. Nuno. 2024. Venomous snakebites: Exploring social barriers and opportunities for the adoption of prevention measures. *Conservation Science and Practice* 6: e13063. <https://doi.org/10.1111/csp2.13063>.
- Census Organization of India. 2011. Population Census 2011. <<https://www.census2011.co.in/>>.
- Chanda, A.K. and N. Thakare. 2022. Study of awareness & perception about venomous & non-venomous snakes among people of Ramnagar–1 & Ramnagar–2 blocks of Purba Medinipur District in West Bengal. *International Journal of Multidisciplinary Educational Research* 11 6(1): 34–39.
- da Nóbrega Alves, R.R., W.L. da Silva Vieira, and G. Gomes Santana. 2007. Reptiles used in traditional folk medicine: conservation implications. *Biodiversity and Conservation* 17: 2037–2049. <https://doi.org/10.1007/s10531-007-9305-0>.



- da Silva, M.X.G., F. Braga-Pereira, M.C. da Silva, M. C., J.V. de Oliveira, S. de Faria Lopes, and R.R. Nóbrega Alves. 2021. What are the factors influencing the aversion of students towards reptiles? *Journal of Ethnobiology and Ethnomedicine* 17: 35. <https://doi.org/10.1186/s13002-021-00462-z>.
- Department of Industry, Commerce & Enterprises, Government of West Bengal. 2022. District Survey Report of Purba Medinipur District. <[http://www.dmm.gov.in/pdfs/DSR/DSR\\_of\\_Purba\\_Medinipur.pdf](http://www.dmm.gov.in/pdfs/DSR/DSR_of_Purba_Medinipur.pdf)>.
- Editors of Encyclopaedia Britannica. 2022. Flying snake. <<https://www.britannica.com/animal/flying-snake>>.
- Field, A.P. 2006. The behavioural inhibition system and the verbal information pathway to children's fears. *Journal of Abnormal Psychology* 115: 742–752. <https://doi.org/10.1037/0021-843x.115.4.742>.
- Fita, D.S., E.C.M. Neto, and A. Schiavetti. 2010. 'Offensive' snakes: cultural beliefs and practices related to snakebites in a Brazilian rural settlement. *Journal of Ethnobiology and Ethnomedicine* 6: 13. <https://doi.org/10.1186/1746-4269-6-13>.
- Have, N.J.T., G.I. Ooms, B. Waldmann, and T. Reed. 2022. Barriers and enablers of community engagement practices for the prevention of snakebite envenoming in South Asia: A qualitative exploratory study. *Toxicon X* 17: 100144. <https://doi.org/10.1016/j.toxcx.2022.100144>.
- healthdirect. 2025. Snake bites. *healthdirect*. <<https://www.healthdirect.gov.au/snake-bites>>.
- Jaman, M.F., M.F. Rabbe, M.M. Alam, A.R. Shome, M.A. Hossain, and M.A.R. Sarker. 2020. Students' perceptions on snake in northwestern Bangladesh. *Asian Journal of Ethnobiology* 3(2): 62–69. <https://doi.org/10.13057/asianjethnobiol/030203>.
- Kakunje, A., R. Ammat, P. Tolar, S. Puthran, and M. Swaroop. 2019. Snakes and their relevance to psychiatry. *Annals of Indian Psychiatry* 3(1): 63–66. [https://doi.org/10.4103/aip.aip\\_46\\_18](https://doi.org/10.4103/aip.aip_46_18).
- Kontsiotis, V.J., A. Rapti, and V. Liordos. 2022. Public attitudes towards venomous and non-venomous snakes. *Science of the Total Environment* 831: 154918. <https://doi.org/10.1016/j.scitotenv.2022.154918>.
- Leahy, S. 2018. Decapitated snake head nearly kills man—here's how. *National Geographic*. <<https://www.nationalgeographic.com/animals/article/texas-man-bit-decapitated-rattlesnake-venom-animals?loggedin=true&rnd=1726470423593>>.
- Liordos, V., A. Rapti, and V.J. Kontsiotis. 2024. Economic valuation of snake conservation in Greece. *Journal for Nature Conservation* 79: 126615. <https://doi.org/10.1016/j.jnc.2024.126615>.
- Moore, C.B. 1949. America's mythical snakes. *The Scientific Monthly* 68(1): 52–58. <<https://pubmed.ncbi.nlm.nih.gov/18109189/>>.
- Mozer, A. and S. Prost. 2023. An introduction to illegal wildlife trade and its effects on biodiversity and society. *Forensic Science International: Animals and Environments* 3: 100064. <https://doi.org/10.1016/j.fsiae.2023.100064>.
- Munshi, H., M. Gavhande, G. Bhad, B. Mohanty, J.P. Dash, K. Madavi, M. Bansode, A. Mohapatra, S.D. Mahale, S. Pati, G. Sachdeva, H.S. Bawaskar, and R. Gajbhiye. 2024. Prevention & management of snakebite envenomation: A qualitative study on perspectives & practices in Maharashtra & Odisha. *Indian Journal of Medical Research* 159: 356–368. [https://doi.org/10.25259/ijmr\\_1566\\_23](https://doi.org/10.25259/ijmr_1566_23).
- Musah, Y., D.K. Attuquayefio, A.N.A. Pobee, and L.H. Holbech. 2021. Ophidiophobia, myth generation, and human perceptions: Implications for snake conservation in a typical savanna community of northern Ghana. *Human Dimensions of Wildlife* 27: 321–342. <https://doi.org/10.1080/10871209.2021.1952357>.
- Mutya, R.C. and E.P. Inocian. 2024. Knowledge, attitude, and practices toward snakes and snakebites among non-medical college students in Cebu, Philippines: A mixed method approach. *Biosaintifika* 16: 285–296. <https://doi.org/10.15294/biosaintifika.v16i2.8383>.
- Neill, W.T. 1964. Viviparity in snakes: Some ecological and zoogeographical considerations. *The American Naturalist* 98: 35–55. <https://doi.org/10.1086/282299>.
- Nekaris, K.A.I., C.R. Shepherd, C.R. Starr, and V. Nijman. 2010. Exploring cultural drivers for wildlife trade via an ethnoprimateological approach: a case study of slender and slow lorises (*Loris* and *Nycticebus*) in South and Southeast Asia. *American Journal of Primatology* 72: 877–886. <https://doi.org/10.1002/ajp.20842>.
- Öhman, A. and S. Mineka. 2003. The malicious serpent: Snakes as a prototypical stimulus for an evolved module of fear. *Current Directions in Psychological Science* 12: 5–9. <https://doi.org/10.1111/1467-8721.01211>.
- Onyishi, I.E., S.K. Nwonyi, A. Pazda, and P. Prokop. 2020. Attitudes and behaviour toward snakes on the part of Igbo people in southeastern Nigeria. *Science of the Total Environment* 763: 143045. <https://doi.org/10.1016/j.scitotenv.2020.143045>.
- Özel, M., P. Prokop, and M. Uşak. 2009. Cross-cultural comparison of student attitudes toward snakes. *Society and Animals* 17: 224–240. <https://doi.org/10.1163/156853009x445398>.
- Palermo, E. 2014. Can a severed snake head still kill? It's possible. *NBC News*. <<https://www.nbcnews.com/.https://www.nbcnews.com/id/wbna55972887>>.
- Pandey, D.P., G.S. Pandey, K. Devkota, and M. Goode. 2016. Public perceptions of snakes and snakebite management: implications for conservation and human health in southern Nepal. *Journal of Ethnobiology and Ethnomedicine* 12: 22. <https://doi.org/10.1186/s13002-016-0092-0>.
- Pandey, D.P., B. Chaudhary, S.G. Pandey, R. Piya, and N. Devkota. 2020. School students' perceptions on snakes, their uses, and snakebite in Nepal: Implications for snake conservation and snakebite prevention. *Advances in Clinical Toxicology* 5: 000180. <https://doi.org/10.23880/act-16000180>.
- Pinheiro, L.T., J.F. Mota Rodrigues, and D.M. Borges-Nojosa. 2016. Formal education, previous interaction and perception influence the attitudes of people toward the conservation of snakes in a large urban center of north-eastern Brazil. *Journal of Ethnobiology and Ethnomedicine* 12: 25. <https://doi.org/10.1186/s13002-016-0096-9>.
- Prokop, P. and J. Fančovičová. 2010. Perceived body condition is associated with fear of a large carnivore predator in humans. *Annales Zoologici Fennici* 47: 417–425. <https://doi.org/10.5735/086.047.0606>.
- Prokop, P., J. Fančovičová, and M. Kubiak. 2009. Vampires are still alive: Slovakian students' attitudes toward bats. *Anthrozoös* 22: 19–30. <https://doi.org/10.2752/175303708x390446>.
- Røskoft, E., B.F. Händel, T. Bjerke, and B.P. Kaltenborn. 2007. Human attitudes towards large carnivores in Norway. *Wildlife Biology* 13: 172–185. [https://doi.org/10.2981/0909-6396\(2007\)13\[172: HATLCI\]2.0.CO;2](https://doi.org/10.2981/0909-6396(2007)13[172: HATLCI]2.0.CO;2).
- Sahu, B. 2019. Social relevance of snake charmer's songs in Odisha – a historical analysis. *International Journal of Current Research* 11: 3891–3893. <https://doi.org/10.24941/ijcr.35515.05.2019>.
- Seigel, R.A. and S.J. Mullin. 2009. Snake conservation, present and future, pp. 281–290. In: S.J. Mullin and R.A. Seigel (eds.), *Snakes. Ecology and Conservation*. Cornell University Press, Ithaca, New York, USA. <https://doi.org/10.7591/9780801459092-015>.
- Shine, R. and J. Koenig. 2001. Snakes in the garden: an analysis of reptiles “rescued” by community-based wildlife carers. *Biological Conservation* 102: 271–283. [https://doi.org/10.1016/s0006-3207\(01\)00102-1](https://doi.org/10.1016/s0006-3207(01)00102-1).
- Speck, F.G. 1923. Reptile lore of the northern Indians. *Journal of American Folklore* 36: 273–280. <https://doi.org/10.2307/534993>.
- Stanley, J.W. 2008. Snakes: Objects of religion, fear, and myth. *Journal of Integrative Biology* 2(2): 42–58.
- Takale, S. 2005. *Snakes Myths & Facts*. English Copy. Takale Charitable Trust. Shirdhon, Panvel, Raigad, Maharashtra, India – 410221.
- Titus, A. and G.N. Pereira. 2019. *Eco-Friendly Coffee And Rat Snake Mating*. Reptiles. Eco-Friendly Coffee Archive. <<https://ecofriendlycoffee.org/ecofriendly-coffee-and-rat-snake-mating/>>.
- Tomažič, I. 2011. Pre-service biology teachers' and primary school students' attitudes toward and knowledge about snakes. *Eurasia Journal of Mathematics, Science and Technology Education* 7: 161–171. <https://doi.org/10.12973/ejmste/75194>.
- Vaidya, C.S. 2018. Naga-Mandala: Play with Cobra. *International Journal of Creative Research Thoughts* 6(1): 513–517.
- Vaughn, A.K., L.R. Larson, M.N. Peterson, and L.B. Pacifici. 2022. Factors associated with human tolerance of snakes in the southeastern United States. *Frontiers in Conservation Science* 3: 1016514. <https://doi.org/10.3389/fcsc.2022.1016514>.
- Whitaker, R. and A. Captain. 2004. *Snakes of India: The Field Guide*. Draco Books, Chennai, India.
- Wood, L., C. Ngari, S. Parkurito, K. Barnes, D. Otundo, D.A. Misiani, G.M. Kephah, A. Trelfa, G.O. Olouch, R.A. Harrison, and F.-L. Tianyi. 2022. “Then they prayed, they did nothing else, they just prayed for the boy and he was well”: A qualitative investigation into the perceptions and behaviours surrounding snakebite and its management in rural communities of Kitui county, Kenya. *PLoS Neglected Tropical Diseases* 16: e0010579. <https://doi.org/10.1371/journal.pntd.0010579>.
- Yeaton, I.J., S.D. Ross, G.A. Baumgardner, and J.J. Socha. 2020. Undulation enables gliding in flying snakes. *Nature Physics* 16: 974–982. <https://doi.org/10.1038/s41567-020-0935-4>.