

**Title:** A STUDY OF PERCEPTION AND PSYCHOLOGICAL REACTION  
IN DOG BITE VICTIMS

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**Keywords** Dog Bites, initial reaction, perception behaviour

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## A STUDY OF PERCEPTION AND PSYCHOLOGICAL REACTION IN DOG BITE VICTIMS

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### ABSTRACT

**Context :** An attack by dogs (or a dog bite) can be traumatic because it is often a sudden, savage, unpredictable, random act of violence which overwhelms a person's capacity to take control, cope and subsequently master the feelings aroused by the attack.

**Aims :** Study of Patient Perception and Initial Reaction of dog bite.

**Methods :** Cross sectional study was carried out by conducting exit interview of 200 victim's of dog bite or from their attendant in case of children.

**Statistical Analysis Used :** Interpretation of data was done using percentages and proportions,  $\chi^2$ -Test and multi variate analysis was used to test the statistical difference in the psychological reactions episode between the three age groups.

**Observations :** More than half of the cases in 200 studied cases belonged to age group less than 20 years and male to female ratio was 70:30. Lower extremities were the most common (44%) biting site and majority (67%) had category II bites. In majority of the cases the bite was unprovoked. Children less than 10 years of age were more likely to suffer from psychological reactions.

**Conclusion :** The study shows that adult males have higher incidence of animal bite than the adult females. In more than 70 percent of the victims' noted at least one concerning behavioral change attributed to the dog bite. Sixty-five percent of the victims had concerns over their own reactions to the dog bite. Majority of victim and attendants thought more education on dog bite prevention would be useful.

**Key words :** Dog bites, initial reaction, perception behavior

### INTRODUCTION

Rabies remains an important public health issue worldwide due to the prevalence of endemic animal rabies in developing countries. In India, rabies is known since Vedic periods as corroborated in *Atharva Veda*. The Latin word "Rabies" seems to have originated from the Sanskrit word "*Rabhas*" which means "to do violence". The dog has been, and still is, the main reservoir of rabies in India.<sup>1</sup> Dog bites also represent a significant public health problem in the India and other Asian countries, not least due to their costs to the health system.<sup>2</sup>

An attack by dogs (or a dog bite) can be traumatic because it is often a sudden, savage, unpredictable, random act of violence which overwhelms a person's capacity to take control and cope, and subsequently master the feelings aroused

by the attack. It isn't about how savage or life threatening the attack was but more about how the individual responds to the situation. It is not simply being bitten by a dog, which causes emotional turmoil.<sup>3</sup>

It is important to stress and is difficult to make sense of what is often a random and unprovoked act of violence. But it's human nature to want to understand the how and why, in order to process and "file away" the trauma. The first stage is shock or Denial - this happens immediately after the attack and often the victim cannot believe this has happened to them and is in shock. There's disbelief that the attack occurred and a desire to move on quickly and with minimal fuss,<sup>4</sup> here the victim wants to take control, possibly get revenge or extract retribution or compensation. This is often a

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Table 1  
PROFILE OF DOG BITE VICTIMS (n=200)

Variables		Child up to 10 yrs (n=62)31%		Adolescent 10-18 yrs (n=44)22%		Adults (n=94)47%		P value
		Male 36 (58.2%) No. (%)	Female 26 (41.8%) No. (%)	Male 31 (70.4%) No. (%)	Female 13 (29.6%) No. (%)	Male 72 (76.6%) No. (%)	Female 22 (23.4) No. (%)	
Degree of Bite:								
I (n=52) (26%)		3(21.9)	4(12.5)	5(15.6)	3(15.6)	8(28.1)	4(12.5)	d.f=2, p=
II (n=127) (63.5%)		21(18.5)	13(11.8)	28(11.8)	6(4.7)	31(40.2)	14(40.2)	0.001 (H.S.)
III (n=41) (20.5%)		8(19.5)	7(17.3)	6(14.6)	4(9.8)	12(29.2)	4(9.8)	
Site of Bite:	Lower extremities 89(44%)	38(18.2)	11(12.5)	13(14.8)	6(6.8)	32(36.4)	10(11.4)	d.f=2, p=
	Torso: 67(33.5%)	11(16.4)	8(11.9)	11(16.4)	4(5.9)	28(38.8)	7(10.4)	0.009 (H.S.)
	Upper arm & face 49(22.5%)	9(20.0)	7(15.8)	7(15.6)	3(6.7)	14(31.3)	5(11.3)	
Dog status:	Pet 57(28.5%)	19(17.5)	7(12.3)	9(15.8)	3(5.3)	22(38.6)	6(10.5)	d.f=2, p=
	Stray 142(71.5%)	28(18.2)	19(15.2)	22(17.8)	18(9.9)	39(54.9)	18(11.2)	0.001 (H.S.)
Condition prior to Dog bite:	Provoked 149(74.5%)	28(17.6)	28(15.5)	22(14.9)	18(6.8)	54(36.5)	18(18.8)	d.f=2, p=
	Unprovoked 52(26.5%)	18(18.2)	6(11.5)	9(17.3)	3(5.8)	18(34.8)	6(11.5)	0.001
Socio economic status:	Upper 18(7.5%)	3(20.0)	1(6.8)	3(20.0)	1(6.8)	5(33.3)	2(12.3)	d.f=2, p=
	Upper Middle 52(16.8%)	8(15.6)	3(9.4)	8(15.6)	3(9.4)	12(37.5)	4(12.5)	0.001 (H.S.)
	Middle 48(14.0%)	12(12.5)	9(13.2)	9(13.2)	4(5.9)	26(38.2)	8(11.8)	
	Lower 85 (42.5%)	38(18.8)	13(15.3)	14(16.5)	5(5.9)	29(34.1)	8(9.4)	
Residence:	Urban 85 (42.5%)	18(18.8)	10(11.8)	13(15.3)	6(7.1)	31(36.4)	9(10.6)	d.f=2, p=
	Rural 115(57.5%)	20(17.4)	16(15.9)	18(17.6)	7(6.1)	41(35.6)	13(11.3)	0.003 (H.S.)

P value in different age group (d.f=2, p=0.980) H.S.

d.f= Degree of Freedom, H.S. Highly Significant, S=Significant, N.S. Not Significant

defense against feelings of victimization, disempowerment, helplessness and hopelessness.

Dog bites are a sensitive issue, and not just because of the direct physical damage or emotional stress they might cause. To say they are a sensitive issue, however, doesn't quite get at the depth and breadth of it. Victims of dog bites could experience a fear of dogs or paranoia about performing an activity they were doing when the incident occurred, such as running or bicycling. This emotional distress can last long after the physical injuries have healed. Present study was conducted to ascertain the perception and initial reaction to the dog bite of its victim.

In view of this the small scale qualitative study was carried out to know the profile of animal bite cases coming for treatment in the hospitals and to

explore how victims perceive the circumstances and events that led to them being bitten by a dog.

We are aware that the retrospective views of the victim are only one part of the story and represent a particular perspective. In qualitative research we are not seeking an objective truth about a causal mechanism, but rather seek to understand the perceptions, beliefs, and experiences of the victim to provide context to bite events and inform the likely barriers to prevention.

#### MATERIAL AND METHOD

The present study was conducted on dog bite victims attending anti rabies clinic of JA Group of Hospitals and G.R. Medical College, Gwalior. The present study includes 200 patients attending antirabies clinic and were put on Anti Rabies Treatment. They or their attendants were

**Table 2 :**  
**MULTIVARIATE ANALYSIS: RISK OF PSYCHOLOGICAL SYMPTOMS ACCORDING TO VICTIM'S AGE AND GENDER**

Symptoms	Children up to 10Ys: (Average age=6.7±1.8) No. (%)=82(51.6)		Adolescent 10-18Ys: (Average age=12.8±2.4) No. (%)=144(22.0)		Adult (Average age=29.7±7.9) No. (%)=94(46.0)	
	Male 36(36.2) No. (%)	Female 39(43.8) No. (%)	Male 31(29.4) No. (%)	Female 13(19.6) No. (%)	Male 72(76.6) No. (%)	Female 22(23.4) No. (%)
Crying	23(61.3)	17(65.4)	3(22.6)	4(30.8)	30(31.9)	5(22.7)
(AOR)	4.35(95%CI:2.5,7.5)		1.75(95%CI:0.73,4.2)		Reference	
P-value	0.0002(H.S)					
Clinging to parents	19(32.8)	10(61.5)	20(4)	1(7.7)	0(0)	0(0)
(AOR)	17.7(95%CI:4.9(3.4)		Reference		NA	
P-value	0.0004(H.S)					
Nightmares	12(33.3)	7(26.9)	9(29.1)	4(30.8)	5(18.3)	2(9.1)
(AOR)	3.2(95%CI:2.3,11.1)		3.1(95%CI:1.9,13.9)		Reference	
P-value	0.0007(H.S)		0.001(H.S)			
Sleep disturbances	14(38.0)	11(42.0)	12(38.7)	5(38.3)	31(29.2)	5(22.7)
(AOR)	1.64(95%CI:0.7,3.9)		Reference			
P-value	1.70(05(S)					
Bed wetting	12(33.3)	10(38.5)	2(6.4)	1(7.7)	0(0)	0(0)
(AOR)	7.5(95%CI:2.0,27.3)		Reference		NA	
P-value	0.001(H.S)					
Fear	12(33.3)	14(53.8)	6(19.3)	3(38.5)	6(8.3)	4(18.2)
(AOR)	4.5(95%CI:2.4,8.3)		2.8(95%CI:1.7,2)		Reference	
P-value	0.000(NS)		0.053(S)			
Withdrawal	10(27.8)	10(38.5)	4(12.9)	3(23.1)	1(1.4)	2(9.1)
(AOR)	10.3(95%CI:4.1,26.1)		5.7(95%CI:1.4,23.4)		Reference	
P-value	0.000(H.S)(0.019(S)					
Anger	6(16.7)	2(11.2)	10(32.3)	2(38.5)	30(33.9)	4(18.2)
(AOR)	0.9(95%CI:0.4,2.4)		2.9(95%CI:1.3,6.9)		Reference	
P-value	0.96(NS)		0.01(S)			
Tension/Anxiety	5(13.9)	2(7.7)	9(29.0)	4(30.8)	8(11.1)	6(27.3)
(AOR)	0.7(95%CI:0.3,1.9)		2.4(95%CI:1.0,5.7)		Reference	
P-value	0.68(NS)		0.073(NS)			
Poor Traumatic Stress Disorder (PTSD)*	2(5.96)	1(3.9)	1(3.2)	0(0)	1(1.4)	0(0)
(AOR)	5.6(95%CI:0.6,20.2)		1.1(95%CI:1.1,35.4)		Reference	
P-value	0.27(NS)		0.83(NS)			
Flashbacks	12(33.3)	7(26.9)	3(22.6)	5(38.3)	4(5.6)	3(13.6)
(AOR)	5.0(95%CI:2.5,9.9)		4.5(95%CI:1.8,12.6)Reference			
P-value	0.001(H.S)		0.000(H.S)			
Cannot explain	8(22.2)	6(22.1)	5(16.1)	2(15.4)	8(11.1)	3(13.6)
(AOR)	1.8(95%CI:0.8,3.0)		1.4(95%CI:0.5,3.9)Reference			
P-value	0.113(S)		0.714(S)			

\*Based on Multiple severe symptoms. Victims have one or more symptoms/reactions. Response based on victims and their attendants  
 AOR = Adjusted Odds ratio, HS= Highly Significant, S=Significant, NS= Not significant

interviewed with one short questionnaire, which was developed to assess perception and initial reaction to dog bite of victims and their attendants. They were interviewed about, psychological effect and initial reaction on disclosure of dog bite incidence.

In fact these questions did not correspond to a measure of the victim's attitude to dogs but to

whether the victim is able to attribute emotions to dog bite. Although memory and recall accuracy can be an issue over time, most of the interviews occurred within 1 month of the bite occurring, potentially increasing validity of the recall.

A pretested interview schedule was used to guide the participant through the chronological

events surrounding the bite experience and reflections on the bite incident. Participants had the opportunity to detail specific aspects of events that were significant to them. As participants were providing a retrospective account of their bites based on their own perspectives, this inevitably included significant reflection on the incident. Discussion points were repeated back for clarification and further elaboration. Participants were aware of the researcher's interest in the topic of dog bites.

Victims' consciously reflected on their preconceptions to allow the data to speak independently. Although the researchers acknowledge that "the retrospective views of the victim are only one part of the story," they also note that they weren't seeking an objective truth of these incidents, but rather are trying to understand how perceptions might "inform the likely barriers to prevention." To do this, they conducted detailed, one-on-one interviews allowing the (human) participants to tell their stories in depth. Part of the problem in these programs is that our language around dog bite incidents can be slippery. People who are bitten by dogs or parents of younger victim may not know the difference between aggression, reactivity, and other behavioral factors. This is not to say, of course, that people who don't understand our aims we had not included them in our study. In this study, the author had two primary goals: 1) explore the victim perception of what constituted a dog bite; 2) explore how victims perceive the circumstances and events that led to them being bitten by a dog.

## RESULTS

Out of 200 victims 139 were males and 61 were females. The study shows that maximum number of animal bite cases (72; 36.0%) were adult males, followed by the male children (< 10 years) (36; 18.0%) cases. The bite cases were least (13; 6.5%) in female (10- 18 years) adolescents. The study shows that in case of both male and female adults of more than 18 years, maximum number of animal bites (94; 47.0%), occurred, followed by (62; 31%) in less than 10 years age group. The most common site of the bite was lower extremities in 88 (44%) followed by bite on trunk 67 (33.5%). The study also shows that Category II bite (exposure) was more common in 127 (63.5%) cases than the

Category I & III bite cases, 32 (16.0%) & 41 (20.5%) respectively. Most, 143 (71.5%) of the bites were reportedly by stray dogs and 148 (74%) were unprovoked. [Table 1]

The prime emotional reactions of the victims of dog attacks was crying in all age groups but was found more in children 59.6% (OR 4.35) in comparison to adolescent and adult (29.5% & 15.9%). Children of less than 10 years age group (Average age=6.7±1.8) showed typical psychological reactions, which were fear, crying, whimpering, screaming, frightened facial expressions, flashbacks and excessive clinging to parents. These were found more in this group, in comparison to adolescent and adults. Parents also noticed regressive behaviors in children such as bed wetting, and fear of darkness. Children in this age bracket tend to be affected as PTSD (Post Traumatic Stress Disorder) reactions to the traumatic event but it was not statistically significant.

Adolescents 10 to 18 (Average age = 12.8 ± 2.4) years old exhibited psychological responses more or less similar to those of adults, including crying, flashbacks, nightmares, sleep disturbances, fear and withdrawal. Anger (34.1%, OR = 2.9 [95% CI; 1.3, 6.9],  $p = 0.018$  (S), and tension/Anxiety (29.5%, OR = 2.4 [95% CI; 1.0, 5.7],  $p = 0.073$ (NS) was more in adolescent than the adults and children while the tension/anxiety (0.7(95CI;0.3,1.9), was prevailing more or less by or same levels in all age groups and their difference was not significant ( $P=0.68$ ) Table 2. The initial reaction to the diagnosis was negative [like fear, anxiety & tension] in majority of the respondents and were more common in less educated patients. Similarly this negative reaction was also more prevalent in low socio-economic class compared to educated and higher socio-economic class.

## DISCUSSION

The basic reactions to the traumatic event were quite similar for everybody. Changes in perception of time and space, loss of emotions, changes in activity level, different body reactions, etc.<sup>5</sup> The study shows that maximum number of animal bite cases 72 (36.0%) were in the adult males. This higher number of animal bite cases in males may be due to the more outdoor activity of males. Similar findings were observed by Dr. Indu D et al.<sup>6</sup> they

showed that 57.7% of the study subjects were males. In a study conducted by T. R. Behera, D. M. Sathapathy et al.<sup>7</sup>. The maximum number (69.5%) of the cases was in males. The study shows that in case of both the male and female children (less than 10 years age group) maximum number of animal bites were on the Lower extremities. Similar findings were observed by Dr. Indu D et al.<sup>8</sup>. TR Behera, DM Sathapathy et al.<sup>7</sup> They observed that 50.1% and 66.7% of the bites were on lower limbs respectively. The study shows that Category II bite (exposure) was more common 127 (63.5%) cases than the Category III and I bite cases. These findings were in contrast to the observations by Dr. Indu D et al.<sup>8</sup> they observed that 57.1% of the cases were Category III bites. Similar observations were also observed by Khokhar et al.<sup>9</sup>

The dog bite eventually evolves into a various psychological symptoms, with classic symptoms of crying, fear, nightmare, tension/anxiety and bed wetting, clinging to parents in children. The less common psychological presentation is the PTSD and anger, while withdrawal and fear has a more protracted clinical course, with progressive tension/anxiety and sleep disorder. Almost all victims of all age groups in a study had one or more psychological responses with mixed and multiple responses as the commonest. This psychological reactions in dog bite victims was first recognized in a 2004 study which found that over half the victims studied had symptoms of post-traumatic stress disorder 2 to 9 months after sustaining a dog bite injury.<sup>9</sup>

Dog bite is a health problem of individual and society. The victim suffering from dog bite shows a higher degree of psychological morbidity<sup>10</sup>. The patient develops psychological reaction such as denial about situation, tension/anxiety. In our study we found that initial reaction to the dog bite was negative in the larger proportion of respondents that includes fear, anxiety/tension, sleep disturbances or withdrawal and bed wetting in children etc. in other studies 59% had fear of death, worry; tension etc. and Beck and Jones (1985)<sup>11</sup> had observed one fifth of the subjects had psychological morbidity and report that children who have been bitten by a dog have more psychological and emotional reactions than the adults. Similarly STANLEY told that the child may

develop significant sleep disturbances and intense psychological distress at, and/or physiological reactivity to exposure to, internal/external cues that symbolize/ resemble as an aspect of the traumatic event. Increased anxiety is one of the clusters of symptoms that occur.<sup>12</sup> However, dog bites and attacks are traumatic events and can have emotional consequences that affect victims for years. These range from anxiety to depression to posttraumatic stress disorder (PTSD). The emotional and psychological effects of dog bites are often more severe for children than for adults. Children are smaller and more vulnerable.<sup>13</sup> A dog bite can be an extremely traumatic event, especially for children. A child experiencing an event of threatening or catastrophic nature may experience considerable post-traumatic psychological distress. Children can have a hard time making sense of traumatic accidents and have difficulty regaining their sense of security after the attack. They may act out their emotions, or become noticeably withdrawn and quiet. Symptoms of post-traumatic stress disorder may arise over time.<sup>14</sup> Depression, shock and anxiety often plague a dog bite victim's normal life affecting their well being, relationships, school and work. Children are particularly prone to developing post traumatic stress after a dog bite. Some of the symptoms of post traumatic stress include distressing memories of the event including flashbacks and dreams, avoidance, changes in mood such as feeling hopeless, and changes in their emotional reactions such as feeling irritable, angry or easily startled. Even after a dog bite victim's physical injuries have healed, emotional scarring can last a very long time. Additionally, a fear of dogs poses a major challenge to a dog bite victim. Typically, after an attack, a dog bite victim will feel anxious and have difficulty enjoying dogs companionship as usual.<sup>15</sup> Victims may go through one or more of the stages, and may swing from first stage of cry and frightened - this happens immediately after the attack and then victim may cloud judgment about future risk of being bitten as feelings and often the victim cannot believe this has happened to them.<sup>16</sup> In one study by Richard showed that within 5 days of the traumatic event, 98 percent of the children were symptomatic for post-traumatic stress disorder, depression, or anxiety. One month after the injury, 82 percent continued to display

symptoms, and 42% of the patients continued to report symptoms at 12-month follow-ups. Persistent symptoms typically included flashbacks, fear of re-injury, mood disorders, body-image changes, sleep disturbances, and anxiety<sup>17</sup>.

### CONCLUSION

We grow up thinking that dog is man's best friend. When bitten by what should be a loyal and trusted companion, more than physical wounds appear, especially in children. Psychological and emotional effects are not limited to children; however, they are also quite prevalent in older victims. The treatment of dog bites shouldn't necessarily end in the doctor's room, as there can be long-lasting emotional or psychological effects. Whether it does or whether it doesn't depends on how the situation is appraised and how the dog bite victim rates their ability to deal with the event. The goal of counselling a Dog bite victim is to encourage, normalize and validate the emotional response and healing process and to re-empower the victim and help them to regain control. Once they control their fears they can reconnect with dogs.

Dog bite victims need support to help them minimize the stress of the event. They need emotional support and resources to help improve their coping strategies. It is important to limit the after-effects and maladaptive stress symptoms by providing support and helping the dog bite victim process the event in order to minimize "baggage" and prevent further psychological scarring (such as the development of a phobia of dogs or Post Traumatic Stress Disorder and other anxiety disorders)

This preliminary study was begun to identify how experiences from victims of dog bites were essential in the development and the implementation of strategies to tackle dog bites. There is a clear need for further studies using participants with more varied backgrounds and demographics, including children and parents. Our

study was limited in that it was a convenience sample. Events leading to children or men being bitten may be significantly different as may the reflection after the event. The stories retold by the participants in this study were retrospective rather than immediate post incident responses and later follow-up, which may be required to assess how the experiences and reflections change over time.

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