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Blood Injection - Injury Phobia amongst Medical Students and Its Impact on Their Future Prospects

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Abstract: *To have a particular phobia or fear is a standout amongst the most predominant mental issues. A type of phobia, the blood-injection-injury (BII) phobia is considered as one of the many phobias that are prevalent in the human population. BII phobia is an intense and can be characterized as an unreasonable fear or avoidance of the blood along with blood-related materials including injections, injuries, and also various invasive medical related interventions. Hence, with this background, the current cross-sectional study aims at determining the total frequency and causes behind medical students suffering from blood-injection-injury. In addition, since no research up till now has been conducted within this population in Lahore, Pakistan, it is very important to find the most common manifestation and to analyse the overall impact of blood-injection-injury (BII) phobia on medical students in order to provide reasonable solutions. All the medical students of Allama Iqbal Medical College from 1st to final year were included in the study including both hostelites and day scholars. Data was collected with the help of a questionnaire and data analysis was done using SPSS version 17. Based on the results, out of 400 students who responded to the study, 29.1% had blood-injection-injury phobia. Among the phobic symptoms, nausea was the most common symptom with a prevalence of 41.9%, followed by hypotension with 37.8% and fainting with 20.3%. 6% of the medical students experiencing this phobia have considered changing their work field, 11.3% have considered changing their area of specialization and 8.8% think that this phobia will affect their future prospects in the field of medicine.*

Keywords: *Blood, injection, injury, phobia, medical students, future prospects*

I. INTRODUCTION

To have a particular phobia or fear is a standout amongst the most predominant mental issues. The word phobia starting points from Phobos (Greek) and means trepidation or fear. For quite a while particular, phobias were viewed as a typical yet insignificant neurotic issue. However, expanding proof has demonstrated that some phobias are clinically critical and generally understudied disorders [1]. A type of phobia, the blood-injection-injury (BII) phobia is considered as one of the many phobias that are prevalent in the human population. BII phobia is defined in the Diagnostic and Statistical Manual of the Mental Disorders as being a persistent intense as well as an unreasonable fear or avoidance of the blood along with blood-related materials including injections, injuries, and also various invasive medical related interventions [2].

It is regularly called a BII phobia in light of the fact that frequently blood, harm, and mainly the injection are the prompts that can trigger the faint as is by and large spoken to in past literature as BII fear [3]. As advanced solution for the most part relies on upon infusions, BII fear has turned into an undeniably critical issue. BII is an inquisitive sort of particular phobia with unique clinical features. Introduction to phobic signs initiates tachycardia in many fears. BII patients commonly encounter diphasic cardiovascular reactions of tachycardia, trailed by bradycardia, vertigo, hypotension, stun, syncope, queasiness, diaphoresis and also from time to time low BP and eventually death [4]. In around 80% of the observed cases, phobic reaction is described by either syncope or presyncope. This reaction is very much peculiar to the blood fear and is mainly not normal or does not have similar features to any other type of phobia. The levels of disgust in BII phobia were observed to be much intense mainly for stimulus with respect to the fear levels [5].

Blood-injection-injury (BII) phobia differs from the other phobias in the aspect of the unique responses shown by the phobics. The most distinguishing trait of such blood phobics includes an exceptional physiological pattern whenever threatened with triggering of phobic stimuli. As a result, fainting response seen in blood phobics is rarely ever seen in any other phobias. It is regarded as vasovagal syncope and also depicted in past literature as either a two-phase, or a biphasic response to the BII stimuli. Its initial phase is dominated by the sympathetic responses and hence it involves a rise in both heart rate as well as BP that is typical in fight-flight component of anxiety response. On the other hand, the second phase is dominated by the activation of the parasympathetic

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system, and hence exhibits bradycardia and a decrease in the blood pressure leading to a reduction in cerebral blood flow and eventually fainting [6].

The available literature has covered much ground when it comes to investigating the pattern of hemodynamic response as well as associated autonomic mechanisms mainly in those individuals having blood phobia when exposed to the phobic stimuli. Furthermore, it also clarifies role of both sympathetic as well as parasympathetic control in defining the increase in blood pressure and heart rate response pattern [2]. Some of the literature states that the blood phobics mostly possess greater intrinsic parasympathetic control of their heart when compared to other phobics, and this variation could be further associated to their unique autonomic response pattern of the heart [7].

Fredrikson et al. [8] conducted a community survey and discovered point-prevalence specifically of 3.05 for the BII in Sweden [8-9]. Patients with BII phobias may maintain a strategic distance from doctor's facilities, insulin infusions needed for diabetes, or other vital restorative methods. In addition, Noyes Jr. et al. ([10] reported that around one fourth of people with no less than one illness or injury showed more nervousness as compared to the ones having no diseases or injuries.

The devastating impacts of BII phobias as a crippling dysfunctional behaviour in itself and additionally a source of avoidance to current prescription are common in the Middle East countries. There are no reports of prior studies on BII phobias in the Indian subcontinent. Likewise, there is a lack of investigations regarding blood phobia being conducted on medical students, especially since the entire medical practice revolves around the stimuli of Blood-Injection-Injury phobia. The closest that the available literature comes to this point of view are the investigations done on the cognitive factors that are considered an important component of anxiety [11]. Hence, the aim of the current investigation is hence to study the psychological aspects of Blood Phobia in medical students and how it affects their future practice of medicine.

II. METHODOLOGY

A. Participants

The current study was a cross sectional research having 400 participants. Allama Iqbal Medical College, Lahore Review Board approved this study. A prospective participant was eligible for the study if he or she was a student Allama Iqbal Medical College from 1st to final year. Both hostelites and day scholars were included in the study which took place in duration of three months (April-June, 2015). All teachers, doctors and paramedical staff were excluded from the study.

III. DATA COLLECTION PROCEDURE

The questionnaire was distributed among medical students of Allama Iqbal Medical College which is located at Shabbir Ahmad Usmani Road Lahore. 100 questionnaires were distributed among students of each year according to systematic random sampling. The random number chosen was 3 and every 3rd student was given the questionnaires. The tool contained questions regarding the demographic details of the students, factors responsible for this phobia, its manifestations and possible impact on the future of medical students. Almost 400 questionnaires were returned. The data was collected and analyzed.

IV. DATA ANALYSIS PROCEDURE

The data was collected and analysed using the software SPSS version 17. Dependant variable was Blood-injury-needle phobia and independent variables included class, gender, age, socio-economic status, manifestations of phobia, incidents in life and impact on future of the students. Relation among these different variables was analysed.

V. RESULTS

According to the results, the age of the students ranged from 19-29 years with mean of 21 years, median 21 years, mode 22 years and SD 1.725 (Table I). 30% students were male and 70% female (Fig. 1).

TABLE I: AGE OF PARTICIPANTS

Statistics		
Age of subjects		
N	Valid	400
	Missing	0
Mean		21.03
Median		21.00

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Mode	22
Std. Deviation	1.725
Minimum	18
Maximum	29

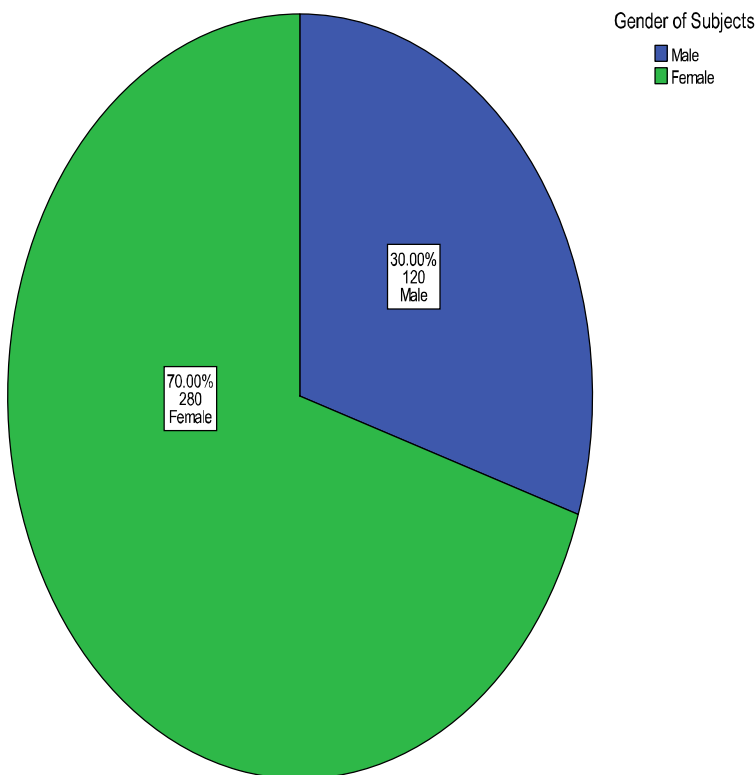


Fig. 1 Gender Distribution of the Participants

Of the 400 students, 80 students from each class responded to the study (Table II). 80.25% students had chosen MBBS by choice while 19.75 did not (Fig. 2).

TABLE II: PARTICIPANT DISTRIBUTION FROM EACH CLASS

Class of subjects					
		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	First year	80	20.0	20.0	20.0
	Second year	80	20.0	20.0	40.0
	Third Year	80	20.0	20.0	60.0
	Fourth Year	80	20.0	20.0	80.0
	Fifth year	80	20.0	20.0	100.0
	Total	400	100.0	100.0	

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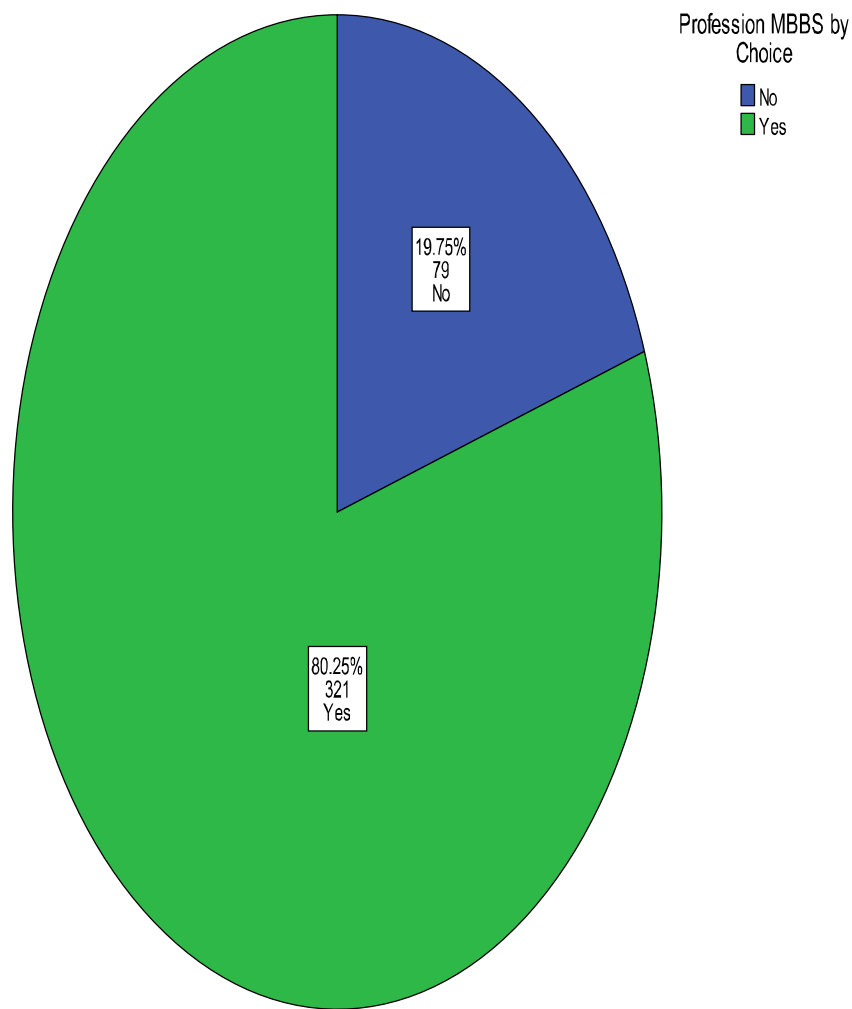


Fig. 2 Distribution of Participants showing profession of MBBS opted by Choice

31.3% of the students had donated blood in life and 40% had taken a blood sample (Table III). Of those who donated blood 7.25% felt sick afterwards (Fig. 3).

TABLE III: DISTRIBUTION OF PARTICIPANTS WHO DONATED BLOOD IN LIFE

		Ever Donated Blood		Ever taken a blood sample	
		Frequency	Per cent	Frequency	Per cent
Valid	No	275	68.8	240	60.0
	Yes	125	31.3	160	40.0
	Total	400	100.0	400	100.0

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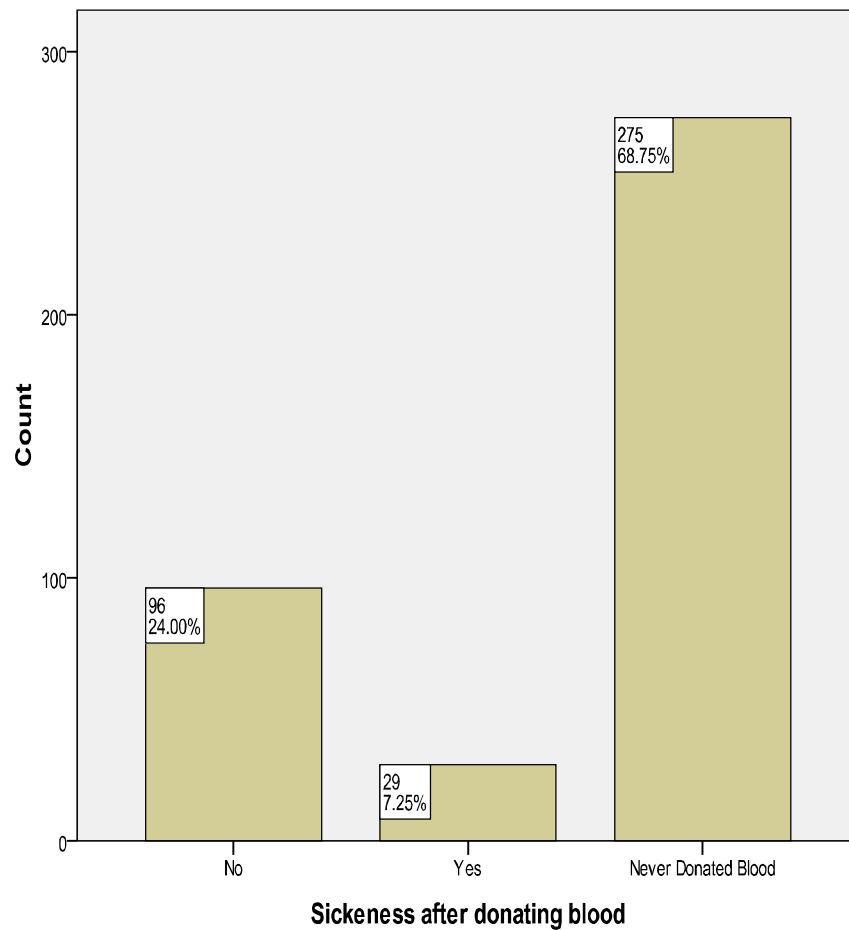


Fig. 3 Percentage of participants who showed sickness after donating blood

35.8% of the respondents felt sick after observing surgical procedures (Table IV). 29.1% of the respondents had blood-injection-injury phobia while 69.9% did not (Table IV, Fig. 4). Students who showed the phobic symptoms, 12.75% experienced them since childhood and 18% developed them later in life (Fig. 4).

TABLE IV: DISTRIBUTION OF PARTICIPANTS WHO FELT SICK AFTER SURGICAL PROCEDURES

		Ever taken a blood sample		Ever observed a surgical procedure without getting sick?	
		Frequency	Per cent	Frequency	Per cent
Valid	No	240	60.0	143	35.8
	Yes	160	40.0	257	64.3
	Total	400	100.0	400	100.0

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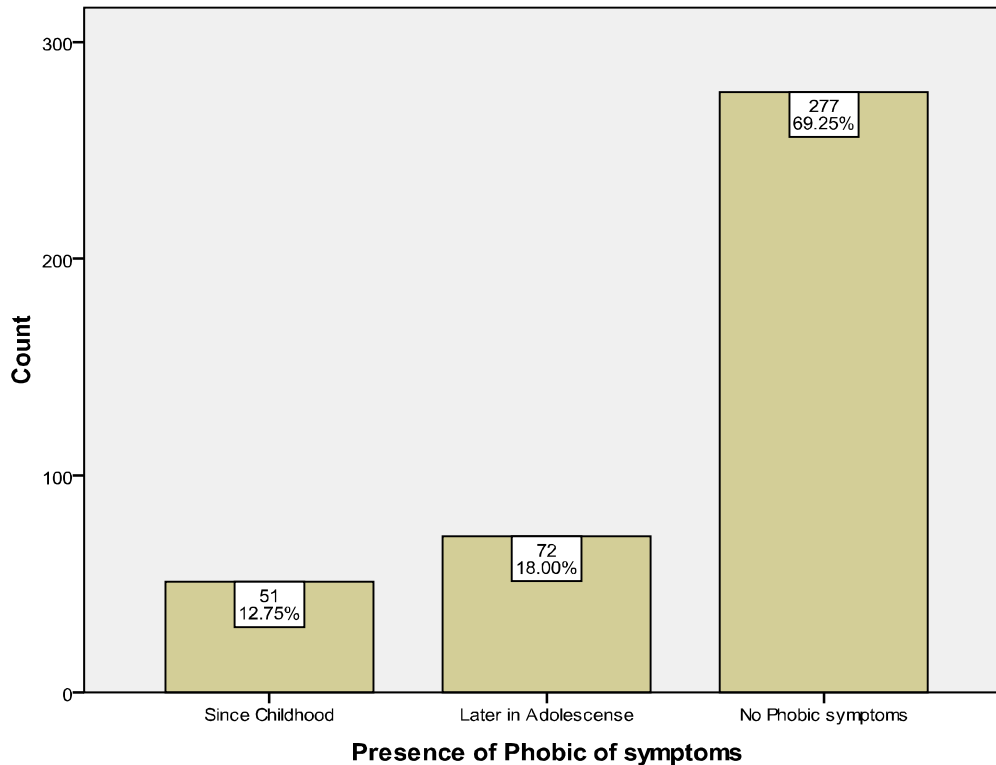


Fig. 4 Percentage showing symptoms of Phobia

23.3% of the students felt nauseating, 21% of the students felt hypotensive and 11.3% of the students fainted at the sight of blood-injection-injury (Table V).

TABLE V CONDITIONS OF PARTICIPANTS AT THE SIGHT OF BII

		Ever felt nauseating at the sight of blood/injection/injury?		Ever felt hypotensive at the sight of blood/injection/injury		Ever fainted at the sight of blood/injection/injury	
		Frequency	Frequency	Per cent	Per cent	Frequency	Per cent
Valid	No	307	76.8	316	79.0	355	88.8
	Yes	93	23.3	84	21.0	45	11.3
	Total	400	100.0	400	100.0	400	100.0

Among the phobic symptoms, nausea was the most common symptom with a prevalence of 41.9%, followed by hypotension with 37.8% and fainting with 20.3% (Table VI). Out of these 30% students with manifest blood-injection-injury phobia 36.59% had mild phobia, 36.59% had moderate and 26.83% had severe blood-injection-injury phobia (Fig. 5).

TABLE VI: SYMPTOMS OF BII PHOBIA

		Responses		Per cent of Cases
		N	Per cent	
	Ever felt nauseating at the sight of blood/injection/injury?	93	41.9%	76.2%
	Ever felt hypotensive at the sight of blood/injection/injury	84	37.8%	68.9%
	Ever fainted at the sight of blood/injection/injury	45	20.3%	36.9%
Total		222	100.0%	182.0%

a. Dichotomy group tabulated at value 1.

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7% of the respondents who developed the phobia later were due to a certain incident in life (Table VII).

TABLE VII: DISTRIBUTION OF PARTICIPANTS WITH LATE ONSET OF PHOBIA

If developed later, was it following a certain incident?					
		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	No	95	23.8	23.8	23.8
	Yes	28	7.0	7.0	30.8
	No Phobic symptoms	277	69.3	69.3	100.0
	Total	400	100.0	100.0	

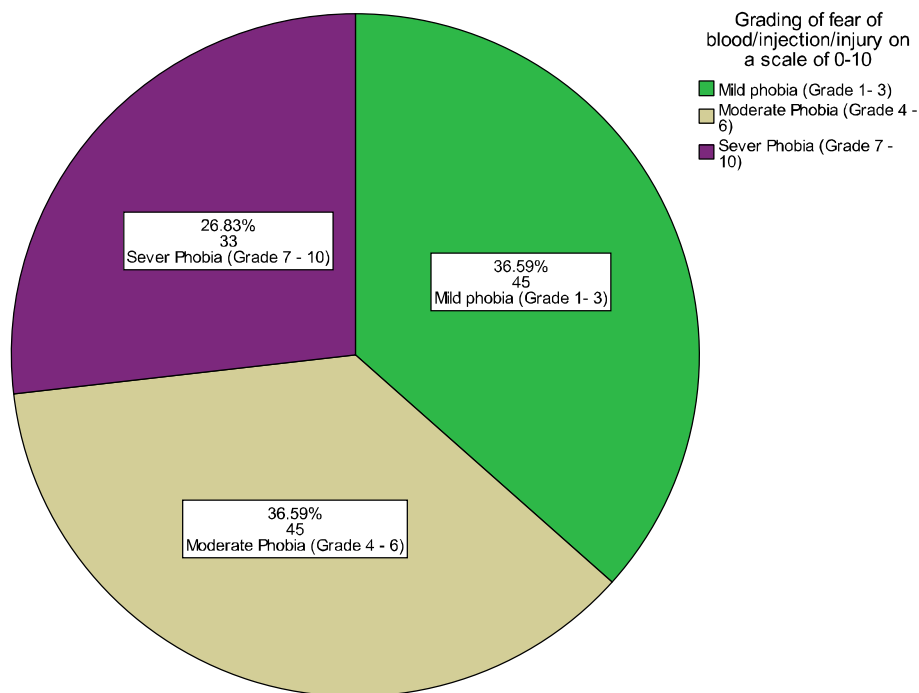


Fig. 5 Grading of BII phobia

Out of the students who developed the phobia as a result of exposure to an incident, 23% said that the incident was related to themselves and 7.3% attributed it to loved ones (Table VIII).

TABLE VIII: DISTRIBUTION OF INCIDENTS RELATED TO ONSET OF PHOBIA

If yes, was the incident related to: -yourself -a loved one					
		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Developed after personal experience	92	23.0	23.0	23.0
	Developed after family person experience	31	7.8	7.8	30.8
	No Phobic symptoms	277	69.3	69.3	100.0
	Total	400	100.0	100.0	

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Out of the 400 total students, 11.3% graded their phobia as mild phobia (1-3), 11.3% graded it as moderate phobia (4-6) and 8.3% graded it as severe phobia (7-10) on a scale of 0-10 (Table IX).

TABLE IX: GRADING OF FEAR OF BLOOD/INJECTION/INJURY ON A SCALE OF 0-10

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	No Phobic symptoms	277	69.3	69.3	69.3
	Mild phobia (Grade 1- 3)	45	11.3	11.3	80.5
	Moderate Phobia (Grade 4 - 6)	45	11.3	11.3	91.8
	Sever Phobia (Grade 7 - 10)	33	8.3	8.3	100.0
	Total	400	100.0	100.0	

6% of the medical students experiencing this phobia have considered changing their work field, 11.3% have considered changing their area of specialization and 8.8% think that this phobia will affect their future prospects in the field of medicine (Table X).

TABLE X: IMPACT OF BLOOD-INJECTION-INJURY PHOBIA ON FUTURE PROSPECTS

		Considering your fear, have you ever considered changing your work field?		Considering your fear, have you ever considered changing your area of specialization?		Do you think this fear might affect your future prospects in the field of medicine?	
		Frequency	Frequency	Per cent	Per cent	Frequency	Per cent
Valid	No	99	24.8	78	19.5	88	22.0
	Yes	24	6.0	45	11.3	35	8.8
	Total	277	69.3	277	69.3	277	69.3

VI. DISCUSSION

Blood-injury-injection or simply BII phobia is fear of needles, injection injury, and most importantly, of blood [12]. Blood-injection-injury (BII) phobia patients mostly avoid any sort of close contact with the sick people, avoid hospital appointments, and avoid watching television or reading newspaper reports about trauma as well as disasters [13]. In this light, the presence of blood-injection-injury phobia is particularly concerning among medical students whose future life and career is based on daily interactions with blood, injection and injury.

Phobias generally are quite prevalent among individuals. As per Burstein *et al.* [14] BII and animal fears are the most widely recognized sorts as a rule populace. Females will probably report any trepidation, to have more phobia sorts, and to meet indicative criteria. Expanded number of phobias was connected with expanded chances of meeting particular fear criteria and with expanded debilitation. As indicated by Bienvenu and Eaton [9], mental drug prevalence is lower in elderly and much higher in females and the people with limited education. Cases have fundamentally higher than anticipated lifetime prevalence of various other psychiatric conditions, including misuse/reliance, real dejection, obsessive-compulsive turmoil, alarm issue, agoraphobia, social fear and other basic fear [9]. However our study focused only on medical students because it is them who will be confronted with blood-injection-injury in their future on a daily basis. Only 30% were found to be phobic.

Blood-injection-injury phobia is most ordinarily analysed after someone faints, encounters a spontaneous increase in the heart rate, or has greatly uncomfortable sensations around seeing blood [12]. Keeping in view with these manifestations, our study showed nausea as the most prevalent symptom followed by hypotension and then fainting. As per Wani *et al.*, [3] subjects of BII phobia had a more noteworthy extent of histories of blacking out (55.77%) contrasted with (25%) those in ECA follow-up learn at Baltimore [9]. According to Burstein *et al.* [14], in the teens with unique phobia, 71.3% of them recognized their fear as being excessive and from 9.7% to 12.3% of them reported as a severe impairment. However, in our study only 8.3% graded their phobia as severe. Most cases involving blood-injection-injury (BII) phobia are discovered during childhood and require some form of treatment for overcoming

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dysfunctional behaviours which are associated with adverse medical outcomes [15]. On the contrary our study showed that majority of cases developed blood-injection-injury phobia later in life following exposure to a certain incident. Most of them claimed that the incident was related to personal experience. This finding suggests the role of life experiences in the modification of response to blood-injection-injury.

One of the major aims of the study was to analyse the effect this phobia might have on the future prospects of medical students and it was discovered that a very few percentage actually considered it threatening to their future career in medicine. 6% of the medical students experiencing this phobia have considered changing their work field, 11.3% have considered changing their area of specialization and 8.8% think that this phobia will affect their future prospects in the field of medicine.

VII. CONCLUSION

Blood injection injury phobia is considered as a common phobia prevalent more in the females than the males. Although it isn't much devastating at first place, still it proves to be quite dangerous whenever present in association to other medical related disorders. The current study found that 29.9% of the medical students suffer from blood-injection-injury phobia. Most of them attributed this fear to personal experiences and exposures to blood, injection, injury or related events. The most frequent manifestation of this phobia was nausea followed by hypotension and then fainting only a small percentage of phobic medical students considered this phobia a threat to their future in medicine.

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