

## Prevalence of Needle Phobia among Young Patients Presenting to Tertiary Care Government Hospitals of Karachi, Pakistan

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### ABSTRACT:

*Needle phobia-Fear of needles (trypanophobia), is extreme fear of medical procedures involving injections or hypodermic needles. It is of 4 types: Vasovagal type, Associative type, Resistive type and Hyperalgesic type. Needle phobia has recently been included in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) within the diagnostic category of Blood-Injection-Injury Phobia. Our objective is to evaluate prevalence of needle phobia among young patients presenting to tertiary care government hospitals of Karachi, Pakistan.*

*It is Cross-sectional study conducted at OPDs of Civil Hospital Karachi, Jinnah Hospital Karachi and Abbasi Shaheed Hospital Karachi, Pakistan from February, 2013 to July, 2013.*

*There were total two seventy three study subjects between ages of 14-25 years. Performa*

*was explained to every subject and verbal consent was taken before filling the Performa. Out of two seventy three study subjects, fear of needles was present in 37.2% (n=99) with majority of needle phobic were females 76.8% (n=70). Resistive type of phobia predominated prevalent but in few cases hyperalgesic type was also found. Elbow, Deltoid and Hand was feared the most with needle insertion. Family History of Needle Phobia was prevalent in thirty subjects and even blood tests and other medical treatment involving needle insertion were completely avoided by twenty three young patients.*

*There was strong relationship between type of phobia and body part feared by needle insertion with gender. But there is still need of further investigation.*

### Keywords:

Needle phobia; resistive type of needle phobia; tertiary care government hospital of Karachi, Pakistan; young patients

## 1. INTRODUCTION

It is an immense fear of a needle or injection that is not in proportion to the actual danger. Fear of needles known as trypanophobia, it is extreme fear of medical procedures may involve needles and injections. It is of four types: [1]

**VASOVAGAL:** It affect 50% of those many needle phobia, hence it is most common. It is an inherited reflex reaction. Such people fear the sight, thought or feeling of needles and needle like objects.

**ASSOCIATIVE:** It affects 30% of those afflicted and is second most common type. It stems after experiencing or witnessing a relative or friend undergoing such traumatic painful medical procedure and in patients who associate such painful medical procedure involving needles with past negative experience.

**RESISTIVE:** 20% of needle phobia is resistive, it is characterized by fears for needles along with being controlled or bridled. It develops due to poor handling and past experience of being forced physically and emotionally.

**HYPERALGESIC:** 10% or such population becomes needle phobic due to hypersensitivity to painful stimulus. It is inherited hyperalgesia. Pain is very severe and unbearable and they are unable to understand how anyone can bear such pain.

10% of population is emotionally stirred from recently recognized medical condition known as Needle Phobia. Health care system is now much concerned with this condition because most of people with trypanophobia avoid basic medical care [2]. Now it has being included under diagnostic category of Blood-Injection-Injury phobia in American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) [3]. Most

common cause of this phobia is inherited vasovagal reflex reaction triggered by needle piercing. This inherited reflex become evident after several exposure of needles. Hence it is inherited as well as learned behavior [2].

As compared to other phobias, in which patient experience tachycardia following exposure to feared object, needle phobics typically experience anticipatory tachycardia and hypertension for short period of time followed by bradycardia and hypotension on needle insertion and may b accompanied by pallor, tinnitus, diaphoresis, syncope, and some may experience systole or even death [4].

No such evaluation of prevalence of phobia of injections has been observed in health care system. Researchers have been done to estimate the frequency of needle phobia. According to Ni retal 4, 23% of travelers attending a travel health clinic suffered from fear of needles.6 to 15% of college students reported fear of dental care [5,6]. Precautions including counseling ,support, education are used to reduce solicitude about fear of needles [7,8,9].

The main purpose of this research was to evaluate the frequency of needle phobia among young patients visiting tertiary care government hospital in Karachi, Pakistan. Other objectives were to elucidate that how many youngster refrain medical care due to this type of phobia and to aware medical professionals about needle phobia.

## 2. MATERIALS AND METHODS

Two Seventy Three participants attending OPD get to know about fear of needles, its types and its effect on daily life through a Performa.

**Setup:** The study was carried out at Civil hospital Karachi, Jinnah hospital Karachi (JPMC) and Abbasi Shaheed hospital.

Participants were patients visiting CHK, JPMC and Abbasi Shaheed hospital, medical and surgical OPDs. The exclusion criterion was patients of age group below 15 or above 24 years and patients who are admitted in wards of CHK, JPMC and Abbasi Shaheed Hospital. The inclusion criterion applied was to the people of age group 15 to 24. Young patients visiting CHK, JPMC and Abbasi Shaheed hospital medical and surgical OPDs from February to July 2013 using a Performa especially prepared for the purpose.

Although some patients visited two or three times, each person was enrolled only once. A pre-test of 10 Performas was done on young patients of civil hospital Karachi. Performa was first explained to the participants by volunteers and then was filled by them. Verbal consent was also taken by every participant. The study was also approved by Ethical Review Board of Dow University of Health Sciences.

**Study Design:** Cross sectional study

**Questionnaires:** Each patient was asked to fill out an anonymous structured questionnaire regarding fear of injections. The purpose of the study was explained to the patients. Hearing the explanation and agreeing to fill out the questionnaire constituted informed verbal consent. Demographic characteristics were inquired and each study subject was asked, in native language, a combination of structured 14 open-ended and close-ended type questions, regarding their fear of needles, by single volunteer. Questionnaire was adapted from CTRN: Change That's Right Now..[10] and few questions were added, that explored study subject's behaviour towards needles, their negative experience involving needles, avoidance of basic medical care due to this fear, prevalence of same fear in family, type of fear and body part most feared was also explored. All such

information and responses were assessed and recorded by same volunteer.

**Statistical analysis:** Data was entered in Epidata software and was analyzed in SPSS (version 16.0). Mean and standard deviation was for continuous variable and frequency and percentages were used for categorical variable. Independent sample T-test and Chi-square test were used to find the association between two variables. P-value was set at 0.05.

### 3. RESULT

A total of 273 patients participated in the study (95% response rate) over survey period of 6 months. The research was conducted among youngsters with a Mean age of  $20.18 \pm 3.60$  years, (age range=14-25). Male and female ratio was approximately same. The baseline demographic details are given in table 1.

According to the study, Fear of needle was present in 37.2% (n=99) (table 1) with majority of needle phobic were females 76.8% (n=70) ( $p < 0.001$ ). Education has statically insignificant relationship with needle phobia. (Table 2)

Table 3 show an association of type of phobia with age and gender. In case of gender, Resistive type of phobia predominated in male and female with slight increase in male (60.9%) ( $p = 0.029$ ). For purpose of analyses age was classified into 2 groups (below 18 and 18 & above). Age group below 18 has same ratio of Resistive and Hyperalgesic type of phobia (30.3%) where as age group 18 & above complained predominantly of Resistive type of phobia (48.5%). However, Age distribution was insignificant with types of phobia.

Table 4 shows an association of parts of body mostly involved in needle phobia with gender and age. Males most commonly feared needle injection at elbow and deltoid region with same

ratio (28.0%) and in female hand was most feared region (39.5%) ( $p=0.029$ ). In case of age, below 18 most common part feared was deltoid region (45.5%) where as in age 18 or above, hand was the most commonly feared region (39.7 %). However, Age distribution was insignificant with body part feared the most

<b>Table 1. Demographic characteristics and needle phobia. Frequency distribution of demographic characteristics and needle phobia in study participants</b>		
<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
Age (Years )Mean±SD	20.18±3.60	
<b>Gender</b>		
Female	135	50.8
Male	131	49.2
<b>Education</b>		
Illiterate	74	27.8
Primary	70	26.3
Secondary	111	41.7
Graduate	11	4.1
<b>Caste</b>		
Sindhi	30	11.3
Punjabi	31	11.7
Pushto	73	27.4
Balochi	26	9.8
Urdu	63	23.7
Hazara	11	4.1
Memon	8	3.0
Other	24	9.0
<b>Fear of needles and sharp objects</b>		
Yes	99	37.2
No	167	62.8
<b>Level of anxiousness?</b>		
Extremely anxious	24	24.2
Very anxious	12	12.1
Somewhat anxious	27	27.3
A little	35	35.4
Not at All	1	1.0
<b>Avoid blood tests and medical care</b>		
Always	23	23.2
Never	46	46.5
Sometimes	30	30.3

<b>Family history</b>		
Yes	30	30.3
No	69	69.7
<b>Past experience</b>		
Personal injury	22	48.9
family injury	11	24.4
infectious disease before	3	6.7
family gone through a disease	6	13.3
Anyone died	3	6.7
<b>Type of needle phobia</b>		
Vasovagal	10	10.1
Associative	25	25.3
Resistive	42	42.4
Hyperalgesic	22	22.2
<b>Which part most involved</b>		
Hand	36	35.6
Elbow	12	11.9
Deltoid	35	34.7
Gluteal region	18	17.9

**Table 2. Association between needle phobia and different demographic variables of study participant**

VARIABLES	Needle Phobia				t-test/ Chi square test	P-Value
	YES		NO			
	N	%	N	%		
<b>Age (Years ) Mean±SD</b>	19±3.4		20.6±3.6		-2.55	0.011
<b>GENDER</b>						
<b>Female</b>	70	76.8	59	35.3	42.700	<0.001
<b>Male</b>	23	23.2	108	64.7		
<b>EDUCATION</b>						
<b>Illiterate</b>	26	26.3	48	28.7	0.738	0.864 !
<b>Primary</b>	29	29.3	41	24.6		
<b>Secondary</b>	40	40.4	71	42.5		
<b>Graduation</b>	4	4	7	4.2		

**Table 3. Association of Type of Needle Phobia with Gender And Age**

	Vasovagal		Associative		Resistive		Hyperalgesic		t-test/ Chi square test	P-Value
	N	%	N	%	N	%	N	%		
<b>Male</b>	2	8.7	1	4.3	14	60.9	6	26.1	7.848	0.049
<b>Female</b>	8	10.5	24	31.6	28	36.8	16	21.1		
<b>Age &lt;18</b>	5	15.2	8	24.2	10	30.3	10	30.3	4.439	0.218 !
<b>Age 18 or Above</b>	5	7.6	17	25.8	32	48.5	12	18.2		

**Table 4. Association of Part of Body mostly involved in needle phobia with Gender And Age**

	Hand		Elbow		Deltoid		Gluteal Region		t-test/ Chi square test	P-Value
	N	%	N	%	N	%	N	%		
<b>Male</b>	6	24.0	7	28.0	7	28.0	5	20.0	9.042	0.029
<b>Female</b>	30	39.5	5	6.6	28	36.8	13	17.1		
<b>Age &lt;18</b>	9	27.3	3	9.1	15	45.5	6	18.2	2.938	0.401 !
<b>Age 18 or above</b>	27	39.7	9	13.2	20	29.4	12	17.6		

! = statically insignificant

#### 4. DISCUSSION

This evidence based study conducted in tertiary care hospitals of Karachi, Pakistan demonstrated needle phobia estimate of at approximately 37.2%, is credible with majority being females. These results are higher than previously evaluated rates in previous studies. It is also evident that there is progressive rise in needle phobics. As study was performed on four hundred and forty nine Canadian women in 1982 and it was found that 21.2% of them had mild to severe fear, and 4.9% had a phobic level of fear of injections, blood, injury, and health care professionals[12]. One more study in 1969 assessed that 9% of people between 10 to 50 years of age in US have needle phobia, and 5.7% consulted a doctor about this condition[13]. 11% of one hundred English office patients had fear of painful injections[14]. Through in-hospital interviews, 22% of one hundred and eighty four adolescent maternity patients in Nashville, had a fear of drawing of blood due to which they avoid prenatal care[15]. In some previous surveys, 23% of two hundred Swedes[16] and 27% of one

hundred and seventy seven US college students[17] don't donate blood because of this fear. According to Hamilton, 1995 prevalence rate was at least 10%[2] whereas it was also estimated 21.7%[7] and 22%[2].

Genetic factors as well as learned element to needle phobia can also be affiliated. Needle phobia and family history with needle phobia are not strongly associated in our study as it was reported for fear of needles by Hamilton[2]. Evidences showed that only few percentage of respondents have genetic factors to needle fear in family(30.3%) a ratio little lower than what stated before[10] However, we found out a strong association of learned behavior of needle phobia with its resistive type. As previously

evident that a patient developed needle phobia when he was a child because of verbal mistreatment and inhibited by health care professional during many unpleasant medical procedures[18]. In a study of fifty six persons with trypanophobia, 52% developed it after experiencing a painful medical procedure, with a mean age at onset of 8.06 years, and another 24% had this fear after an episode of seeing another child, mostly a sibling, have a painful experience to needles[19].

Patients with needle phobias simply avoid health care; sometimes for many years. Our study stated that 23.2% avoided blood tests and complete medical care, These figures agree with a recent study conducted in 2009[10]. Results also match with study conducted before that 22% avoid prenatal care because they had fear of drawing of blood[15]

Our study on basis of evidences also stated that male gender mostly fear deltoid region and elbow for needle insertion where as female gender avoid needle insertion in hand, reasons for it was not further evaluated. Hence, there is need of further investigations behind the reason of needle phobia at different parts of body.

Our research result of needle phobia projected avoidance of medical treatment to a limited extent where as family history of needle phobia did not impart a role in fear of needles among patients of tertiary care government hospitals of Karachi, Pakistan.

#### Limitation of this study

There were various restrictions in the study and founded to be an introductory investigation requiring further research. The sample size was moderate and comprised of unknown number of people who didn't reported for medical care in OPD at that time. The passive method of presenting performa resulted in low interest and unknown selection bias there were unsatisfied reactions in up to 5% in sections of performa.

Hence there may be some chances of errors in representing the views of general population or indeed the society.

## 5. CONCLUSION

Our study showed that there were more needle phobics as compared to previous studies, majority were females. Resistive type was more often encountered in male as well as female. Elbow and deltoid region was feared by males and hand was mostly feared by females. There was strong relationship between type of phobia and body part mostly feared by needle insertion with gender. Hence, there is need of further investigations behind the reason of needle phobia at different parts of body.

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