

## **Belonephobia and finger pricking associated pain in hematology laboratory: A cross sectional study among undergraduate medical students in Nepal**

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### **Original Article**

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### **Abstract**

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#### **Background**

Needle phobia, clinically termed as Belonephobia strongly influences psychological behaviors. Physiological responses include palpitations, shortness of breath, nervousness and fainting. In Nepal, first year MBBS students prick their own finger for hematology practical. They use to suffer from Belonephobia and pain due to finger prick. The main objective of this study was to determine influential fear factors and assessment of pain during hematology practical.

#### **Material and Methods:**

One hundred and forty two first year medical students of basic sciences participated in the study. Standard pricking

was performed by blood lancet in the middle and side of the middle finger during hematology practical for the assessment of pain in Young Baker scale and visually rating scale. They also responded to a questionnaire on factors associated with fear of needles and lancets, symptoms etc.

**Results:**

Out of 142 students, numbers of males were 76 and females were 66. Belonephobia persisted among 65.2% females and 42.1% males,  $p < 0.01$ . Watching others during lancing or receiving injection was a significant fear factor. Lateral side pricking was preferred by students for less pain. Mild, moderate, "hurts little bit", "little more", "even more" were the maximum response for pain sensation.

**Conclusion:**

Positive approaches like separation of lancing area, systematic exposure, behavioral therapy, counseling and administration of anti-anxiety drugs for severely needle phobics, can alleviate fear and anxiety. Female students need more assistance. Development of proper strategies and necessary interventions are required, which will facilitate to overcome this phobia.

**Keywords:**

Belonephobia; hematology; lancet; needle phobia; pain.

**Background:**

Phobia is a normal physiological reaction which occurs due to external hazards. In the general population illness fear always persists<sup>1</sup>. Needle phobia, is a common condition, clinically known as Belonephobia, persists among 10% of the world population<sup>2,3</sup>. It is concerned with distress of patients, parents of young children, and health care personnel, particularly phlebotomists and anesthetists<sup>4</sup>. Needle phobia impacts on dental, societal, legal implications, and strongly influence psychological behaviors<sup>5</sup>. A wide range of Physiological reactions like palpitations, shortness of breath, dizziness, nervousness, irritability, insomnia, loss of appetite, fainting, etc. are common among belonephobics<sup>2,6,7</sup>. Sometimes it affects endocrine and cardiovascular responses<sup>8</sup>. Hematological experiments require blood and related with invasive procedures which induces pain. Hematology practical in Basic science, Physiology is an important part of MBBS curriculum. In Nepal, first year MBBS students use to prick their own finger for the Physiology practical. This teaching - learning pattern enhancing the practical knowledge and skills, also serving a platform to be familiar with the subject and their own hematological parameters. We observed that majority of the undergraduate students suffers from Belonephobia and pain due to finger prick. There are relatively less scientific reports available for finger pricking pain<sup>9-13</sup>. Majority of them done by researchers working for lancing devices manufacturing companies. Research survey of pricking pain, sponsored by diagnostic company might be influenced. So academic research aspect which is important most, always overlooked<sup>14</sup>. According to a report by Agras *et al.*, common fear of injections was more in 10 – 20 year olds, and there was gradual declination 10%, 7%, 6%, and 0% in the age groups of 30, 40, 50, and 60 years<sup>15</sup>. Students

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taking admission for MBBS course in Nepal mostly in the range of 18 - 20 years of age so they are the vulnerable group for belonephobia. Consequences of blood and injection phobia may lead someone to switch over another career<sup>16</sup>. With the advancement of technology, thin and sharp needles minimized finger pricking pain, but the complete removal is still a challenge<sup>14</sup>. No research work has yet been done regarding the assessment of pain allied with finger pricking and its determinants among medical students in hematology laboratory. The main objective of this study was to determine influential fear factors and pain during this exercise.

**Material and Methods**

**Study design and the participants:**

This prospective study was carried out in the Hematology Laboratory of Department of Physiology in Manipal College of Medical Sciences, Pokhara Nepal. Experiment was done on the first year medical students of Basic sciences. Standard pricking was performed in middle finger by the help of a lancet to assess pain. Printed copies of questionnaire, based on the factors associated with needle phobia and finger pricking pain were distributed among students. They completed it voluntarily and anonymously (Response as 'yes' or 'no') after the experiment.

**Assessment of Pain:**

At the beginning of the experiment students washed their hands with soap, warm water and clean the finger tip with alcohol. One investigator of our study examined lancets microscopically for intactness of the tip. Students were properly instructed and trained prior to the experiments for rating pain in visual analogue scale. After this initial setup, study investigator performed standard pricking by Medipoint blood lancet in the middle and side of the middle finger (right handed students in the left hand and left handed students in the right hand). Facial expression was observed by investigators throughout the process. This was rated in Young baker scale<sup>17</sup>. After the procedure, students verbally rated pain on a rating scale of 0-10 (0 = no pain, 10 = extreme pain)<sup>18</sup>. Release of chemical mediators that react with free nerve endings is directly linked to lancet penetration depth and intensity of pain. So, smaller lancet penetration depth was performed to avoid more injury to the tissue and minimize lancing pain<sup>17-21</sup>.

**Study period:**

The present study was undertaken during the period of 3rd February 2012 to 31st August-2013.

**Response rate and demographic characteristics:**

Out of 150 students 142 filled the questioner correctly, giving an overall response rate of 94.67%. The mean age of females (66, 46.5%), males (76, 53.5%) was 19.15±SD 1.15 and 19.47±SD 1.07 years respectively.

**Designing of Questionnaire for the assessment of needle phobia:**

A multigraded questionnaire was created to obtain criteria's like early experiences, significant factors associated with

fear of injections, area of finger pricking which causes less pain, factors related with needle phobia in hematology lab, some symptoms allied with lancet exposure. The questionnaire began with specific instructions followed by demographic data. The students were instructed not to enter any identifiable personal details like name, address, or roll number.

To protect confidentiality, unique study identification numbers were used. For content validity, pilot study was done with 10 volunteer medical students, 3 senior residents and 4 faculty members; they commented on the relevance and unambiguity of questionnaire. After discussion of the results and feedback final modification was done. Questionnaire was also validated by three subject experts. Questionnaire validation tests showed that the Alpha Cronbach was 0.69 for the factors associated with needle phobia.

**Data collection:**

Investigators of our study pricked middle finger during hematology practical with proper aseptic precautions and collected data personally by distributing the questionnaires to the first year students of Basic sciences. They were asked to answer each question frankly, honestly and after understanding it properly.

**Outcome Variable:**

Finger pricking pain, significant factors associated with fear of injections, area of pricking, different factors related with Belonephobia in hematology lab, symptoms with the use of lancets or needles were outcome variables.

**Explanatory variables:**

The demographic factors defined at individual level which includes age, gender were set as explanatory variables.

**Ethical committee approval:**

This research study was conducted in accordance to latest version of the Declaration of Helsinki. Informed consent was obtained from the participants before study and approval was taken from the Research Ethical Committee of Manipal College of Medical Sciences.

**Data management and statistical analysis:**

Descriptive statistics and testing of hypothesis were used for the analysis. The data collected was analyzed using Statistical Package for the Social Sciences (SPSS) for Windows Version 16.0 (SPSS Inc; Chicago, IL, USA). The associations between the different variables were tested using the Chi-square test and strength of the relationship with logistic regression. We calculated odds ratios (OR) and their 95% confidence intervals (95% CI). A p value less than 0.01 was considered statistically significant.

**Inclusion criteria:**

All the first year students of Basic sciences 18 years of age or older were included in the study.

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**Exclusion criteria:**

Students under medication, severe belonephobia, not willing to participate voluntarily and incorrectly filled questioners were excluded to avoid biasness.

**Results**

**Table 1: Early experiences allied with Needle phobia**

	Female		Male		P value
	no	yes	no	yes	
Traumatic Experience	59 (89.4%)	7(10.6%)	69(90.8%)	7(9.2%)	0.49 <sup>x</sup>
Are you taking regular injections	63(95.5%)	3(4.5%)	75(98.7%)	1(1.3%)	0.25 <sup>x</sup>
Prior bad experience with injections	57(86.4%)	9(13.6%)	65(85.5%)	11(14.5%)	0.54 <sup>x</sup>
History of fainting following injection	64(97%)	2(3%)	73(96.1%)	3(3.9%)	0.56 <sup>x</sup>
Ever hospitalized	38(57.6%)	28(42.4%)	37(48.7%)	39(51.3%)	0.18 <sup>x</sup>

<sup>x</sup>p>0.05, statistically not significant

Table - 1 represents early experiences allied with Needle phobia. Only 10.6% females and 9.2% males had early traumatic experience. Among both the genders, less participants were taking regular injections, 4.5% females and 1.3% males. Prior bad experience with injections was reported by 13.6% females and 14.5% males. Past history of fainting following injection was rare, 3% females and 3.9% males. Hospitalization history was comparatively more in males 51.3%, than females 42.4%.

**Table 2: Significant factors associated with fear of injections**

	Female		Male		P value
	no	yes	no	yes	
Feeling scare when I get the smell in the room	54(81.8%)	12(18.2%)	58(76.3%)	18(23.7%)	0.27 <sup>x</sup>
Hearing the nurse talk about injection	49(74.2%)	17(25.8%)	58(76.3%)	18(23.7%)	0.46 <sup>x</sup>
Scared when watching the nurse prepare the syringe	39(59.1%)	27(40.9%)	58(76.3%)	18(23.7%)	0.022 <sup>†</sup>
scared when watching other people receive injection	50(75.8%)	16(24.2%)	68(89.5%)	8(10.5%)	0.025 <sup>†</sup>
Fear of injection due to pain	26(39.4%)	40(60.6%)	52(68.4%)	24(31.6%)	0.000 <sup>†</sup>
Preference of Needle size	Female		Male		0.016 <sup>†</sup>
	Very small	19 (28.8%)	9(11.8%)		
	Small	32(48.5%)	37(48.7%)		
	Medium	15(22.7%)	30(39.5%)		

<sup>x</sup>p>0.05, statistically not significant

<sup>†</sup>p<0.05, statistically significant

<sup>†</sup>p<0.01, statistically significant

Table – 2 depicts significant factors associated with fear of injections. Room smell was a cause of fear for 18.2% females & 23.7% males. Nurse talking about injection was not at all a causative factor of fear for a larger population

74.2% female and 76.3% males. Watching nurse during preparation of the syringe caused fear 40.9% females and 23.7% males. Scared to see others receiving injections was a fear factor for 24.2% females and 10.5% males. Fear of injection pain was prevalent among 60.6% females and 31.6% males. Preference for "very small needle" was more (28.8%) in female and 11.8% in male. Both the genders preferred small needle almost in the same frequency. Medium size needle was chosen by 39.5% males and 22.7% females.

**Table 3: Area of pricking which causes less lancing pain sensation**

	Female	Male	P value
Middle of the finger tip	25(37.9%)	18(23.7%)	0.049 <sup>x</sup>
Side of the finger tip	41(62.1%)	58(76.3%)	

<sup>x</sup>p>0.05, statistically not significant

Table – 3 explains, majority of the participants, female 62.1% and male 69.7% preferred side of the fingertip for less lancing pain sensation. Remaining students liked to prick themselves in the middle of the finger tip.

**Table 4: Factors linked with needle phobia in hematology lab**

General questions	Female		Male		P value
	no	yes	no	yes	
Fear of pain during finger pricking	23(34.8%)	43(65.2%)	44(57.9%)	32(42.1%)	0.005 <sup>†</sup>
Relative fear of lancets	37(56.1%)	29(43.9%)	48(63.2%)	28(36.8%)	0.24 <sup>x</sup>
Smell in the Hematology room is a fear factor	56(84.8%)	10(15.2%)	67(88.2%)	9(11.8%)	0.36 <sup>x</sup>
Hearing the teacher or lab assistant discussing with students about finger pricking causes fear	54(81.8%)	12(18.2%)	69(90.8%)	7(9.2%)	0.094 <sup>x</sup>
Watching other students pricking scares you	49(74.2%)	17(25.8%)	67(88.2%)	9(11.8%)	0.027 <sup>†</sup>
To see Blood is coming out from fingertip makes me panicky	57(86.4%)	9(13.6%)	65(85.5%)	11(14.5%)	0.54 <sup>x</sup>

<sup>x</sup>p>0.05, statistically not significant

<sup>†</sup>p<0.05, statistically significant

<sup>†</sup>p<0.01, statistically significant

Table – 4 explains factors linked with needle phobia in hematology lab. Fear of pain during finger pricking prevailed among 65.2% females and 42.1% males. Relative fear of lancets was present in 43.9% females, 36.8% males. Smell in the Hematology room affected comparatively less students, 15.2% females and 11.8% males respectively. Discussion about lancing in practical class was a cause of fear for 18.2%

**Belonephobia and finger pricking associated pain** females and 9.2% males. Watching other students pricking scares 25.8% females and 11.8% males. Oozed blood from pricked finger was panicky for 13.6% females and 14.5% males.

**Table 5: Symptoms showed after exposer with lancet**

Symptoms	Female		Male		P value
	no	yes	no	yes	
Dry mouth	52(78.8%)	14(21.2%)	55(72.4%)	21(27.6%)	0.24 <sup>x</sup>
Sweaty	46(69.7%)	20(30.3%)	57(75%)	19(25%)	0.30 <sup>x</sup>
Short of breath	48(72.7%)	18(27.3%)	65(85.5%)	11(14.5%)	0.047 <sup>x</sup>
Nauseous	62(93.9%)	4(6.1%)	72(94.7%)	4(5.3%)	0.56 <sup>x</sup>
Feel faint	61(92.4%)	5(7.6%)	75(98.7%)	1(1.3%)	0.075 <sup>x</sup>
Feeling to Pass out	61(92.4%)	5(7.6%)	72(94.7%)	4(5.3%)	0.41 <sup>x</sup>

<sup>x</sup>p>0.05, statistically not significant

Table – 5 shows dry mouth & sweat were associated with lancing affected 21.2%, 30.3% females and 27.6%, 25% males respectively. Short of breath and nauseous feelings had an effect on 27.3%, 6.1% females and 14.5%, 5.3% males. Feeling of faintness and pass out involved a less population in both the genders.

In table – 6 assessment of pain sensation with visually rating scale revealed that 18.4% males & 4.5% females perceived mild 1 pain. 27.3% females and 27.6% males felt mild 2 pain. 30.3% females and 26.3% males experienced mild 3 pain. 15.2% females and 10.5% males suffered moderate 5 pain. Surprisingly a less study population, 4.5% females and 3.9% males did not felt any pain during pricking.

**Table 7: Pain Sensation during finger prick (Young Baker Scale)**

	No hurt	Hurts little bit	Hurts little more	Hurts even more	Hurts whole lot	Hurts worst	P value
Female	3(4.5%)	18(27.3%)	21(31.8%)	12(18.2%)	10(15.2%)	2(3%)	0.005 <sup>†</sup>
Male	3(3.9%)	38(50%)	27(35.5%)	6(7.9%)	2(2.6%)	0(0%)	

<sup>†</sup>p<0.01, statistically significant

In table – 7 Sensation of pain is represented in Young Baker scale, showed 28.8% females and half of the males reported finger prick hurts little bit, where as it hurts little more for 31.8%, 35.5% females and males respectively. Lancing hurted even more for 18.2% females and 7.9% males. Pricking hurted whole lot for 15.25% females and 2.6% males respectively.

Table – 8 shows females were afraid 2.23 times more when watching the nurse prepare the syringe compared with males (OR 2.231, 95% CI 1.084 -4.589). Females afraid 2.72 times more to watch other people receive injection contrasted with males (OR 2.720, 95% CI 1.080 -6.852). Females had 3.33 times more fear of injection due to pain compared with males (OR 3.333, 95% CI 1.670 -6.654). Fear of pain during finger pricking was 2.57 times more in females compared with males (OR 2.571, 95% CI 1.301 - 5.079). Watching other students pricking scares females 2.58 times more compared with males (OR 2.583, 95% CI 1.063 -6.277).



**Table 6: Pain Sensation during finger prick (Visually rating scale)**

	None	Mild			Moderate			Severe				P value
		Mild1	Mild2	Mild3	Moderate4	Moderate5	Moderate6	Severe7	Severe8	Severe9	Severe10	
Female	3 (4.5%)	3 (4.5%)	18 (27.3%)	20 (30.3%)	10 (15.2%)	7 (10.6%)	4 (6.1%)	0	1 (1.5%)	0	0	0.33*
Male	3 (3.9%)	14 (18.4%)	21 (27.6%)	20 (26.3%)	8 (10.5%)	6 (7.9%)	4 (5.3%)	0	0	0	0	

\*p>0.05, statistically not significant

**Table 8: Logistic regression table**

Factor/variable	Odds Ratio (95% CI)
Traumatic Experience	1.169(0.388, 3.527) <sup>*</sup>
Are you taking regular injections	3.571(0.362, 35.191) <sup>*</sup>
Prior bad experience with injections	0.933(0.361, 2.413) <sup>*</sup>
History of fainting following injection	0.760(0.123, 4.695) <sup>*</sup>
Ever hospitalized	0.699(0.360, 1.358) <sup>*</sup>
Feeling scare when I get the smell in the room	0.716(0.316, 1.624) <sup>*</sup>
Hearing the nurse talk about injection	1.118(0.521, 2.400) <sup>*</sup>
Scared when watching the nurse prepare the syringe	2.231(1.084, 4.589) <sup>†</sup>
Scared when watching other people receive injection?	2.720(1.080, 6.852) <sup>†</sup>
Fear of injection due to pain	3.333(1.670, 6.654) <sup>†</sup>
Fear of pain during finger pricking	2.571(1.301, 5.079) <sup>†</sup>
Relative fear of lancets	1.344(0.685, 2.635) <sup>*</sup>
Smell in the Hematology room is a fear factor	1.329(0.505, 3.500) <sup>*</sup>
Hearing the teacher or lab assistant discussing about finger pricking causes fear	2.190(0.808, 5.942) <sup>*</sup>
Watching other students pricking scares you	2.583(1.063, 6.277) <sup>*</sup>
To see Blood is coming out from finger tip makes me panicky	0.933(0.361, 2.413) <sup>*</sup>
Dry mouth	0.705(0.325, 1.531) <sup>*</sup>
Sweaty	1.304(0.623, 2.729) <sup>*</sup>
Short of breath	2.216(0.959, 5.121) <sup>*</sup>
Nauseous	1.161(0.279, 4.838) <sup>*</sup>
Feel faint	6.148(0.699, 54.029) <sup>*</sup>
Feeling to Pass out	1.475(0.379, 5.739) <sup>*</sup>

\*p>0.05, statistically not significant

†p<0.05, statistically significant

‡p<0.01, statistically significant

**Discussion:**

**Socio demographic influences**

The questionnaire responses revealed that female students had more fear of injections, which agrees with some other studies showing female predominance of fear responses and anxiety especially in younger age<sup>7,22-24,25</sup>. Female students need more assistance in this context and they might develop an aversion towards surgery in future. Similar findings was reported by Roy *et al.* where female students preferred medicine more than surgical specialties<sup>26</sup>.

**Early experiences allied with Needle phobia**

Phobia is associated with anxiety and sometimes due to negative experiences of painful procedures. Research work done in Academic Centre for Dentistry, Amsterdam reveals the relationship between early experiences of injection and anxiety with mandibular block<sup>27</sup>. Still there is a dispute in behavioral literature correlating fear acquisition with traumatic experiences<sup>28</sup>. We got less students reported

about traumatic experience. Research study in Bundang Hospital, Korea reported female gender as a determinant for intramuscular vaccine injection pain. Our study also confirmed this relationship<sup>29</sup>.

In this research, receiving regular injections, was relatively less. This is a common practice among diabetics for administering insulin. As our students were below 20 years of age so prevalence of diabetes was also less, (0.26% according to American Diabetes Association) so it may be a reason<sup>30</sup>. History of fainting was a less common experience among our students. Vasovagal reflex syncope is the main cause of transient loss of consciousness acting through vasodilatation and decreased heart rate<sup>31</sup>. Early hospitalization history may reduce needle phobia. Research work by Andrews GJ explained how hospitalization causes fear responses to clinical procedures with needles and their insertion by healthcare professionals<sup>32</sup>. Apart from this, hospitalization can also improve their own professional development<sup>33</sup>.

**Significant factors associated with fear of injections**

Smell in the hospitals mainly comes from alcohol, antiseptic and phenols, bleaching agents used for sterilization purpose. There is a relationship between Nosocomephobics (a situation of abnormal fear of hospitals) and hospital smell, as they are sensitive to that particular one. In this study we observed males were more affected with room smell. Hearing the nurse talking about & watching others receiving injection was a cause fear. They also scared to see the nurse preparing the syringe. A study done in travel health clinic, Haifa, Israel, showed that there is significant association between fear factor and watching other people receive their vaccines. A strong relationship was observed between fears of injection and pain among the females. This was similar with earlier research works. Size of the needle determines penetration depth and intensity of pain. Majority of the students preferred small needles<sup>7,22-24</sup>.

**Area of pricking which causes less lancing pain sensation**

In this study less lancing pain sensation perceived by both genders when pricked side of the finger tips compared with the middle. These findings were quite similar with a survey of approximately 1000 patients with type 1 and type 2 diabetes. A large number of participants reported less painful lateral side of the fingertip for pricking (51%)<sup>34</sup>.

**Factors linked with needle phobia in hematology lab**

We observed fear of pain during finger pricking prevails mostly in females. This is similar with earlier works [22-24]. Relative fear of lancets affected comparatively less

population in both the genders. It may be due to less pain sensation when compared to hypodermic needles. Less penetration depth with lancets causes minimal injury to the tissue and therefore reduced lancing pain<sup>19-21</sup>. Smell in the Hematology room was a fear factor for fewer students, females little more. Smell mainly comes from alcohol & antiseptic used for sterilization purpose. This can be correlated with Nosocomophobia, as those patients were delicate to the antiseptic smell of hospitals. Our students use to come in hematology lab each week. May be repeated exposure makes them less sensitive to smell. Previous studies have demonstrated that certain room smell was a determinant factor for injection phobia<sup>7</sup>. Hearing the teacher or lab assistant discussing with students about finger pricking causes fear in females. They were more needle phobics compared with male<sup>23, 24</sup>. We also found a strong association between fear of needles and watching others during pricking procedure. Around one fourth of the female population reported that watching other students pricking scares them. It may be due to the facial expressions during pricking. Earlier researchers showed that there is significant association between fear factor and watching other people receive their vaccines. Our present study also supports this<sup>7, 35</sup>. In a dental clinic research work, Germany, 47% of the respondents were reported the sight of the injection needle created a panic for them<sup>36</sup>. To see blood was coming out from fingertip caused fear for almost equal population in both genders. Fear of blood can be defined as the fear and avoidance of circumstances involving direct or indirect exposure to blood, injuries, wounds, and so forth. Also known as hematophobia<sup>37</sup>. It may be due to chronic diseases, study done by Kose and Mandiracioglu had shown that fear of blood/injection was significantly higher in patients with chronic diseases<sup>38</sup>. It was also possible that phobic sufferers had past histories of fainting and seizures<sup>23</sup>. Earlier research stated that higher proportions of blood-phobic subjects compared to injection-phobic subjects reported having close relatives with the similar kind of phobia (61% vs. 29%) and tendency of fainting in the phobic situation (77% vs. 48%)<sup>16</sup>.

#### **Symptoms showed after exposure with lancets**

Fear response is associated with stress symptoms which includes dry mouth, sweat, and short of breath. In our study we found belonephobia which causes short of breath among females was almost double compared with males. An earlier study also supports this<sup>39</sup>. Some students reported feeling of faintness; it may be due to the influence of autonomic regulation. This can be explained as a diphasic response, with an increase in heart rate and blood pressure primarily, termed as a fight-flight response, and then successive decline in blood pressure and heart rate. This event leads to vasovagal fainting<sup>40</sup>. Research study done by Olatunji *et al.* on 259 nonclinical participants showed that the relation between disgust sensitivity and fainting symptoms was totally arbitrate by blood-injection-injury fear<sup>41</sup>. Research work done by Exeter-Kent HA confirmed that individual differences in trait anxiety and disgust sensitivity act together to create signs of faintness<sup>42</sup>. Some

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other study suggests blood-injury phobics without a history of fainting reported more anxiety<sup>43</sup>.

#### **Pain Sensation during finger prick (Visually rating scale)**

Invasive procedures are to some extent painful. Lancing pain sensation depends on penetration depth, sharpness of the tip, thickness of the skin, speed of penetration etc. visually rating scale for pain sensation is well established<sup>15</sup>. Most of our students experienced mild pain. Less students reported moderate pain. It may be due to less penetration depth during finger prick compared with other invasive procedures. Finger prick pain ratings yielded only a significant major effect of alexithymia. Higher pain ratings allied with higher alexithymia scores<sup>44</sup>.

#### **Pain Sensation during finger prick (Young Baker Scale)**

Young Baker scale is a well known rating scale for the assessment of pain<sup>18</sup>. Study outcome showed selection of faces with "hurts little bit", "little more", "even more" were more. Among females, the faces with "hurts even more" & "hurts whole lot" were comparatively more. This is comparable with a study by Nahm *et al.*, where injection pain was more in females<sup>29</sup>.

#### **Conclusion:**

More attention should be given to the pain associated with finger pricking. Sometimes this phobia can put off students from undertaking certain medical post graduation careers in surgical field. Female students need more assistance. Positive approach should be adopted by teaching faculty to alleviate this fear and anxiety. The lancing area should be separated by curtains from rest of the classroom, as in our students were significantly influenced by watching others finger pricking. Development of suitable strategies and necessary interventions will facilitate to overcome this phobia. Finger pricking should be done laterally because of less pain. Belonephobia can be successfully treated by systematic exposure & counseling. Cognitive behavioral therapy may also be helpful in this context, as the therapy is implicit to retrain the brain not to engage neural pathways that lead to the creation of mental disturbance after exposure with lancets. Anti anxiety drugs in severe conditions may be used with clinicians guidance.

#### **Limitations of the study**

Use of commercially available lancing device is recommended to future studies for accurate results on penetration depth. A multicentric institutional based study with higher sample size will also beneficial to obtain a clear scenario.

#### **Author's contribution**

BR, BS and IAS designed the questionnaire, interpreted the data, drafted the manuscript, and revised it. BR conceived of the study with IB, acquired & interpreted the data and revised the manuscript. BS and IB2 took part in data analysis, interpreted the data, and revised the manuscript. Final manuscript was approved by all authors.



### Conflict of interest

The authors declare that they have no competing interests.

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