

# Correlation Between The Waiting Time And Anxiety Levels Of The Individuals During Venipuncture Before

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## **ABSTRACT**

Even though it's necessary for both diagnosis and treatment, venipuncture may cause discomfort and anxiety in adults. From November 2020 to December 2020, researchers at a training and research hospital ran a descriptive and cross-sectional study in their adult blood collection unit. Data was collected using the Visual Analog Scale (VAS), Spielberg State-Trait Anxiety Inventory (STAI), and the Case Report Form. Evaluation of the data was done using descriptive statistics, the Mann-Whitney U Test, the Kruskal-Wallis Test, the Post Hoc Dunn test with Bonferroni Correction, and the Spearman Correlation Coefficient. A grand number of 140 willing blood donors were chosen for this investigation. A median of 6.0 (0.0-62.0) minutes was spent waiting for the operation to begin. The participants reported more discomfort during the venipuncture as the time to provide blood rose, but no change in their anxiety levels.

**Keywords:** Waiting time, Pain, Anxiety, Blood sample, Venipuncture.

## **I. INTRODUCTION**

As a common but vital practice, venipuncture involves taking blood for medical reasons. This is done in a variety of healthcare settings. Although venipuncture is necessary for diagnostic and therapeutic reasons, many adults worry about the discomfort and anxiety they may feel during the procedure, which may have a major impact on their health. The time spent waiting before the venipuncture process starts, meanwhile, is an often-overlooked yet crucial component in determining

these sensations. People preparing to have a venipuncture may experience significant changes in their mental and physical health during this time of waiting, which is often filled with anxiety and doubt.

It is well-documented that venipuncture presents both psychological and physical aspects of fear and discomfort, despite its everyday nature. On the other hand, we should look more closely at the time component of venipuncture, especially the intervals between the actual blood pull and the waiting time. Individuals experiencing venipuncture may have a range of physical and emotional reactions, each of which may be influenced by the specific set of factors introduced during this time period. People may experience increased anxiety while waiting for their turn because of the combination of the imminent treatment and the unknown nature of the waiting time. Also, there's still a lot of unanswered questions about how long you have to wait before you feel any discomfort during a venipuncture. Analyzing these interrelated factors may help us understand the venipuncture process as a whole, which in turn can lead to more focused treatments to reduce discomfort and anxiety and improve the patient's experience.

The anticipation of venipuncture is closely associated with anxiety, a complex emotional reaction. During the waiting period, a multitude of mental, emotional, and physical elements contribute to the overall feeling of worry. Anxieties during the waiting time are often exacerbated by mental variables including anticipation of the surgery, needle phobia, and worries about possible pain. Feelings of anxiety, dread, and anxiousness might arise emotionally due to the combination of the unknown healthcare setting and the imminent venipuncture. Physiologically, the body goes into stress mode, which means your heart rate, blood pressure, and hormone levels all go up. In order to alleviate pre-venipuncture anxiety and improve patients' general psychological well-being, it is crucial to understand how waiting time magnifies these cognitive, emotional, and physiological aspects of worry.

The subjective but critical part of the venipuncture experience is the impression of pain. The time spent waiting before the needle is inserted influences how the person feels about the pain. Venipuncture is already painful, and the anticipation of the procedure during the waiting time might make you more sensitive to pain. To fully understand the intricacies of

venipuncture, it is necessary to investigate the intricate link between waiting time and the sense of pain. Healthcare practitioners may better meet the specific requirements of adults undergoing venipuncture by understanding what causes discomfort during and after the process. This will lead to a more positive and patient-centered approach to blood collection.

It becomes clear that the amount of time adults must wait before a venipuncture has a significant impact on their physical and mental well-being. This introduction sets the stage for a comprehensive examination of the effects of waiting time on venipuncture-related anxiety and discomfort, highlighting the need for focused treatments to improve the patient experience as a whole. In order to provide a comprehensive study of the effect of waiting time on anxiety and discomfort during venipuncture, we will dive into the following sections to review the relevant literature, techniques, and results. In order to educate tactics that promote patient comfort and well-being during venipuncture, this thorough analysis seeks to give significant insights to healthcare practices.

## **II. REVIEW OF LITERATURE**

France, Christopher et al., (2021) Reduced recruitment and retention of blood donors has been linked to elevated fear and anxiety surrounding stimuli connected to donations, such as needles, pain, blood, and fainting. Fearful first-time donors may have lower donation confidence and more unfavorable views about donations, according to the current longitudinal research. This might explain the adverse association. A total of 1479 first-time whole blood donors were studied. The participants were 67.9% female, with an average age of 19.3 (SD = 2.5) years. The researchers used path analyses to look for connections between the donors' ratings of their fear of blood draws and donation anxiety, which were taken about one week after the donation, their confidence and attitudes towards donation, which were taken about six weeks later, and their attempts to donate blood in the 14 months after the original donation. A combination of decreased donor confidence and more unfavorable views about contributions mediated the indirect effects of dread of blood draws and donation anxiety on the number of attempts at donations, according to path analyses. The current study's findings support the idea that first-time donors should be evaluated for anxiety and fear in

order to address their concerns, boost their confidence and attitudes, and, in the end, encourage their long-term retention as blood donors. This is important because keeping the blood supply healthy depends on new donors being retained.

Hoogerwerf, M. et al., (2018) There is an increase in psychological stress levels among blood donors. The effects of blood donation on the body, as well as any differences in response patterns based on gender, experience with donations, and non-acute stress, are being explored in this research. Research methodology At seven points during the standard donation procedure, 372 donors had their physiological stress levels assessed, including blood pressure, pulse rate, and pulse rate variability (PRV). High frequency (HF) and low frequency (LF) power characteristics in the frequency domain and root mean square of successive differences (RMSSD) in the time domain were used to evaluate PRV. A questionnaire was used to measure non-acute stress. The relevance and shape of the time course patterns were evaluated by comparing men and women, first-time and experienced donors, donors with high and low levels of non-acute stress, and by fitting multilevel models for each stress measure. There were notable trends in the responses to all stress measures. Systolic blood pressure, RMSSD, LF, and HF levels all rose as we approached needle insertion, but then fell to levels lower than when we arrived at the donation center ( $F(1,1315) = 24.2, P < 0.001$ ,  $F(1,1627) = 14.1, P < 0.001$ , and  $F(1,1624) = 34.0, P < 0.001$ , respectively). There was an increase in diastolic blood pressure ( $F(1,1326) = 50.9, P < 0.001$ ) and a U-shaped curve in pulse rate ( $F(1,1393) = 507.4, P < 0.001$ ). Women had a higher systolic blood pressure/pulse rate, first-time donors had a higher pulse rate, first-time donors had a higher RMSSD upon arrival and from screening until departing, and first-time donors had greater LF and HF. These group effects were recognized. Physiological stress during needle insertion increases, but decreases after leaving the donation center, according to this research. The results also showed a few group effects.

Williams, Lisa et al., (2017) The retention of donors is an important issue for blood collecting institutions globally. There has been very little success in promoting donor return despite a large amount of study on the factors that help and those that hinder donor return. Donor emotional experience has been under-researched, in our opinion. Our solution to this problem

is the TED method, which stands for Time-course of Emotion in Donation. Developing successful techniques to enhance donor retention may include detecting and understanding the donor's emotional experience at multiple periods in time, such as before, during, and after a donation. Secondly, we provide the preliminary findings of a study that evaluated the emotional experiences of novice and first-time whole blood donors. At four different moments in time, donation center waiting, in the phlebotomy chair before and after needle insertion, and in the refreshment room following donation, donors described a range of happy and negative feelings. Preliminary analytical results show that happy emotions were far more common than negative ones. Finally, we conclude with some concrete suggestions for academics who are thinking about using a TED approach. Blood collection companies and practitioners may benefit from the insights offered by TED-style research on donor psychology, which we outline here. Carefully selected donor communication techniques and novel actions to encourage donor return are all part of this goal.

France, Christopher et al., (2013) The number of initial gifts has increased because to efforts to attract younger contributors, but keeping these donors has proven difficult. We used path analysis to look at how many factors, including syncopal responses, needle discomfort, anxiety about donations, satisfaction with donations, and desire to donate again, all worked together to predict whether donors would donate again. With a mean age of 20.3 years, 52% of the participants were female, and 60.8% were first-time donors. The purpose of the research was to compare the effects of predonation water loading with and without the use of applied muscular tension during donation. The participants comprised 421 individuals. In order to evaluate repeat donation, this longitudinal follow-up research accessed donor database information two years following the index contribution. The impact of donor anxiety on donor retention was shown by a number of path analyses, with final model  $\chi^2 = 35.75$ , root mean square error of approximation 0.03, comparative fit index 0.98, and weighted root mean square residual 0.74. Donation intention is the only proximal predictor of recurrent donation, and anxiety has a negative effect on it. Secondly, donors were more likely to report needle discomfort when they were anxious, which had a negative impact on their satisfaction with the donation and their propensity to donate.

Lastly, as a result of its effect on needle pain, anxiety was linked to donors' assessments of syncopal responses, which in turn led to a drop in donation intention. These findings give further evidence that anxiety over making a gift is a major factor in determining whether or not someone would donate in the future. Strategies to improve blood donor retention should be developed and tested taking individual variations in anxiety into account.

Holly, Crystal et al., (2012) Donors are in short supply, even if the need for blood is constant. A typical explanation is anxiety over vasovagal symptoms. The researchers set out to determine how and why applied tension could alleviate vasovagal symptoms in blood donors. One hundred eighty-two healthy adult blood donors were randomly allocated to one of four conditions: no applied tension, applied tension during the blood draw, applied tension during the pre-donation wait period, or both. One study found that applying stress to blood donors during the pre-donation wait time significantly reduced vasovagal symptoms ( $p < 0.001$ ). Compared to those who did not practice applied tension during the pre-donation wait period, 8% of those individuals needed treatment for vasovagal responses. The study's findings imply that increases in blood pressure and heart rate caused by exercise do not fully mediate the effects of applied strain on vasovagal symptoms. On the contrary, it has the potential to alleviate anxiety and its physiological effects. People who are undergoing blood donation or other invasive medical procedures may find that applied tension helps them cope.

Clowes, Rebekah & Masser, Barbara (2011) Previous studies have shown that expected emotions play a part in enhanced Theory of Planned Behavior (TPB) models of blood donor behavior. However, it is unclear how respondents' current emotions, which might be influenced by the blood donor situation, affect their intentions to give blood. Blood donor paraphernalia and the interrelationships often seen in TPB blood donation research were the subjects of this investigation. Seventy-six people were randomly assigned to either a "hot" (containing blood donation gear) or a "cold" (control) condition and asked to fill out TPB questionnaires that measured their attitudes, subjective norms, self-efficacy, and intention to give blood. Blood donation anxiety was also measured. In comparison to those in the cool control condition, those in the emotionally heated condition reported

higher levels of anxiety when it came to giving blood, as well as lower levels of positive attitudes, subjective norms, self-efficacy, and intention to give. Correlational studies corroborated previous TPB research showing that conditions had little effect on the links among attitudes, self-efficacy, and intention. Donors feel anxious and less enthusiastic about giving blood when they are presented with donation paraphernalia. Blood services may better act to increase donors' positivity toward blood donation when donation is possible if they are aware of what donors perceive in relation to the environment of donation.

Holly, Crystal et al., (2011) Many people are nervous before donating blood, and syncope is a common symptom, even though it's a voluntary action. Researchers have discovered that applied tension (AT), a method that involves tensing muscles, may reduce symptoms of vasovagal disease and syncope. Anxiety and fainting were the foci of a series of investigations on AT's potential effects. Researchers in the lab and in the blood donor clinic looked at its processes. Seventy people took part in Study 1, with half learning AT and half seeing a film of blood draws. The participants were randomly allocated to the two groups. Similar surveys were filled out by 667 willing blood donors in Study 2. A significant interaction between Condition, Sex, and Needle anxiety ( $F(1, 59) = 4.97, p = .03$ ) was seen in Study 1, suggesting that AT alleviated vasovagal symptoms in women with greater levels of needle anxiety. In Study 2, it was also shown that vasovagal symptoms were significantly impacted by the condition  $\times$  sex  $\times$  needle fear ( $F(2, 653) = 3.95, p = .02$ ). This suggests that AT alleviated symptoms, however it was mostly seen in women who had a more severe fear of needles. Findings: Less anxiety, not exercise-related cardiovascular change, was the primary determinant of reduced vasovagal symptoms, according to analyses of both physiological data and self-reported anxiety. These findings give further evidence that AT may help patients cope with invasive medical procedures by lowering their anxiety levels.

### **III. RESEARCH METHODOLOGY**

From November 2020 to December 2020, researchers at the adult blood and sample collection unit performed this analytical cross-sectional investigation. The blood facility where the study is carried out has 10 blood collection nurses

on staff and receives applications from about 900 to 1200 people. Four hundred and forty blood donors were chosen for this investigation. The analytical-based artificial intelligence information management system used at the hospital's blood collection unit was employed to determine the patients' waiting times. The research did not include persons with pain threshold-altering conditions such diabetes mellitus (DM), poly-neuropathy, a mental illness, those using anti-diabetic or antidepressant medications, those under the age of 18, illiterates, or those who declined to take part. The data was collected using the Spielberg State-Trait Anxiety Inventory (STAI) and a Visual Analog Scale (VAS) with a range of 1–10. In order to analyze the study's data, the SPSS 22.0 software program was used. The Shapiro-Wilk test was used to evaluate whether the data followed a normal distribution or not. Data were analyzed using descriptive statistics, specific tests such as the Mann-Whitney U Test, Kruskal-Wallis Test, Post-Hoc Dunn Test with Bonferroni Correction, and the Spearman Correlation Test. The findings were considered significant at the  $p < 0.05$  level.

#### IV. DATA ANALYSIS AND INTERPRETATION

**Table 1 Information about the blood giving experiences of the participants**

Variables		%
Blood giving experience	More than one	95.0
	First time	5.0
Passing out during venipuncture before	Yes	3.5
	No	96.0
Vomiting during venipuncture before	Yes	0.5
	No	99.5
Edema in the venipuncture area before	Yes	6.0
	No	94.0
Hematoma in the venipuncture area before	Yes	14.0
	No	86.0
Inability to find a vein in one trial before	Yes	15.0
	No	85.0
The reason for	No fear	75.0

fear in blood drawn	Needle Fear	13.0
	Seeing blood/homophobia	4.0
	Pain Anxiety	3.5
	Risk of Infection	0.5
	Fear of medical procedures	4.0
Coming to give blood with a relative	Yes	48.5
	No	51.5
Waiting time/minute during venipuncture		Med (Min-Max) 6.0 (0.0-62.0)

The participants' blood donation experiences are detailed in Table 1. In one research, veins could not be located in 15% of patients, while in another trial, 95% of participants had previously donated blood; 3.5% fainted during venipuncture; 0.5% vomited; 6.0% had edema; and 14% developed a hematoma at the venipuncture site. Results showed that 48.5% of people brought a family member or friend to the blood collection unit, 75% felt comfortable donating blood, 13% were terrified of needles, 4% were afraid of seeing blood (hemophobia), and 3.5% were afraid of spiders (algophobia). Over the course of a venipuncture process, patients waited an average of 6.0 minutes (range: 0 to 62).

**Table 2 VAS and state anxiety inventory scores of the participants**

Variables		%
VAS GROUP	Mild Pain	52.0
	Moderate Pain	31.0
	Severe Pain	17.0
VAS Score		Med (Min-Max) 2.0 (0.0-9.5)
State Anxiety Score		59.0 (25.0-80.0)

All of the people who took part in the research had their VAS and STAI results shown in Table 2. After collapsing the participants' VAS values, we found that the median score was 2.0 (min: 0.0-max: 9.5). Of those individuals, 52% reported moderate pain and 17% reported severe pain. Scores ranged

from 25.0% to 80.0 on the State-Trait Anxiety Inventory, with 59.0% being the median.

**Table 3 Correlation between the waiting time, VAS, and state anxiety inventory scores of the participants**

Variables	VAS Score		State Score	
	r	p	r	p
State Anxiety Score	-0.420	<0.001**	0.031	0.533
Waiting Time	0.262	<0.001**		

Participants' wait times, VAS ratings, and state-trait anxiety questionnaire scores were correlated in Table 3. The results of the state anxiety questionnaire were not correlated with the amount of time that patients had to wait to donate blood. There was shown to be a positive relationship ( $r=0.262$ ,  $p<0.001$ ) between the time it took to provide blood and VAS ratings. There was a negative relationship ( $r=-0.420$ ,  $p<0.001$ ) between the blood donors' state anxiety levels and the VAS.

## V. CONCLUSION

When getting a venipuncture, the time spent waiting is a major factor in how much pain the patient reports. It is crucial to take a comprehensive strategy to managing pain during venipuncture, considering the complex link between waiting time and perception of pain. Healthcare practitioners may create more compassionate and patient-centered blood collection procedures by identifying the elements that contribute to discomfort during and after the process. This will allow them to build focused treatments that meet individual needs. Evidently, the amount of time a patient has wait for a venipuncture is not a trivial matter but a major factor in the quality of care they get. Creating and executing interventions that are specific to the dynamics of venipuncture waiting time could revolutionize blood collection. It could make the process more compassionate, alleviate anxiety, and lead to higher patient satisfaction and retention rates.

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