

**STUDY ON KNOWLEDGE AND ATTITUDE OF BLOOD
DONORS TOWARDS BLOOD DONATION IN BIJAPUR
DISTRICT**

By

DR. MULAY HIMANSHU DILIP

**Dissertation submitted to the
BLDE University, Vijayapur, Karnataka**



In partial fulfillment of the requirements for the award of the degree of

DOCTOR OF MEDICINE

IN

PATHOLOGY

Under the Guidance of

DR. PRAKASH M. PATIL

Associate Professor, Department of Pathology

**BLDE UNIVERSITY'S, SHRI B.M. PATIL MEDICAL
COLLEGE, HOSPITAL & RESEARCH CENTRE,
VIJAYAPUR, KARNATAKA.**

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Date:

Dr. MULAY HIMANSHU DILIP

Place: Vijayapur

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Date:

Place: Vijayapur

DR. PRAKASH M. PATIL

Associate Professor
Department of Pathology,
BLDEU Shri B.M.Patil Medical
College, Hospital & Research
Centre, Vijayapur, Karnataka

**B.L.D.E UNIVERSITY'S
SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL
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Date:

Place: Vijayapur

DR. B. R. YELIKAR

Professor and H.O.D,
Department of Pathology,
BLDEU Shri B.M. Patil
Medical College, Hospital
& Research Centre,
Vijayapur, Karnataka.

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& RESEARCH CENTRE, VIJAYAPUR**

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Date:

Place: Vijayapur

DR. M. S. BIRADAR

Principal,
BLDEU Shri B.M. Patil
Medical College, Hospital
& Research Centre,
Vijayapur, Karnataka.

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“It Is the Supreme Art of the Teacher to Awaken Joy in Creative Expression and Knowledge.”

~**Albert Einstein**

Date:

DR. MULAY HIMANSHU DILIP

Place: Vijayapur

LIST OF ABBREVIATIONS USED

WHO	World Health Organisation
NACO	National AIDS Control Organisation
HIV	Human Immuno-deficiency Virus
AIDS	Acquired Immune Deficiency Syndrome
RBC	Red Blood Cell
CuSO ₄	Copper Sulfate
ATP	Adenine triphosphate
SAGM	Saline, Adenine, Glucose, Manitol
2,3-DPG	2,3-Bisphosphoglyceric acid
FFP	Fresh Frozen Plasma
PRBC	Packed Red Blood Cell
HTLV	Human T-Lymphotropic Virus
HBsAg	Hepatitis B surface antigen
HCV	Hepatitis C Virus
TRALI	Transfusion Related Acute Lung Injury
TACO	Transfusion Associated Circulatory Overload
TA-GVHD	Transfusion Associated Graft Versus Host Disease
DIC	Disseminated Intravascular Coagulation
I.V.	Intra-venous
AHTR	Acute Hemolytic Transfusion Reaction
DAT	Direct Antiglobulin Test
ARDS	Acute Respiratory Distress Syndrome
BNP	Brain Natriuretic Peptide

ACE	Angiotensin Converting Enzyme
SCIDS	Severe Combined Immuno-Deficiency Syndrome
CVID	Common Variable Immuno-Deficiency
HLA	Human Leukocyte Antigen
HPC	Hematopoetic Progenitor Cell
DHTR	Delayed Hemolytic Transfusion Reaction

ABSTRACT

BACKGROUND

Blood is the living force of our body and there is no substitute for it. It can only be replaced through blood donation. Blood donation can save millions of lives. Demand for safe blood is increasing every day because of increase in population, increased life-expectancy and urbanization, trauma cases, major surgeries, patients with regular transfusion requirement like cases of thalassemia, hemophilia and chemotherapy.

To increase blood donor recruitment and retention, the level of knowledge and attitude of blood donors towards blood donation must be known as this affects donor's decision of blood donation. This information helps for tailoring targeted programs and campaigns in order to recruit more people as regular voluntary blood donors.

OBJECTIVE

To assess the level of knowledge and attitude regarding blood donation amongst blood donors in Bijapur district, Karnataka.

MATERIALS AND METHODS

Blood donors registered for blood donation in B.L.D.E. University Shri B. M. Patil Medical College, Hospital and Research Centre's Blood Bank, in Bijapur district were included in this study.

Study period: 1st November 2013 to 30th June 2015.

The data was collected by filling of a self-administered structured questionnaire. The questionnaire was administered to all the donors ready to participate in the study. Questionnaire were distributed at the time of registration and were collected after filling during the refreshment period. Also one on one individual interviews were conducted to know about the blood donation experience and willingness of donor for future donation. A scoring mechanism was used to understand the level of knowledge, a score of one was given for each correct response and zero for wrong and unaware response.

RESULTS

In this study it was found that 61% of the participants had average knowledge [cumulative score 4-6], 34% of the participants had good knowledge [cumulative score 7-8] and 5% of participants had poor knowledge [cumulative score 0-3]. Participants from urban background had more knowledge score than the participants from the rural area. Males had higher knowledge score than the females.

CONCLUSION

Interactive talk with blood donors helped to clear their concepts and misbeliefs about blood donation which encourage them for repeat donation. Informative campaigns on blood donation should be initiated in the rural areas to increase awareness about blood donation and the idea of voluntary blood donation needs to be intensively promoted.

KEY WORDS:

Knowledge, Attitude, Blood, Donation.

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INTRODUCTION

Blood is considered as the living force of our body and is an essential element of human life and there are no substitutes for it.¹⁻³ Blood is made up of three different life saving components which include plasma, platelets and packed red blood cells.⁴ Blood donation can save millions of lives.⁵ According to WHO norms, donation by 1% of the population (10 per 1000 population) is the minimum needed donation, to meet a nation's most basic requirements for blood.^{3,5-7} There are many factors on which requirement of blood and blood products in a country depends like the population, health-care system, prevalence of conditions requiring regular transfusions such as haemophilia and thalassemia.^{5,8} Blood transfusion is also required by trauma cases, major surgeries, chemotherapy and patients in need of long term therapies.¹ Every year with increase in population, life-expectancy, urbanisation and increased demand for blood products, the burden of requirement of safe blood is increasing.⁵

Collection of blood from paid donors or for any kind of incentives is forbidden by Indian law.^{5,9} The only source of safe blood is voluntary blood donation and recruitment of voluntary blood donors is a major challenge to the transfusion services throughout the country.^{1,5} Voluntary blood donation carries lower risk of transfusion transmissible infections. Voluntary donors are more likely to meet the medical selection criteria for safe donors, to disclose any known possibility of risk exposure, and to donate blood regularly at properly spaced intervals, as they are motivated by altruism rather than by financial or social pressure.¹⁰

WHO always encourages its member nations to establish national agencies to donate blood on the basis of voluntary blood donation.^{3,5,7,9,11}

Despite Indian population of more than one billion, National AIDS Control Organisation (NACO) statistics show that the annual rate of blood donation in India is about 7.4 million units, against the requirement of 10 million units. This shows the vast gap between demand and supply of safe blood and blood products in India.⁶

Donors make their decision of whether to donate blood voluntarily at regular interval on the basis of factors like lack of knowledge, attitude, facilities, convenience, quality of service and the fear of pain.^{9,10} Donor recruitment and retention programs can only be improved by understanding blood donors' knowledge and motivations.^{1,10,12}

This information would be helpful for tailoring targeted programs and campaigns more precisely in the future, in order to recruit more people as regular voluntary blood donors. Considering above discussed facts, in present study, we studied and analysed the existing level of knowledge and attitude towards voluntary blood donation in different age groups amongst donors in Bijapur district, Karnataka.

AIMS AND OBJECTIVES

To assess the level of knowledge and attitude regarding blood donation amongst blood donors in Bijapur district, Karnataka.

REVIEW OF LITERATURE

Introduction

As there is an estimated shortfall of 3-4 million units of blood annually in India, more awareness must be created on importance of blood donation among all strata of population but especially among the youngsters.^{8,10}

Blood can save millions of life, and young people are the hope and future of a safe blood supply in the world.^{4,5} National blood donation policy of India states that the safe and quality blood should be supplied by collecting blood from regular voluntary blood donors.⁹

The average donation rate in developing countries is 2.3 donations per 1000 population whereas in the developed countries it is 38.1 donations per 1000 population. This shows the worrisome nature of the shortage of blood donation in developing countries.^{3,13,14}

It was observed that compared to western world in India there is less participation in blood donation by women. Factors such as anaemia, prevalent beliefs, customs, lifestyle and multiple pregnancies are some of the factors for less participation of women in blood donation in India.^{10,15}

In a study in India done among the residents of slum area, the most common reason for not donating given by 50% participants was the perception of a harmful effect of donation on the body and 25% said that they had never felt a reason to give blood. The other reasons given for refraining from blood donation were concern about its effect on health, self-perception of being unwell, location of the blood bank, fear of needles, pain and distrust of the blood bank. Various other studies also reported fear of complications, fear of hospitals, lack of awareness, false beliefs and religious traditions as main reasons for not donating blood.¹⁰

This study was conducted in order to obtain information on knowledge and attitude prevalent in the Bijapur district of Karnataka state of India which can act as the basics for implementing donor recruitment and retention strategies in our hospital. This will help to maintain adequate and safe blood supply. By increasing advertising for voluntary blood donation camps using media to promote knowledge and awareness, the topic of blood donation can be kept alive in the minds of the general population.

CAUSES OF BLOOD SHORTAGE

There are many factors which affect the blood donation such as donor ineligibility, negative attitudes towards blood donation due to causes like lack of knowledge, misconceptions, or religious views etc. It is important to understand these factors in order to better understand the cause of blood shortage in India. Blood donors and blood transfusion recipients should know the processes that are followed in order to supply safe blood. Without proper knowledge misconceptions can arise affecting blood donation process.⁴

Another cause of blood shortage is rising demand of safe blood without similar rise in blood donation. With increase in population, increase in life expectancy rate, urbanisation and associated increase in accidents and specialised surgeries demand for safe blood is ever increasing.^{1,4,5,8}

The literature regarding this was reviewed, pointing out the causes that can help identify evidence-based solutions.

In a study by Bharatwaj *et al*² 104 medical undergraduate students were surveyed. Out of which 49 were boys and 55 were girls. The reasons for not donating blood found by this study were lack of opportunity (44.23%), lack of family support (16.34%), indifference (12.5%) and fear of process (11.53%). They also noted that there was significant higher transformation in the willingness to donate blood, as a result of short awareness session.

In a study conducted by Manikandan *et al*⁵ 400 medical students were involved. Among them misconceptions like blood donation leads to weakness (12.61%), anaemia (19.61%), and reduced immunity (4.2%) were found. Also 53.49%

students never donated because no one asked them to, 34.88% pointed out lack of privacy during process and 11.63% felt little discomfort after donation. So, this study concluded that provision of adequate privacy, awareness, communication materials and advertisements to address the fear factor may strengthen the recruitment and retention of voluntary blood donation process.

In a study conducted by Safizadeh *et al*¹ 500 students of Kerman city of Iran were involved. They found that 66.6% of study population believed that blood donation can lead to transmission of infectious diseases. They concluded that students generally believe in cooperative acts in the society so, a good knowledge level and positive attitude may lead to higher eagerness for blood donation.

In a study conducted by Dubey *et al*¹⁰ 1200 people (400 each of voluntary donors, replacement donors and non-donors) were involved. They found different reasons for non-donation like donation is painful (5.50%), afraid of needle or sight of blood (3.75%), donation is harmful for health (15.25%), never had opportunity to donate (40.75%), my blood is not safe (5.0%), donation process is long & boring (6.50%), blood will be misused by blood bank (5.75%), blood will be wasted (4.25%), blood bank is too far from my place (6.25%) and I am not fit to donate (6.75%). They stated that appropriate motivational campaigns based on the input provided by the participants should be conducted. Convenience of approach to the blood centre and comfort during the process increase the chance of having a good donation experience and hence aid donor retention.

In a study conducted by Sabu *et al*⁹ among 410 health science students, the reasons found for not donating blood were feels medically unfit (47.8%), due to fear or pain (6.3%), due to safety reasons (7.9%), never thought about donating blood

(27.4%), no one has ever asked to donate blood (5.9%), parents/friends told not to donate blood (4.3%) and due to disease (0.4%). They stated that educational institutes are source of potential healthy blood donors and role of healthcare institutes and their students in voluntary blood donation are pivotal. They should lead from the front to donate blood voluntarily and take all necessary steps to create more awareness program on blood donations among entire student community.

These studies demonstrate that lack of opportunity, time, location inconveniences and misconceptions regarding the process of donation were the leading barriers for blood donation.

The recruitment and retention of blood donors is of significant importance to blood collection facilities. Past and present research studies can help to design approaches to address these issues.

HISTORY OF BLOOD DONATION

Since as early as 2,500 B.C. humans know about the blood. At that time Egyptians used to draw blood out of the body in attempt to cleanse the body of diseases. In 500 B.C. Greeks used to perform human dissections in attempts to better understand how the blood flows through the body.⁴

British physician William Harvey discovered how blood circulates throughout the body in the year 1628. In the year 1665, first recorded successful blood transfusion was done in England by Physician Richard Lower and kept a dog alive by transfusing blood from another dog.^{4,16}

In 1818, British obstetrician James Blundell performed first successful human blood transfusion for treatment of a postpartum haemorrhage.^{4,16}

In 1901, Karl Landsteiner, an Austrian physician, discovered the first three human blood groups. In 1939-1940, Landsteiner along with Alexander Weiner, Philip Levine and R.E. Stetson discovered the Rh blood group system.¹⁶

During World War I (1914-1918) use of stored blood started but the first large scale blood bank started in 1937, at Chicago.¹⁷

In 1900's achievements like blood typing, establishment of a national blood collection agency, disease testing on collected blood units and blood component separation revolutionized the process of blood donation and blood transfusion.¹⁶

BLOOD DONATION PROCESS

Blood donation process is the final outcome of efforts put by health educators and blood collection facility officers such as promotion, education and awareness to increase blood donation among the society. It is important to get the history of blood donation and examine how the blood donation process works to help better understand why donors do or do not donate blood.⁴

The blood donation process mainly involves four basic stages:

1. Donor Registration
2. Medical history questionnaire and mini-physical examination
3. Collection of blood
4. Recovery stage

REGISTRATION

During this stage blood bank staff signs in the donor with basic information like name, age, sex, address, and contact number. Educational material is given to donor in language which he/she understands and general idea about whole process of blood donation is given to the donor. Donor is also asked to show valid identification document to confirm his/her identity.⁴

QUESTIONNAIRE AND PHYSICAL EXAMINATION

The health history questionnaire helps determine donor eligibility and requires donor to reveal private health information as well as places they have travelled. The questionnaire also helps to determine the level of knowledge and attitude of donor

towards blood donation process. This is also done to ensure the integrity and safety of the blood being donated.⁴

Physical examination includes measurement of temperature, pulse, blood pressure and a blood sample is drawn to determine the blood haemoglobin levels. These measures are taken not only for safety of the blood donated, but also for safety of donor.⁴

COLLECTION OF BLOOD

Before the blood is collected from the donor, donor should meet the blood donation criteria which are established for the protection of the blood donor and the transfusion recipient.

CRITERIA FOR BLOOD DONATION FOLLOWED AT OUR BLOOD BANK

- Age : 18 to 60 years
- Weight: above 50 kilogram
- Normal vital signs (Pulse rate, blood pressure and respiratory rate)
- Minimum hemoglobin concentration of 12.5 g/dl
- Minimum of 3 months interval between two consecutive blood donations
- No evidence or history of infections like hepatitis, malaria, HIV/AIDS, tuberculosis, typhoid and sexually transmitted diseases
- No evidence or history of diseases like heart diseases, lung diseases, kidney diseases, diabetes, jaundice, cancer/malignancy, epilepsy and abnormal bleeding tendency

- No history of medication within past 72 hour like antibiotics, aspirin, alcohol, steroids and vaccination.
- No history of dog bite or rabies vaccine within past 1 year.
- No history of any surgery/ blood transfusion in past 6 months.
- For women donors: No evidence of pregnancy, abortion in the past 3 months, having child less than 1 year old, breast feeding and there should be minimum 3 days gap after menstruation.

Blood is collected in such a manner that the risk of bacterial contamination is minimized. The skin at the site of venepuncture is prepared with an antibacterial scrub. Whole blood is collected into sterilized bag sets containing anticoagulant and attached satellite bags to facilitate component separation in a closed system. The phlebotomy is done and rate of blood flow should be sufficient to prevent clot formation within the tubing. The volume of blood withdrawn should be less than 10% of the donor's expected blood volume. So, typically whole blood collection is done 350ml & 450ml for component preparation.⁴

Blood components can also be collected by apheresis which has the advantage of greater volume of the desired components are obtained from a single donor. The most common use of the apheresis donation is the collection of platelets, commonly called as 'single donor platelets'. Plasma can also be collected concurrently with platelets. Apheresis donation allows for the collection of two units of red blood cells from suitable donors. Leukocytes can also be collected by apheresis. This is most commonly done for collection of hematopoietic progenitor cells for either autologous or allogeneic transplantation.¹⁸

Autologous donation is the collection of blood from a patient in advance of scheduled surgery for transfusion during or after the procedure to compensate for expected blood loss. Autologous transfusion prevents the transmission of blood-borne pathogens from allogeneic donors. Candidates for autologous transfusion must not be anaemic, although haemoglobin lower than normal is acceptable. Candidate must not have heart disease. Typically, two or three units can be collected several weeks before surgery. Optimally, there should be sufficient time from donation to surgery to allow for recovery of a substantial portion of the collected red cell mass.¹⁸

Some patients prefer to select their own donors, i.e. they bring their own donors (directed or designated donation) rather than receiving blood from the community blood supply. This provides patients perception of greater safety, although there remains a risk of transfusion transmitted diseases. These donors must meet all criteria for allogeneic blood donation and must be compatible with the intended recipient. The directed donation is desired in cases like rare blood group and limitation of donor exposures for patients with long-term expected transfusion requirements such as aplastic anaemia.¹⁸

RECOVERY STAGE

This stage involves a recovery period of about 10-15 minutes. This time allows blood bank staff to observe the donor for any physical reaction or complication as a result of donation process. This recovery stage also allows the donor to receive refreshments in order to rehydrate their bodies due to fluid loss during donation. Refreshments in the form of fruit juices are given during this time to donors. This time also allows blood bank staff to interview donor on one on one basis to determine the level of knowledge and attitude about blood donation. Blood bank staff can clear

donors' misconceptions and doubts about the process of blood donation and can also get to know about the experience of the blood donation during this time.⁴

This time also allows donor to understand the whole process of blood donation in a better way, which makes them more comfortable knowing what to expect, possibly positively increasing donor attitudes and future donating behaviours.

HEMOGLOBIN LEVELS IN DONORS

Blood donors are required to have haemoglobin level of at least 12.5 g/dl or haematocrit of 38% in order to donate blood. This is to ensure that donors have an adequate number of red blood cells (RBCs) for donation as well as adequate iron stores for erythropoiesis following donation.¹⁸

Being deferred from donation due to a low haematocrit during screening does not always mean the patient is anaemic or has a medical problem. For example, male donors with a haematocrit below the acceptable 38% are considered anaemic, but non-anaemic women within the normal haematocrit range of 36-37% are not able to donate blood.¹⁸

Although this practice turns away non-anaemic women from donating blood, it reduces the chance of depleting their iron stores and potentially causing anaemia following donation. Men are allowed to donate when slightly anaemic because it is much easier for them to replace the iron lost during donation.¹⁸

HEMOGLOBIN SCREENING METHODS

There is no consensus among blood banks on the best method for blood donor anaemia screening. In hospitals and laboratories, the gold standard for haemoglobin

estimation is the haemoglobincyanide method provided by automatic haematology analyzers.¹⁸

Screening tests for potential blood donors however require quicker, easier, and more cost-effective testing methods that do not require a venepuncture.

The tests which are commonly used for primary screening are as follows-

1. Copper sulfate method
2. Microhematocrit method
3. Hemacue method
4. Automated hematology analyzer

Though the first three tests used for haemoglobin estimation are quick, easy and relatively inexpensive ; their sensitivity, specificity, and accuracy are lower than that of automatic haematology analyzers.¹⁸ These tests are discussed in detail below.

CuSO₄ (COPPER SULFATE) METHOD

This is a qualitative screening test based on specific gravity. The density of the drop of blood is directly proportional to the amount of haemoglobin it contains. The sample of donor's blood dropped into copper sulphate solution becomes encased in a sack of copper proteinate, which prevents any change in the specific gravity for about 15 seconds. If the haemoglobin is equal to or more than 12.5 gm/dl the drop will sink within 15 seconds and the donor is accepted.¹⁸

If the blood drop sinks to the middle and remains or starts to rise, a micro-haematocrit or comparable test is usually used to confirm the deferral. This is not a quantitative test and will only show that the haemoglobin is either equal to, below, or

above acceptable limits. Test results that indicate satisfactory haemoglobin levels are usually accurate, but some results that indicate low haemoglobin levels can be false. Repeating the test by a second method is sometimes used as confirmation.¹⁸

MICROHEMATOCRIT METHOD

Micro-haematocrit is a method for rapid determination of haematocrit done on an extremely small quantity of blood (one capillary tube of approximately 10 μ L) by use of a capillary tube and a high-speed centrifuge. This method is a little more time consuming than other methods. Micro-haematocrit is often used to confirm failures with the CuSO₄ method. There has been a relatively poor correlation between micro-haematocrit with that of the automated haematology analyser.¹⁸

HEMOCUE METHOD

Some blood centres currently use portable equipment that is able to spectrophotometrically determine haemoglobin. These devices use a 10 μ L capillary blood sample to determine haemoglobin by measuring the absorbance of azidemethhemoglobin, using a cuvette containing a dry reagent system and a dual wavelength photometer.¹⁸

SEPARATION OF COMPONENTS

Whole blood is many times separated into components to improve their utility and storage. For this 450ml of blood is collected in triple bag. This facilitates the treatment of different patients with requirements for RBCs, plasma proteins or platelets. The aim of components separation is to maintain viability and to prevent detrimental changes or contamination of the desired constituents. One unit of whole blood (450ml) gives one unit each of Packed Red Blood Cell (PRBC) (200ml), fresh frozen plasma (200ml) and platelets (50ml).¹⁹

PROCEDURE

The process starts with collection of 450 ml of blood under all aseptic precautions in a triple bag. Then it is kept for one hour at room temperature for settlement of RBCs which then undergoes the process of light spin on blood bag centrifuge. Before that centrifuge is balanced with two blood bags kept in opposite compartments. Then the blood bags are centrifuged at 1800 rpm for 20 minutes (light spin) at room temperature. This separates RBCs from platelet rich plasma. RBCs settle down and then platelet rich plasma is expressed out into first empty bag with laminar flow method using plasma expessor instrument. Then the RBCs remaining in the main bag are hot sealed and separated from other two bags.¹⁹

The bag containing platelet rich plasma along with second empty bag then undergoes the process of heavy spin on blood bag centrifuge after the centrifuge is balanced. The bags are centrifuged at 2600 rpm for 20 minutes (hard spin). This separates platelets from plasma. The plasma is expressed out into second empty bag with laminar flow method using plasma expessor instrument and hot sealed.¹⁹

This process separates 200ml of packed red blood cells, 200 ml of plasma and 50 ml of platelet concentrate from 450 ml of whole blood.¹⁹

PACKED RED BLOOD CELLS (PRBC)

RBCs are prepared from whole blood by centrifugation and separation of plasma. Anti-coagulant commonly used is CPDA-1. Dextrose and Adenine are added to it to preserve red cell ATP levels. RBC in CPDA-1 can be stored for up to 35 days at 1-6°C. This period can be extended up to 42 days with use of SAGM as anti-coagulant. Red cells undergo senescence changes during storage similar to aging in vivo, so that post-transfusion a portion of transfused red cells are rapidly cleared by spleen. The maximum allowable storage time for RBC is calculated as the time required for recovery of 70% of transfused cells, 24 hours after transfusion. Changes occurring during storage are leakage of intracellular potassium along with decrease in 2, 3-DPG levels.^{18,20}

FRESH FROZEN PLASMA

Plasma can be stored in frozen state for 1 year at -60°C. Fresh frozen plasma (FFP) is separated from red blood cells and should be placed at -18°C or lower within 8 hours of collection. In the liquid state loss of labile clotting factors, particularly factor VIII and factor V occurs. Before transfusion, FFP is thawed at 37°C in water bath and then it must be transfused within 24 hours of thawing. Thawed plasma can be stored at refrigerator temperatures for up to 5 days and still maintain adequate levels of factor V and VIII.^{18,20}

PLATELET CONCENTRATE

Platelet concentrates are prepared from whole blood by hard spin after separation of RBC and platelet poor plasma is expressed out in other satellite bag. Platelet concentrates must contain at least 5.5×10^{10} platelets per unit to be effective. They are stored at room temperature (20-24°C) on platelet agitator because platelets have greatly diminished post-transfusion survival when stored at refrigerator temperature (1-6°C). They can be stored for a maximum period of 5 days with continuous gentle agitation. A therapeutic dose for a typical adult patient is typically obtained by pooling five or more platelet concentrates. Platelet concentrates prepared by apheresis (single donor platelets) are stored and handled in the same manner as platelet concentrates prepared from whole blood. Each apheresis platelet unit should contain a minimum of 3.0×10^{11} platelets.^{18,20}

SELECTION OF BLOOD COMPONENTS

Blood components are selected such that they are serologically compatible with the recipient. ABO compatibility is of utmost importance. Transfused red cells should be compatible with recipient antibodies and transfused plasma must be compatible with recipient red cells. Hence, whole blood should be of same ABO type as that of recipient.¹⁸

Donor type	Recipient type			
	O	A	B	AB
O	R	R	R	R
	P			
A		R		R
	P	P		
B			R	R
	P		P	
AB				R
	P	P	P	R

Table 1: Compatibility between Donor type and Recipient type¹⁸

R – Red cells are compatible

P – Plasma containing components (FFP, Platelets) are compatible.

Packed Red blood cells (PRBC) have a limited amount of plasma within it and need to be compatible but not necessarily identical with ABO type of recipient. Similarly, plasma and platelet concentrates contains few RBCs. Red blood cells should be negative for clinically significant antigens before transfusing to alloimmunized recipients. It is mandatory to transfuse only Rh-negative red cells to Rh-negative recipients. This is particularly important for women of childbearing potential, because there is a risk of haemolytic disease of the new-born in subsequent pregnancies.¹⁸

RED BLOOD CELLS

To prevent haemolytic transfusion reactions it is of primary consideration that the selected RBC is serologically compatible. It is desirable to select fresh (less than 10 days old) units in situations where it is particularly desirable to limit the number of transfusions, such as intrauterine and neonatal transfusion, since the post-transfusion survival of red cells is inversely related to duration of storage.¹⁸

PLATELETS

Platelets express ABO antigens very weakly. So, Major ABO compatibility is of less importance in platelet transfusion. ABO incompatible platelet transfusions may result in lower post-transfusion survival, although this is usually not clinically significant. An acute haemolytic reaction can occur because of transfusion of isohemagglutinins contained in the plasma of apheresis platelets from donors with high-titre anti-A or anti-B. Therefore, more consideration is typically given to plasma compatibility with the recipient when non ABO-identical platelets are to be transfused.¹⁸

PRE TRANSFUSION TESTING

Samples for pre-transfusion testing should be collected no more than 3 days before transfusion. A unique number should be assigned to the pre-transfusion specimen and it should be affixed to an identification form that the patient must provide at the time of transfusion. Pre-transfusion samples must be retained until at least 7 days after each transfusion.^{21,22}

Routine pre-transfusion testing includes ABO and Rh(D) typing, and screening for unexpected red cell antibodies. Antibody identification tests should be performed when the antibody screen is positive. Previous records, if available, must be cross checked with the results of current testing. Before the pre-transfusion testing can be concluded, any discrepancy in current testing with that of previous records must be resolved.^{21,22}

The final step of pretransfusion compatibility testing is the cross match. Cross match is the final check of ABO compatibility and to a lesser extent detection of unidentified antibodies. A major cross match is between the recipient's serum or plasma and donors red cells. A minor cross match is done between recipient red cells

and donor serum or plasma, which is usually not required. In the absence of unexpected red cell antibodies, a cross match can be performed by direct agglutination (immediate spin) for detection of ABO incompatibility. When unexpected red cell antibodies are present, the cross match should be performed by antiglobulin technique.²¹⁻²³ This is explained in figure 1.

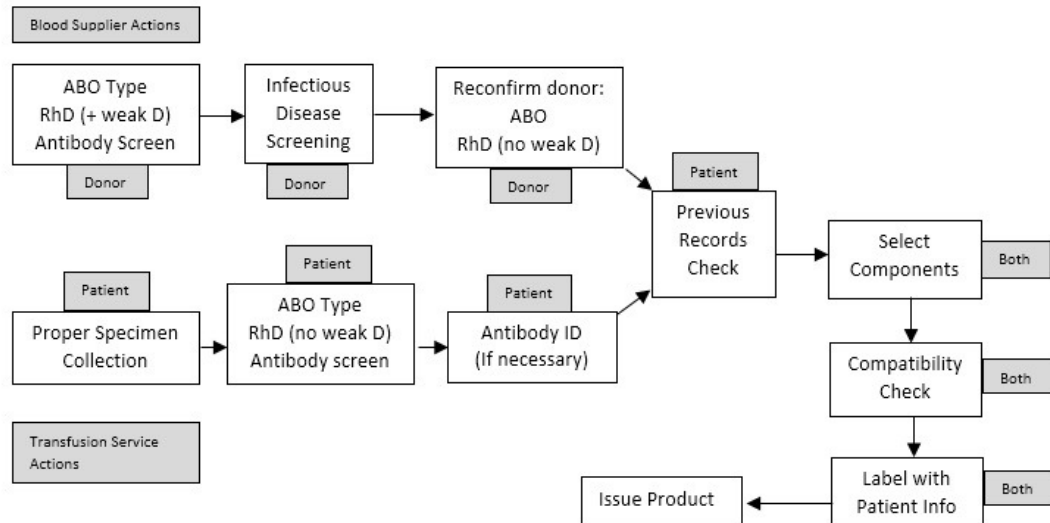


Fig. 1: Diagram showing pre-transfusion testing algorithm.²³

PRETRANSFUSIONSCREENING FOR TRANSFUSION TRANSMISSIBLE DISEASES

Improvements in donor screening and testing have resulted in dramatic reductions in transfusion-transmitted disease risks in the past two decades. Some of the transfusion transmitted diseases are HIV, Hepatitis B, Hepatitis C, Cytomegalovirus, Parvovirus B-19, Syphilis (*Treponemapallidum*), malaria, Chagas disease and HTLV. The donated blood undergoes thorough screening for these diseases.^{18,24-26}

All whole blood and apheresis donations should be screened for evidence of infection prior to the release of blood and blood components for clinical or manufacturing use.²¹⁻²³

Screening of all blood donations is mandatory for the infections using the following markers:

- HIV-1 and HIV-2: screening for either a combination of HIV antigen-antibody or HIV antibodies
- Hepatitis B: screening for hepatitis B surface antigen (HBsAg)
- Hepatitis C: screening for either a combination of HCV antigen antibody or HCV antibodies
- Syphilis (*Treponemapallidum*): screening for specific treponemal antibodies.

Screening of donations for other infections such as, those causing malaria, Chagas disease or HTLV should be based on local epidemiological evidence.²¹⁻²³

Where feasible, blood screening should be consolidated in strategically located facilities at national and/or regional levels to achieve uniformity of standards, increased safety and economies of scale.²¹⁻²³

TRANSFUSION ASSOCIATED REACTIONS

These are adverse reactions to transfusion that occur during or shortly after transfusion. There are two broad categories of transfusion associated reactions based on time of initiation of the reaction i.e. acute reactions and delayed reactions. The transfusion should be stopped immediately and I.V. line should be maintained with saline. All the suspected transfusion reactions should be reported to the blood bank. The work-up and treatment of a transfusion reactions must be predicted on the clinical picture.^{18,24-26}

Acute Reactions:

- Sepsis/Bacterial Contamination
- Mild Allergic Reactions
- Moderate (Anaphylactoid) and Severe (Anaphylactic) Allergic Reactions
- Acute Hemolytic Reactions
- Transfusion-Related Acute Lung Injury (TRALI)
- Transfusion-Associated Circulatory Overload (TACO)
- Hypotensive Transfusion Reactions
- Febrile Non-hemolytic Reactions²⁶

Delayed Reactions:

- Transfusion-Associated Graft-vs.-Host Disease (TA-GvHD)
- Delayed Hemolytic Reactions (>24 Hours)²⁶

Bacterial Contamination of Blood Components

The clinical presentation of a transfusion reaction caused by bacterially contaminated blood components is usually dramatic. The onset of symptoms in most cases is during the transfusion or shortly after it. Fever, chills, hypotension, shock,

nausea and vomiting are the most commonly reported symptoms. Dyspnoea, pain, and diarrhoea can also occur. High fever or hypotension; during or shortly after transfusion are particular clues that a contaminated unit may have been transfused. The clinical complications due to bacterial contamination are significant, often resulting in shock, renal failure, DIC and death.^{18,24-26}

The mortality rate is high and depends on the type of component involved, the identity and amount of the causative organism and the clinical condition of the patient. Patient factors associated with clinical reactions include thrombocytopenia and pancytopenia. Risk factors for fatality include contamination by Gram-negative rods, greater patient age, smaller volume of component transfused and younger age of stored platelet concentrate. The latter two factors most likely reflect greater number of organisms in the component. The organism involved depends on the type and storage of the blood component. PRBC have been found to contain *Acinetobacter*, *Escherichia*, *Staphylococcus*, *Yersinia* and *Pseudomonas* species. Platelet concentrates have been found to contain Gram-negative rods such as *Acinetobacter*, *Klebsiella*, *Salmonella*, *Escherichia*, *Serratia*, Gram-positive cocci such as *Staphylococcus*, *Streptococcus* and Gram-positive rods such as *Propionibacterium*. Some transfusion services culture for bacteria all platelet concentrates that have caused a febrile transfusion reaction, since, if a red cell concentrate exists from the same donation, it can be withdrawn.^{18,24-26}

Usually, treatment must be initiated before the causative organism has been identified. If a reaction occurs, the transfusion should be discontinued, the unit with its associated tubing should be removed and any other blood bags that have been recently transfused should be recovered. Supportive care of circulation and respiration should be initiated as required. Antibiotic therapy initially should include broad-

spectrum coverage such as a β -lactam and an aminoglycoside until microbiological stains or cultures indicate the causative organism.^{18,24-26}

Mild Allergic Reactions

Mild allergic reactions to transfusion are common. Allergic reactions can occur with any type of blood component, including autologous RBC. Symptoms like pruritus, urticaria, erythema and cutaneous flushing can be seen. Pulmonary signs and symptoms can be seen in few cases. Gastrointestinal involvement may present with nausea, vomiting, abdominal pain and diarrhoea. When an allergic reaction occurs, the transfusion should be discontinued and I.V. access should be maintained. If there is upper airway involvement, prompt intubation should be done. Oxygen should be administered if there is dyspnoea or evidence of desaturation. Mild allergic reactions usually will respond to I.V. antihistaminics such as diphenhydramine. More severe reactions may require epinephrine.^{18,24-26}

In mild cutaneous reactions, the transfusion usually can be restarted after treatment without a recurrence or worsening of the symptoms. In more serious reactions, particularly if there is airway involvement, restarting the transfusion is not advised.^{18,24-26}

Patients who have had repeated or significant allergic reactions may benefit from the concentration of cellular blood components through the removal of most of the plasma or by the washing of red cells and platelets. However, the routine use of washed components for patients with cutaneous allergic reactions is not recommended.^{18,24-26}

Severe Allergic (Anaphylactic) Reactions

Anaphylactic reactions manifest as cardiovascular instability with signs and symptoms like hypotension, tachycardia, loss of consciousness, cardiac arrhythmia,

shock and cardiac arrest. Respiratory involvement with dyspnoea or stridor is more severe than the typical allergic reactions.^{18,24-26}

If an anaphylactic reaction occurs, the transfusion should be discontinued and I.V. access should be maintained with saline. Supportive care including intubation, oxygen, I.V. fluids and placement of the patient in the Trendelenburg position, should be instituted immediately. Epinephrine should be available for emergency. For hypotension unresponsive to supportive measures or for significant bronchospasm, subcutaneous epinephrine in appropriate dose can be given and repeat doses can be given if needed. For refractory hypotension, proper doses of epinephrine may be given I.V. and can be repeated every 5-10 minutes. An antihistamine such as diphenhydramine, can be given I.V., particularly when there are cutaneous manifestations such as urticaria. Aminophylline may be useful when there is bronchospasm. Steroids are not effective in the acute situation, but if symptoms persist, hydrocortisone can be given.^{18,24-26}

Acute Haemolytic Reactions

Acute haemolytic transfusion reactions (AHTRs), occurs within 24 hours of transfusion. Predominantly intravascular haemolysis occurs in acute haemolytic reactions than the extra-vascular haemolysis. Fever is the earliest sign of an AHTR. Therefore, any increase in temperature of 1°C or greater should result in stoppage of transfusion and a laboratory evaluation. Other presenting symptoms and signs can be fever with chills, nausea, vomiting, pain, dyspnoea, tachycardia, hypotension, bleeding and haemoglobinuria. Pain in AHTR usually explained as localizing to the flanks, back, abdomen, chest, head and infusion site. Renal failure is a later complication. Unexpected bleeding may be due to disseminated intravascular coagulation (DIC).^{18,24-26}

Laboratory findings in AHTRs include hemoglobinemia, hemoglobinuria, elevated lactate dehydrogenase, hyperbilirubinemia and low haptoglobin. In renal failure blood urea nitrogen and creatinine gets elevated. The direct antiglobulin test (DAT) may show positive results with a mixed-field pattern if transfused incompatible red cells are present in the circulation. ABO incompatibility due to a clerical error is the most common cause of AHTRs.^{18,24-26}

In the event of an acute haemolytic reaction, the transfusion should be discontinued and I.V. access should be maintained. The identity of the patient and the unit or units of RBCs should be reconfirmed and other units of RBCs that have been dispensed for the patient should be located and quarantined. The reaction must be reported to the blood bank promptly. If a misidentification is discovered, there may be another patient (e.g., with a similar name) who may also be at risk of receiving incompatible blood.^{18,24-26}

The treatment of an AHTR must be guided by the clinical response of the patient. Patients who have minimal symptoms may be managed best by careful observation. However, in severe reactions, early vigorous intervention may be lifesaving. The severity of AHTRs is related directly to the volume of incompatible blood transfused. Early recognition, discontinuation of the transfusion and thus preventing the transfusion of additional incompatible units are the essential steps of treatment. Attention must be given to cardiovascular support. If hypotension is present, fluid resuscitation and pressor support may be required. Care should be taken to avoid fluid overload, especially in patients with impaired cardiac or renal function.^{18,24-26}

Because the load of incompatible red cells in the circulation dictates the severity and course of AHTRs, an exchange transfusion with antigen-negative blood

may be considered. With ABO incompatibility, an exchange transfusion may greatly reduce the chance of morbidity or death.^{18,24-26}

Early treatment of hypotension and DIC are the most important interventions to limit the extent of possible renal impairment. Maintenance of urine output with I.V. fluids and diuretics, mannitol or furosemide, early in the course of the reaction is beneficial.^{18,24-26}

Transfusion-Related Acute Lung Injury (TRALI)

TRALI usually presents during or within hours of transfusion. Its symptoms include dyspnoea, hypoxemia, tachycardia, fever, hypotension and cyanosis. Fever, hypotension are usually moderate and respond quickly to antipyretics and fluids. Characteristically, there is a lack of abnormal breath sounds. A chest X-ray usually shows pulmonary oedema. By definition, there are no signs of cardiac failure. Patients with hematologic malignancies or cardiac disease appear to be at higher risk for TRALI.^{18,24-26}

The differential diagnosis includes circulatory overload, bacterial contamination, allergic reactions, acute respiratory distress syndrome (ARDS), pulmonary embolism, and pulmonary haemorrhage. The diagnosis is established by findings of noncardiogenic pulmonary oedema. Pulmonary artery wedge pressure is not elevated. Characteristically, TRALI resolves within 48-96 hour from onset. Diagnosis should be reconsidered if patient fails to improve after this time. Although chest X-ray findings may persist beyond 7 days, unlike ARDS, there appear to be no permanent pulmonary sequelae. A decrease in leukocyte or platelet count may be a useful clue in TRALI caused by transfusion of HLA class I antibodies.^{18,24-26}

The treatment of TRALI is supportive. If a transfusion is in progress, it should be discontinued and blood bags from recently transfused units should be recovered.

The blood bank should be consulted regarding the evaluation of TRALI. Usually, oxygen is indicated. Severely affected patients may require mechanical ventilation. Corticosteroids appear to be of little help. Diuresis is not indicated in the absence of signs of fluid overload.^{18,24–26}

Transfusion-Associated Circulatory Overload

Circulatory overload is an all-too-common and preventable transfusion reaction. It presents as congestive heart failure during or shortly after transfusion. Signs and symptoms can include dyspnoea, orthopnoea, cyanosis, tachycardia, elevated blood pressure, pulmonary oedema, jugular venous distension, pedal oedema and headache. The differential diagnosis includes TRALI, allergic reactions, and causes of congestive failure not related to transfusion, such as valvular heart disease. Clearly, patients with pre-existing heart disease are at risk of circulatory overload with transfusion. The diagnosis of circulatory overload on clinical and radiologic examination may be difficult. Elevation of brain natriuretic peptide (BNP) can be helpful in making the diagnosis.^{18,24–26}

Volume overload should be anticipated in at-risk patients and prevented readily. Blood should be transfused slowly. Although a transfusion usually should be completed within 4 hours, the duration may be extended if medically indicated. If more than 6 hours are required, alternative strategies should be considered. Small volumes can be transfused with adequate time between transfusions to allow for diuresis. To avoid additional donor exposures, a unit can be split sterilely and a portion retained in the blood bank for later transfusion. Units can also be concentrated by plasma removal. A diuretic can be administered before or during the transfusion.^{18,24–26}

Hypotensive Reactions

Transfusion-associated hypotension is defined as hypotension occurring during transfusion in the absence of signs or symptoms of other transfusion reactions such as fever, chills, dyspnoea, urticaria and flushing. The degree of hypotension required for the diagnosis is controversial but could be defined reasonably as a drop of at least 10 mmHg in systolic or diastolic arterial blood pressure from the pretransfusion baseline. However, if the immediate pretransfusion blood pressure is elevated from the patient's typical blood pressure and the arterial pressure does not fall below the patient's usual blood pressure, it should not be considered a hypotensive reaction. Hypotension begins during the transfusion and resolves quickly when the transfusion is discontinued. If hypotension persists beyond 30 minutes after discontinuation of the transfusion, another diagnosis should be strongly considered. Hypotensive reactions have been associated with red cell and platelet transfusions. Some reactions have been associated with the use of leukocyte-reduction filters.^{18,24–26}

If hypotension occurs, the transfusion should be discontinued and I.V. access maintained. The patient should be positioned with head down and feet elevated (Trendelenburg position), and isotonic fluids should be administered. Pressor support is indicated only if the hypotension is severe and refractory to I.V. fluids.^{18,24–26}

The hypotension is most likely due to the release of bradykinin through activation of the contact pathway of coagulation. Some reactions have been associated with angiotensin-converting enzyme (ACE) inhibitor drugs in the recipient and/or the use of leukocyte-reduction filters.^{18,24–26}

Non-immune Haemolysis

Lysis of red cells can occur as a result of storage, handling, or transfusion conditions. Hyper or hypo-osmotic fluids mixed with red cells can result in significant

lysis. Patients who receive lysed red cells may tolerate them remarkably well. However, transient hemodynamic, pulmonary and renal impairment may occur, and death due to transfusion of lysed red cells has been reported. The principal reported complications of nonimmune haemolysis are renal failure and cardiac arrhythmia due to hyperkalemia.^{18,24-26}

Febrile Non-haemolytic Reactions

It is rise in temperature of 1°C or more, which can be associated with chills or rigors. Symptoms can occur during transfusion or within one hour of completion of transfusion. In this case haemolytic transfusion reaction or bacterial contamination of blood should be ruled out before making diagnosis. Fever is self-limiting and usually resolves within 2-3 hours and anti-pyretics are not required. If not resolved, then anti-pyretics like acetaminophen can be given. Incidence of febrile reactions have reduced since introduction of leukocyte reduction technique. Febrile reactions can occur because of the accumulation of pyrogenic cytokines produced by leukocytes in units during storage. The use of prestorage leukocyte reduction has been shown to reduce the generation of cytokines in stored platelets, red cells and may be more effective than post storage leukocyte reduction in preventing febrile reactions.^{18,24-26}

Graft-Versus-Host Disease

Transfusion-associated graft-vs-host disease (TA-GvHD) can occur when viable donor T cells proliferate, are not recognized by the recipient's immune system as foreign, but recognize and reject the host as foreign. Patients with marked cellular immunodeficiencies are at risk of TA-GvHD. These include congenital cellular immunodeficiencies (DiGeorge syndrome, SCIDS), immaturity of the immune system (intrauterine transfusions, very low birth weight infants), disease-associated immunodeficiencies (Hodgkin disease) and therapy-associated cellular

immunodeficiencies (hematopoietic progenitor cell transplantation, fludarabine treatment).^{18,24–26}

Humoral immunodeficiencies such as common variable immunodeficiency (CVID), are not a risk factor for GVHD. HIV infection, although it may cause marked T cell dysfunction, does not increase the risk of TA-GvHD. Common immunosuppressive regimens for solid organ transplantation and typical chemotherapy regimen for solid tumours do not increase the risk of TA-GvHD. Patients with normal immunity may be at risk of TA-GvHD if the recipient is homozygous for an HLA haplotype and the donor is heterozygous but shares one haplotype. In this case, recipient lymphocytes are unable to recognize transfused lymphocytes as foreign, but transfused cells see recipient cells as foreign. This is most likely to occur with donations from close (first or second degree) relatives.^{18,24–26}

TA-GvHD typically manifests 2-50 days after transfusion. Characteristic findings include rash, diarrhoea, fever, liver dysfunction and pancytopenia. Mortality is greater than 90%, with most patients dying of infection. In contrast to the expected GVHD of allogeneic HPC transplantation, the bone marrow in TA-GvHD is of recipient type and is a target organ. Aggressive immunosuppressive treatments have been tried, but with rare exceptions have been unsuccessful. Thus, preventive measures are of paramount importance.^{18,24–26}

Delayed Haemolytic Reactions

By definition, delayed haemolytic transfusion reactions (DHTRs) occur at least 24 hours after transfusion. The time from transfusion to diagnosis of a DHTR is quite variable. Most patients present within the first 2 weeks after receiving the transfusion. However, clinical DHTR may be recognized more than 6 weeks later. Almost all DHTRs are due to an anamnestic response to a red cell antigen to which

the patient has previously made an antibody, the concentration of which was too low to detect in pretransfusion testing. Rarely, a DHTR may be due to primary alloimmunization to a red cell antigen. Typically, haemolysis is extravascular, but intravascular haemolysis can also occur. Fortunately, these reactions tend to be much less severe than AHTRs; accordingly they may be overlooked. Some patients will present only with unexpected anaemia. Other clinical signs can be fever or chills, jaundice, pain or dyspnoea. Rarely renal failure may ensue. In patients with sickle cell disease, DHTRs may precipitate a sickle crisis.^{18,24-26}

Laboratory findings in DHTRs include anaemia, elevated lactate dehydrogenase, hyperbilirubinemia, low haptoglobin, leukocytosis, the presence of a new red cell antibody and a positive reaction on a DAT. The degree of hyperbilirubinemia will depend on the rate and amount of haemolysis as well as on liver function. Typically, unconjugated bilirubin levels are elevated during active haemolysis.^{18,24-26}

Many patients tolerate DHTRs well and may need only to be followed carefully. Generally, fluid loading and diuresis are not indicated unless there is active intravascular haemolysis. Complications, such as renal failure or sickle crisis, should be treated as such. If there is a large burden of antigen-positive red cells, an exchange transfusion should be considered.^{18,24-26}

MATERIALS AND METHODS

SOURCE OF DATA

Blood donors registered for blood donation in B.L.D.E. University Shri B. M. Patil Medical College, Hospital and Research Centre's Blood Bank, in Bijapur district were included in this study.

Study period: 1st November 2013 to 30th June 2015.

METHODS OF COLLECTION OF DATA:

The present study was a prospective study. The data was collected by filling of a self-administered structured questionnaire. The questionnaire was administered to all the donors ready to participate in the study. Questionnaire were distributed at the time of registration and were collected after filling during the refreshment period. Also one on one individual interviews were conducted to know about the blood donation experience and willingness of donor for future donation. A scoring mechanism was used to understand the level of knowledge, a score of one was given for each correct response and zero for wrong and unaware response. Participants with all correct responses obtained a maximum score of 8. The knowledge level was categorised into three groups: 0-3, 4-6 and 7-8 scores. Higher score indicate good knowledge.

SAMPLE SIZE:

In a study conducted by Dubey *et al*¹⁰ considering the proportion of blood donors 52% and 95% confidence interval and at 10% allowable error the calculated sample size is 355, using the statistical formula

$$n = \frac{Z\alpha^2 \times p \times q}{L^2}$$

The calculated sample size is 355.

Hence, minimum of 355 blood donors will be included in the study to assess knowledge and attitude towards blood donation.

Questionnaire is based on Manikandan *et al*⁵ study titled “A study in knowledge, attitude and practice on blood donation among health professional students in Chennai, Tamil Nadu, South India”. Data is valid according to this study.

STATISTICAL ANALYSIS:

All characteristics were summarized descriptively. For continuous variables, the summary statistics of N, arithmetic mean (referred to as mean), standard deviation about the arithmetic mean (SD) were used. For categorical data, the number and percentage were used in the data summaries.

We employed bivariate correlation analysis using Pearson’s correlation coefficient (r) and intra-class correlation coefficient (which ever applicable) to test the strength and direction of relationships between the interval levels of variables.

A Chi-square (χ^2) test was employed to determine the significance of differences between groups for categorical data. For continuous data, the differences of the analysis variables were tested with the t-test. If the p-value is > 0.05, then the results will be considered to be not significant and if p-value is < 0.05 then results would be considered to be statistically significant. Data were analysed using SPSS software version 16. Descriptive statistics were used to describe the sample and scale characteristics.

Questionnaire for study: Tick mark the right option

KNOWLEGDE			Don't know
1. Suitable age for blood donation.	14 to 68 years	18 to 60 years	
2. Minimum weight for blood donation should be 50 kg.	Yes	No	
3. Blood pressure should be normal before blood donation.	Yes	No	
4. Donated blood is tested for Blood Borne Infections.	Yes	No	
5. Blood volume that donated in every blood donation.	200 ml	350 ml - Whole blood 450 ml - blood components	
6. Maximum number of days donated blood can be stored at 2-4 ^o C.	20 days	34 days	
7. Healthy person can donate blood how many times in a year?	3 times	5 times	
8. Maximum number of lives saved from single unit of donated blood.	3	5	
ATTITUDE			
1. Blood donation makes you weak.	Yes	No	
2. Blood donation can lead to anemia.	Yes	No	
3. Your motivation for blood donation	Self-motivated	Other- friends, relatives, media(TV/ Radio),banners	
4. Will donate blood again voluntarily.	Yes	No	
5. Experienced some discomfort after donation.	Yes	No	

*One mark will be given to every correct response and accordingly scores will be given.

INCLUSION CRITERIA: All the prospective donors who are responding to the questionnaire.

1. Donors weighing more than 50 kg.
2. Three months interval, free from previous blood donations.
3. Donors of the age group of 18-60 years.
4. Donors not suffering or not having history of diseases like hepatitis B/C, HIV/AIDS, Sexually Transmitted Diseases, Cancer/Malignancy, Malaria and any other major illness.
5. Donors not having any prior history of major surgery or blood transfusion with in past 6 months.
6. Female donors who are not pregnant or not having history of abortion within last 3 months.

EXCLUSION CRITERIA:

1. Donors weighing less than 50 kg
2. Less than three months interval, free from previous blood donations.
3. Donors below age of 18 years and more than 60 years.
4. Donors not fulfilling the above mentioned inclusion criteria
5. Donors not willing to participate in questionnaire.

RESULTS

The purpose of this study was to gain a better understanding of the knowledge and attitude towards blood donation among the blood donors of Bijapur district. The results we got are as follows:

DEMOGRAPHIC RESULTS

Table 2: Basic Characteristics of the Participants

Background Characteristics		N (398)	Percentage
Sex	Male	332	83.4
	Female	66	16.6
Age	18-20	169	42.5
	21-30	168	42.2
	31-40	43	10.8
	41-50	15	3.8
	51-60	3	0.8

Table 3: Distribution of participants according to locality

	Rural	Urban	Total
Male	127	205	332 (38.4%)
Female	22	44	66 (16.6%)
Total	149 (37.4%)	249 (62.6%)	398

Data regarding the demographics of each study participants were collected which included age, gender and address. Out of the 398 individuals who participated in the study, 332 were males and 66 were females. Out of these 398 individuals 149 (37.4%) were from rural locality and 249 (62.6%) were from urban locality. Of these 149 rural participants 127 were male and 22 were female participants. Of these 249

urban participants 205 were male and 44 were female participants. Out of these 398 individuals, the mean age of the participants was 23.95 years (SD = 6.96), with a range of 18 to 58 years. Majority of the participants i.e. 42.5% (169) were between age group 18 to 20 years and 42.2% (168) were of age group 21 to 30 years. Only 0.8% (3) participants were in the age group of 51 to 60 years.

Table 4: Mean Cumulative scores by Location

Location	N	Cumulative Score	
		Mean	SD
Rural 1	42	5.5	1.3
Rural 2	22	5.7	1.2
Urban 1	30	5.2	1.3
Urban 2	39	6.2	1.2
Rural 3	16	5.1	1.5
Urban 3	35	5.9	1.1
Urban 4	60	6.5	0.9
Urban 5	30	7.8	0.5
Rural 4	25	4.2	1.6
Urban 6	38	5.6	1.1
Rural 5	44	5.8	1.3
Urban 7	17	5.1	0.9
Total	398	5.9	1.4

Table 5: Percent Distribution of Cumulative scores

Cumulative Score	N	Percent
0-3	19	4.8
4-6	243	61.1
7-8	136	34.2
Total	398	100

Figure 2: Mean Cumulative scores by sites

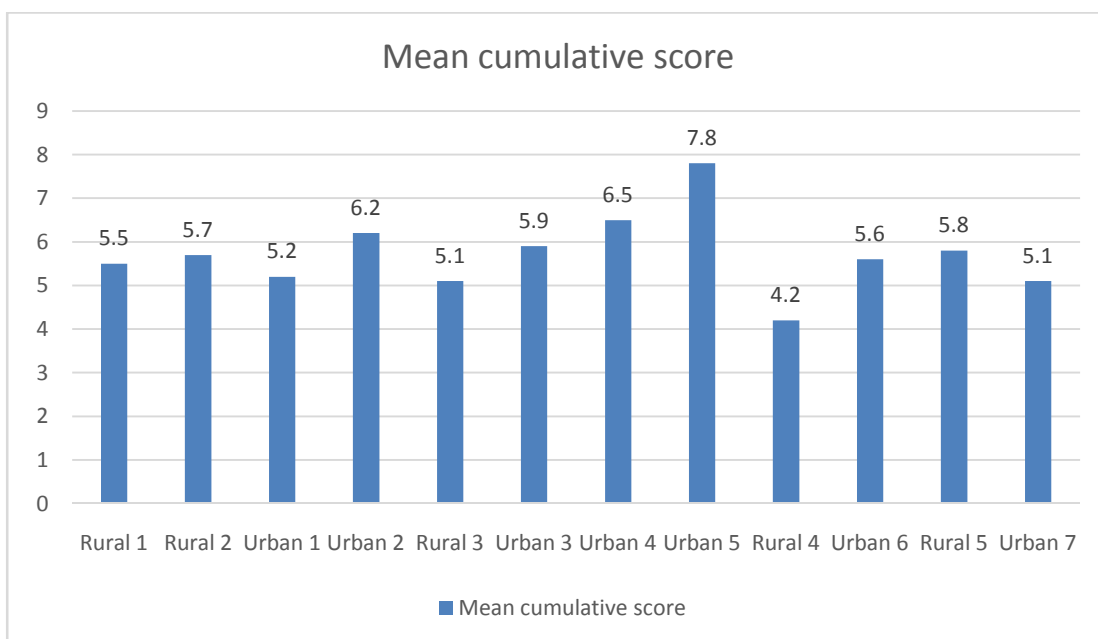


Figure 3: Percent Distribution of Cumulative scores

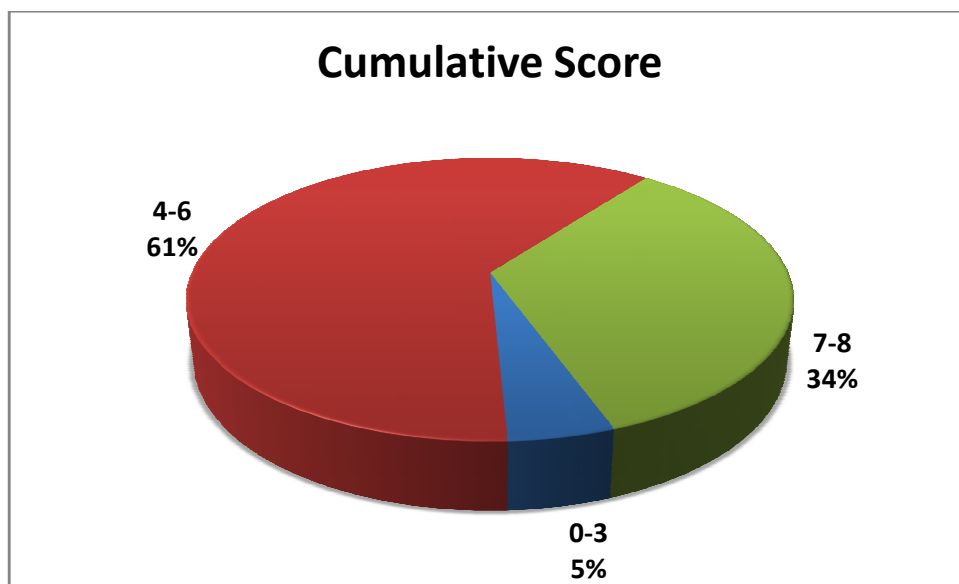


Table 6: Distribution of Cumulative scores by sites

Site	0-3		4-6		7-8		Total
	N	Percent	N	Percent	N	Percent	N
Rural 1	3	7.1	32	76.2	7	16.7	42
Rural 2	1	4.5	14	63.6	7	31.8	22
Urban 1	2	6.7	23	76.7	5	16.7	30
Urban 2	0	0	26	66.7	13	33.3	39
Rural 3	2	12.5	11	68.8	3	18.8	16
Urban 3	0	0	25	71.4	10	28.6	35
Urban 4	0	0	25	41.7	35	58.3	60
Urban 5	0	0	1	3.3	29	96.7	30
Rural 4	8	32	14	56	3	12	25
Urban 6	1	2.6	29	76.3	8	21.1	38
Rural 5	2	4.5	27	61.4	15	34.1	44
Urban 7	0	0	16	94.1	1	5.9	17
Total	19	4.8	243	61.1	136	34.2	398

A total of 12 blood camps were included in this study out of which 5 were in rural area and 7 were in urban location. According to location the mean cumulative score and SD were calculated. The maximum score was seen in Urban 5 blood camp which was conducted in a Nursing college and the least score was seen in Rural 4 blood camp which was conducted in a Commerce college. According to the cumulative score 61 % of total participants fall in to 4-6 (average) score range, 34% fall in to 7-8(high) score range and only 5 % fall in to 0-3(low) score range.

RESEARCH QUESTIONS AND RESULTS

The following section provides statistical analysis as well as data interpretation for each of the research questions presented in the study. The participants were provided with a close-ended questionnaire which incorporated three

options for each question. In the questionnaire, 8 questions were based to assess the knowledge regarding blood donation and 5 questions were based to assess attitude of the donor towards the donation process. In the Knowledge section of questionnaire questions 2, 3 and 4 were having options ‘Yes, No and Don’t Know’, while questions 1, 5, 6, 7 and 8 were having one right answer, one wrong answer and don’t know as options. In the Attitude section questions 1, 2, 4 and 5 were having options ‘Yes, No and Don’t Know’ while question 3 was having options ‘Self-motivated, Others-friends, relatives, media (TV/ Radio), banners’.

Table7: Distribution of Question 1 “Suitable age for blood donation” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
14 to 68 years	44	13.30%	10	15.20%	54	13.60%	0.402
18 to 60 years	287	86.40%	55	83.30%	342	85.90%	
Don’t know	1	0.30%	1	1.50%	2	0.50%	

Research question 1: Suitable age for blood donation.

The research question 1 was to assess the knowledge of the participants about the appropriate age group in which one can donate the blood. It also assesses the knowledge that when a person can start donating the blood and up to how much age he can donate. This question was having options as ‘14 to 68 years, 18 to 60 years and don’t know’. Out of which ‘18 to 60 years’ was the right answer and ‘14 to 68 years’ was the wrong answer. Out of total 398 participants 85.90% (342) responded correctly while 0.50% responded don’t know and 13.60% (54) responded incorrectly. Out of 332 male participants 86.40% (287) responded correctly while out of 66 female participants 83.30% (55) responded correctly. This shows that majority of participants

knew about the suitable age group for blood donation. This study also shows that male participants had slightly higher knowledge level than the female participants with P value of 0.402.

Table 8: Distribution of Question 2 “Minimum weight for blood donation should be 50 kg” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
Yes	313	94.30%	60	90.90%	373	93.70%	0.547
No	14	4.20%	4	6.10%	18	4.50%	
Don't know	5	1.50%	2	3.00%	7	1.80%	

Research question 2: Minimum weight for blood donation should be 50 kgs.

The research question 2 assesses the knowledge of the participants about the minimum weight which is required to donate the blood. The weight of the donor is checked in the physical examination done prior to blood donation. Weight is one of the essential criteria to select donor for blood donation and weight of donor should be above 50 kg. The weight in appropriate range for the age group points towards general well-being and good health. Question 2 was having options as ‘Yes, No and Don't Know’. Out of 398 participants 93.70% (373) were aware of the fact that weight should be above 50 kg for blood donation. Out of 332 male participants 94.30% (313) responded correctly while out of 66 female participants 90.90% (60) responded correctly. This shows that majority of participants knew that weight should be more than 50 kg for blood donation. This study also shows that male participants had slightly higher knowledge level than the female participants with P value of 0.547.

Table 9: Distribution of Question 3 “Blood pressure should be normal before blood donation” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
Yes	311	93.70%	61	92.40%	372	93.50%	0.811
No	11	3.30%	2	3.00%	13	3.30%	
Don't know	10	3.00%	3	4.50%	13	3.30%	

Research question 3: Blood pressure should be normal before blood donation

Question 3 assesses knowledge of the participants regarding normality of blood pressure for blood donation. Blood pressure is also one of the criteria for selection of blood donor and blood pressure of the participants is checked during the physical examination done prior to donation of blood. If the blood pressure is not within the normal range then the donor is deferred from donation. Question 3 was having options as ‘Yes, No and Don’t Know’. Out of 398 participants 93.50% (372) responded correctly. Out of 332 male participants 93.70% (311) responded correctly while out of 66 female participants 92.40% (61) responded correctly. This shows that majority of participants knew that blood pressure should be normal before blood donation. This study also shows that male participants had slightly higher knowledge level than the female participants with P value of 0.811.

Table 10: Distribution of Question 4 “Donated blood is tested for Blood Borne Infections” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
Yes	205	61.70%	49	74.20%	254	63.80%	0.028
No	62	18.70%	13	19.70%	75	18.80%	
Don't know	65	19.60%	4	6.10%	69	17.30%	

Research question 4: Donated blood is tested for blood borne infections.

Question 4 assesses knowledge of the participants that collected blood is tested for blood borne infections before transfusion. Donated blood is tested for various transfusion transmissible infections like HIV-1 and HIV-2, Hepatitis B and C, Syphilis and Malaria, etc. If the collected blood comes positive for any of the tests then it is discarded and the donor is informed about the disease so that he can receive proper treatment and/or defer himself from further blood donation. Question 4 was having options as ‘Yes, No and Don’t Know’. Out of 398 participants 63.80% (254) responded correctly. Out of 332 male participants 61.70% (205) responded correctly while out of 66 female participants 74.20% (49) responded correctly. Overall knowledge level of participants was lower for this question than the previous questions. Male participants had lower level of knowledge than the female participants for this question with p value of 0.028.

Table 11: Distribution of Question 5 “Blood Volume that donated in every blood donation” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
200ml	86	25.90%	22	33.30%	108	27.10%	0.259
350ml – whole blood	201	60.50%	39	59.10%	240	60.30%	
450ml –blood components							
Don’t know	45	13.60%	5	7.60%	50	12.60%	

Research question 5: Blood Volume that donated in every blood donation.

Question 5 assesses knowledge of the participants about the amount of blood collected from them during blood donation. Question 5 was having options as ‘200ml, 350ml – whole blood, 450ml – blood components and don’t know’. Out of which

200ml was the wrong answer; and 350ml –Whole blood, 450ml – blood components was the right answer. Out of 398 participants 60.30% (240) responded correctly. Out of 332 male participants 60.50% (201) responded correctly while out of 66 female participants 59.10% (39) responded correctly. Overall knowledge level of participants was lower for this question than the previous questions. This study also shows that male participants had slightly higher knowledge level than the female participants with P value of 0.259.

Table 12: Distribution of Question 6 ‘Maximum number of days donated blood can be stored at 2-4° C’ according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
20 days	99	29.80%	20	30.30%	119	29.90%	0.787
34 days	171	51.50%	36	54.50%	207	52.00%	
Don't know	62	18.70%	10	15.20%	72	18.10%	

Research question 6: Maximum number of days donated blood can be stored at 2-4° C.

Question 6 assesses knowledge of the participants about the maximum number of days donated blood can be stored at 2-4° C in the blood bank. Collected whole blood after testing negative for transfusion transmissible diseases is stored in refrigerators at 2-4° C up to issuing to the recipient. But it can be stored for a maximum duration of 34 days with CPDA 1 as the anti-coagulant. Question 6 was having options as ‘20days, 34days and don't know’. Out of which ‘20 days’ was the wrong answer; and ‘34 days’ was the right answer. Out of 398 participants 52.00% (207) responded correctly. Out of 332 male participants 51.50% (171) responded correctly while out of 66 female participants 54.50% (36) responded correctly.

Overall knowledge level of participants was lower for this question than the previous questions. Almost half of the participants were wrong about this question. Male participants had lower level of knowledge than the female participants for this question with p value of 0.787.

Table 13: Distribution of Question 7 “Healthy person can donate blood how many times in a year?” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
3 times	275	82.80%	56	84.80%	331	83.20%	0.765
5 times	40	12.00%	6	9.10%	46	11.60%	
Don't know	17	5.10%	4	6.10%	21	5.30%	

Research question 7: Healthy person can donate blood how many times in a year.

Question 7 assesses knowledge of the participants about the number of times a healthy person can donate blood in a year. As a person donates blood the amount of RBCs and other blood components gets decreased from his body. So body requires time to regenerate all the lost blood components. It is said that minimum period of 120 days should be there between two consecutive blood donations. Thus in duration of a year a normal healthy person can donate blood only 3 times. Question 7 was having options as ‘3 times, 5 times and don’t know’. Out of which ‘5 times’ was the wrong answer; and ‘3 times’ was the right answer. Out of 398 participants 83.20% (331) responded correctly. Out of 332 male participants 82.80% (275) responded correctly while out of 66 female participants 84.80% (56) responded correctly. This shows that majority of participants knew about the number of times a healthy person can donate blood in a year. Male participants had lower level of knowledge than the female participants for this question with p value of 0.765.

Table 14: Distribution of Question 8 “Maximum number of lives saved from single unit of donated blood” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
3	171	51.50%	41	62.10%	212	53.30%	0.286
5	82	24.70%	13	19.70%	95	23.90%	
Don't know	79	23.80%	12	18.20%	91	22.90%	

Research question 8: Maximum number of lives saved from single unit of donated blood.

Question 8 assesses knowledge of the participants about the maximum number of lives saved from a single unit of donated blood. When the blood is collected in triple bag, it is separated into 3 components namely Packed Red Blood Cells (PRBC), Fresh Frozen Plasma (FFP) and Platelet concentrate. This increases the utility of blood as it can serve 3 patients. Also this increases the shelf life of the blood. Question 8 was having options as ‘3, 5 and don’t know’. Out of which ‘5’ was the wrong answer; and ‘3’ was the right answer. Out of 398 participants 53.30% (212) responded correctly. Out of 332 male participants 51.50% (171) responded correctly while out of 66 female participants 62.10% (41) responded correctly. Overall knowledge level of participants was lower for this question than the previous questions. Almost half of the participants were wrong about this question. Male participants had lower level of knowledge than the female participants for this question with p value of 0.286.

Table 15: Distribution of Question 9 “Blood donation makes you weak” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
No	305	91.90%	59	89.40%	364	91.50%	0.511
Yes	27	8.10%	7	10.60%	34	8.50%	

Research question 9: Blood donation makes you weak.

Question 9 assesses the attitude of the participants about does the blood donation makes you weak. Question 9 was having options as ‘Yes, No and Don’t Know’. Generally blood donation does not lead to weakness. So ‘No’ is the correct answer and ‘Yes’ is the wrong answer, but the personal experience can vary and some persons can feel some weakness. Out of 398 participants 91.50% (364) responded correctly. Out of 332 male participants 91.90% (305) responded correctly while out of 66 female participants 89.40% (59) responded correctly. This shows that majority of participants had a positive attitude and didn’t felt any type of weakness. Male participants had slightly more positive attitude than the female participants for this question with p value of 0.511.

Table 16: Distribution of Question 10 “Blood donation can lead to anaemia” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
No	277	83.40%	56	84.80%	333	83.70%	0.764
Yes	38	11.40%	8	12.10%	46	11.60%	
Don’t Know	17	5.10%	2	3.00%	19	4.80%	

Research Question 10: Blood donation can lead to anaemia.

Question 10 assesses the attitude of the participants about can the blood donation lead to anaemia. During blood donation 350ml or 450 ml blood is donated after fulfilling all the criteria, so that removal of this much amount of blood does not lead to any adverse effect on body such as anaemia. So ‘No’ is the correct answer and ‘Yes’ is the wrong answer. Question 10 was having options as ‘Yes, No and Don’t Know’. Out of 398 participants 83.70% (333) responded correctly. Out of 332 male participants 83.40% (277) responded correctly while out of 66 female participants 84.80% (56) responded correctly. This shows that majority of participants knew that blood donation does not lead to anaemia and had a positive attitude towards blood donation. Male participants had slightly less positive attitude than the female participants for this question with p value of 0.764.

Table 17: Distribution of Question 11 “Your motivation to Blood donation” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
Self-Motivated	229	69.00%	43	65.20%	272	68.30%	0.542
Others – friends, relatives, media (TV/ Radio), banners.	103	31.00%	23	34.80%	126	31.70%	

Research question 11: Your motivation to blood donation.

Question 11 assesses the attitude of the participants about the source of the motivation for blood donation. Many persons are motivated through altruism and self-motivation, which is strongest motivation and helps donor retention programme. Other types of source of motivation are friends, relatives, media (TV/ Radio), and banners. Question 11 was having options as ‘Self-motivated, Others and Don’t Know’. Out of 398 participants 68.30% (272) responded correctly. Out of 332 male participants 69.00% (229) responded correctly while out of 66 female participants 65.20% (43) responded correctly. This shows that majority of participants were self-motivated. Male participants were more self-motivated attitude towards blood donation than the female participants with p value of 0.542.

Table 18: Distribution of Question 12 “Will donate blood again voluntarily” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
No	17	5.10%	6	9.10%	23	5.80%	0.207
Yes	315	94.90%	60	90.90%	375	94.20%	

Research question 12: Will donate blood again voluntarily.

Question 12 assesses the attitude of the participants about donating blood again in future. Based on the experience of blood donation done previously donors make their decision whether to donate blood again in the future. So the whole process of blood donation should be focused on giving donor a pleasant experience. Question 12 was having options as “Yes, No and Don’t Know”. Out of 398 participants 94.20% (375) responded positively. Out of 332 male participants 94.90% (315) responded positively while out of 66 female participants 90.90% (60) responded positively. This

shows that majority of participants were having positive attitude towards donating blood again in the future. Male participants were having more positive attitude towards donating blood again than the female participants with p value of 0.207.

Table 19: Distribution of Question 13 “Experienced some discomfort after Blood donation” according to Gender

Categories	Male (N=332)	%	Female (N=66)	%	Total (N=398)	%	p value
No	300	90.40%	59	89.40%	359	90.20%	0.809
Yes	32	9.60%	7	10.60%	39	9.80%	

Research question 13: Experienced some discomfort after blood donation.

Question 13 assesses the attitude of the participants about whether they had any discomfort after blood donation. Based on the experience of blood donation and discomfort experienced during the process, donors make their decision whether to donate blood again in the future. So the whole process of blood donation should be focused on reducing the discomfort experienced by the donors. Question 13 was having options as ‘Yes, No and Don’t Know’. Out of 398 participants 90.20% (359) responded that no discomfort was experienced. Out of 332 male participants 90.40% (300) didn’t experience any type of discomfort while out of 66 female participants 89.40% (59) didn’t experience any type of discomfort. This shows that majority of participants were having positive attitude towards donating blood without experiencing any type of discomfort. Male participants were having slightly less incidence of experiencing discomfort than the female participants with p value of 0.809.

DISCUSSION

The study of knowledge and attitude of blood donors towards blood donation enables researchers to understand the outlook and the barriers donors have towards blood donation. This information can then be used in devising modules to eliminate the obstacles.²⁷

The present study assessed the knowledge and attitude of blood donors towards blood donation in Bijapur district. Blood donors of both rural and urban areas were included in this study.

On analysis of the information gathered it was found that good knowledge about blood donation translates into a more positive attitude. Attitudes and beliefs of the donors are based on the foundation of knowledge, and this study assessed the level of knowledge among the donors which correlated with their attitude towards blood donation.²⁷

Table 20: Comparison of Male & Female participants between different studies

STUDY	TOTAL PARTICIPANTS	MALE	FEMALE
Dubey <i>et al</i> ¹⁰	1200	881 (73.41%)	319 (26.59%)
Alzaben <i>et al</i> ¹¹	140	111 (85.7%)	29 (14.3%)
Maghsudlu <i>et al</i> ¹²	16955	14425 (85.1%)	2530 (14.9%)
Nwabueze <i>et al</i> ¹⁷	294	179 (60.9%)	115 (39.1%)
Hasan <i>et al</i> ²⁸	200	128 (64%)	72 (36%)
Present study	398	332 (83.4%)	66 (16.6%)

Our study found a significant association between blood donation and gender. Males in our society are more likely to donate blood than females, as the females within the donor age range usually have some factors which interfere with the criteria

of blood donation. Nutritional anaemia is widespread prevalent in females in India which is one of the major factor deferring many females from donating blood. Factors such as frequent menstrual cycles, pregnancy and lactation may prevent them from donation. In our study only 16.6% (66) were female donors this is in affirmation of the WHO report that there are more male donors worldwide.²⁸ We also found that out of 66 female donors majority that is 54 were from urban locality and 12 were from rural area. This suggests that females in urban areas have more willingness and have more positive attitude towards blood donation. Studies conducted by Hasan *et al*²⁸, Alzaben *et al*¹¹, Dubey *et al*¹⁰, Nwabueze *et al*¹⁷, and Maghsudlu *et al*¹² had similar results with higher percentage of male participants.

Table 21: Comparison of participants from Rural & Urban area between different studies

STUDY	TOTAL PARTICIPANTS	FROM RURAL AREA	FROM URBAN AREA
Dubey <i>et al</i> ¹⁰	1200	315 (26.25%)	885 (73.75%)
Maghsudlu <i>et al</i> ¹²	16955	1315 (7.8%)	15328 (90.4%)
Ahmed <i>et al</i> ¹⁴	600	64 (10.6%)	536 (89.4%)
Present study	398	149 (37.4%)	249 (62.6%)

In our study out of 398 participants 249 (62.6%) were from urban areas while 149 (37.4%) were from rural area. This is in consistence with the studies of Dubey *et al*¹⁰, Maghsudlu *et al*¹², and Ahmed *et al*¹⁴ in which also majority participants were from urban area. This finding suggests that rural area remains neglected and remains unexplored huge source of blood donation.

Table 22: Comparison of participants “under 30 years of age” and “above 30 years of age” between different studies

STUDY	TOTAL PARTICIPANTS	UNDER 30 YEARS OF AGE	ABOVE 30 YEARS OF AGE
Alzaben <i>et al</i> ¹¹	140	81 (58%)	59 (42%)
Nwabueze <i>et al</i> ¹⁷	294	279 (94.9%)	15 (5.1%)
Alam <i>et al</i> ²⁹	500	296 (59.2%)	204 (40.8%)
Wilkinson <i>et al</i> ³⁰	100	71 (71%)	29 (29%)
Present study	398	237 (84.7%)	161 (15.3%)

In our study majority of participants i.e. 84.7% (237) were under 30 years. This is in consistence with the studies of Alam *et al*²⁹, Alzaben *et al*¹¹, Nwabueze *et al*¹⁷, and Wilkinson *et al*³⁰ in which also majority participants were under 30 years of age. Young population is a vast source of easily accessible safe blood which remains unexplored and more emphasis should be given on recruiting and maintaining more young donors.

Table 23: Comparison of Research question 1: “Suitable age for blood donation” between different studies

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Safizadeh <i>et al</i> ¹	11.7%	88.3%
Amatya <i>et al</i> ³	36.16%	63.84%
Manikandan <i>et al</i> ⁵	76.25%	23.75%
Jose <i>et al</i> ⁶	89.70%	10.30%
Sharma <i>et al</i> ⁸	56%	44%
Hasan <i>et al</i> ²⁸	75.5%	24.5%
Alam <i>et al</i> ²⁹	85.2%	14.8%
Rao <i>et al</i> ³¹	70.45%	29.55%
Misganaw <i>et al</i> ³²	85.7%	14.3%
Sanayaima Devi <i>et al</i> ³³	56.8%	43.2%
Present study	85.90%	14.10%

The research question 1 showed that 85.90% of participants knew correctly about the suitable age for blood donation, i.e. they knew that when a person can start donating the blood and up to what age he can donate. This result is in consistence with studies of Hasan *et al*²⁸, Alam *et al*²⁹, Manikandan *et al*⁵, Jose *et al*⁶, Rao *et al*³¹, Misganaw *et al*³², Sanayaima Devi *et al*³³ and Sharma *et al*⁸. Amatya *et al*³ study conducted in students of Nepal and Safizadeh *et al*¹ study conducted in students of Kerman city found a low level of knowledge in participants about suitable age for blood donation.

Table 24: Comparison of Research question 2: “Minimum weight for blood donation should be 50 kg” between different studies

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Safizadeh <i>et al</i> ¹	51.2%	48.8%
Amatya <i>et al</i> ³	19.77%	80.23%
Manikandan <i>et al</i> ⁵	72.75%	27.25%
Jose <i>et al</i> ⁶	49.09%	50.09%
Hasan <i>et al</i> ²⁸	65%	35%
Alam <i>et al</i> ²⁹	59.4%	40.6%
Rao <i>et al</i> ³¹	61%	39%
Misganaw <i>et al</i> ³²	90.4%	9.6%
Present study	93.70%	6.30%

The research question 2 showed that 93.70% participants knew about minimum weight required for blood donation should be 50 kg. The weight of the donor is checked in the physical examination done prior to blood donation. The weight in appropriate range for the age group points towards general well-being and good health. A person with weight of 50 kg has a blood volume of approximately 3750 ml out of which 450 ml blood can be donated, which accounts to 10-13% of total blood volume.²⁹ Misganaw *et al*³² also had similar results in their study with 90.4% participants having correct knowledge about the minimum weight required for blood donation. This is in consistence with the studies conducted by Manikandan *et al*⁵, Hasan *et al*²⁸, Rao *et al*³¹, Alam *et al*²⁹ and Safizadeh *et al*¹. While studies conducted by Amatya *et al*³ and Jose *et al*⁶ found lower level of knowledge regarding minimum weight required for blood donation in their participants.

Table 25: Comparison of Research question 3: “Blood pressure should be normal before blood donation” between different studies

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Amatya <i>et al</i> ³	87.57%	12.43%
Manikandan <i>et al</i> ⁵	46.75%	53.25%
Hasan <i>et al</i> ²⁸	95%	5%
Present study	93.50%	6.50%

Question 3 showed that 93.50% of participants had correct knowledge regarding normality of blood pressure for blood donation. Blood pressure is also one of the criteria for selection of blood donor and blood pressure of the participants is checked during the physical examination done prior to donation of blood. If the blood pressure is not within the normal range then the donor is deferred from donation in view of the possibility of precipitating vascular accidents due to sudden lowering of blood pressure. Hasan *et al*²⁸ and Amatya *et al*³ also had similar result in their study with 95% and 87.57% participants respectively, correctly knowing about the blood pressure requiring to be in normal range for blood donation.

Table 26: Comparison of Research question 4: “Donated blood is tested for blood borne infections” between different studies

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Safizadeh <i>et al</i> ¹	29.7%	70.3%
Amatya <i>et al</i> ³	23.16%	76.84%
Manikandan <i>et al</i> ⁵	36.25%	63.75%
Jose <i>et al</i> ⁶	93.33%	6.67%
Sharma <i>et al</i> ⁸	72%	28%
Alzaben <i>et al</i> ¹¹	73.3%	26.7%
Mathias <i>et al</i> ²⁷	64.5%	35.5%
Hasan <i>et al</i> ²⁸	63%	37%
Misganaw <i>et al</i> ³²	67.7%	32.3%
Sanayaima Devi <i>et al</i> ³³	87.6%	12.40%
Reza <i>et al</i> ³⁴	43%	57%
Present study	63.8%	36.2%

Question 4 showed that 63.8% of the participants had correct knowledge that collected blood is tested for blood borne infections before transfusion. Donated blood is tested for various transfusion transmissible infections like HIV-1 and HIV-2, Hepatitis B and C, Syphilis and Malaria, etc. If the collected blood comes positive for any of the tests then it is discarded and the donor is informed about the disease so that he can receive proper treatment and/or defer himself from further blood donation. Hasan *et al*²⁸, Sanayaima Devi *et al*³³, Alzaben *et al*¹¹, Jose *et al*⁶, Mathias *et al*²⁷, Misganaw *et al*³², and Sharma *et al*⁸ had similar results with majority of the participants with having correct knowledge about the pre-transfusion testing done on blood for infections. While Safizadeh *et al*¹, Reza *et al*³⁴, and Manikandan *et al*⁵ found that majority of the participants had misconceptions and false beliefs about testing of collected blood.

Table 27: Comparison of Research question 5: “Blood volume that donated in every blood donation” between different studies

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Safizadeh <i>et al</i> ¹	38.7%	61.3%
Amatya <i>et al</i> ³	1.13%	98.87%
Manikandan <i>et al</i> ⁵	14.25%	85.75%
Jose <i>et al</i> ⁶	37.57%	62.43%
Benedict <i>et al</i> ⁷	60.7%	39.3%
Hasan <i>et al</i> ²⁸	70%	30%
Alam <i>et al</i> ²⁹	92.4%	7.6%
Nwogoh <i>et al</i> ³⁵	40.5%	59.5%
Salaudeen <i>et al</i> ³⁶	77.3%	22.7%
Present study	60.3%	39.7%

Question 5 showed that 60.3% participants had correct knowledge about the amount of blood collected from them during blood donation. Symptoms of hypovolemia can begin to occur in some people with the loss of 15 % or greater of the total volume.²⁹ The donors out of curiosity ask and get informed about how much blood they are going to donate and the effect of donation on their health. Studies conducted by Alam *et al*²⁹, Hasan *et al*²⁸, Salaudeen *et al*³⁶, and Benedict *et al*⁷ found that majority of participants had correct knowledge of the amount of blood donated by them similar to present study. While Manikandan *et al*⁵, Jose *et al*⁶, Amatya *et al*³, Nwogoh *et al*³⁵, and Safizadeh *et al*¹ found that majority of participants were unaware of the amount of the blood being donated.

Table 28: Comparison of Research question 6: “Maximum number of days donated blood can be stored at 2-4° C”

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Manikandan <i>et al</i> ⁵	12.5%	87.5%
Present study	52%	48%

Question 6 showed that 52% participants knew about the maximum number of days donated blood can be stored at 2-4° C in the blood bank. Collected whole blood after testing negative for transfusion transmissible diseases is stored in refrigerators at 2-4° C up to issuing to the recipient or up to the expiry date. During storage many senescent changes take place in the blood cells in the bag, like increase in potassium level, which can lead to hypercalemia in the recipient after transfusion of massive amount of blood. Manikandan *et al*⁵ found that 12.5% of participants in their study knew about the maximum number of the days blood can be stored in the blood bank.

Table 29: Comparison of Research question 7: “Healthy person can donate blood how many times in a year?” between different studies

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Safizadeh <i>et al</i> ¹	38.7%	61.3%
Amatya <i>et al</i> ³	44.07%	55.93%
Manikandan <i>et al</i> ⁵	32.25%	67.75%
Jose <i>et al</i> ⁶	80%	20%
Benedict <i>et al</i> ⁷	70.7%	29.3
Sharma <i>et al</i> ⁸	30%	70%
Alzaben <i>et al</i> ¹¹	53.3%	46.7%
Mathias <i>et al</i> ²⁷	29.1%	70.9%
Hasan <i>et al</i> ²⁸	70%	30%
Alam <i>et al</i> ²⁹	88.6%	11.4%
Rao <i>et al</i> ³¹	70%	30%
Misganaw <i>et al</i> ³²	40.9%	59.1%
Nwogoh <i>et al</i> ³⁵	48.5%	51.5%
Shidam <i>et al</i> ³⁷	44.1%	55.9%
Salaudeen <i>et al</i> ³⁸	32%	68%
Present study	83.2%	16.8%

Question 7 showed that 83.2% participants had correct knowledge about the number of times a healthy person can donate blood in a year. As a person donates blood the amount of RBCs and other blood components gets decreased along with his body iron stores. So body requires time to regenerate all the lost blood components. It is said that minimum period of 120 days should be kept between two consecutive blood donations. Thus a person can donate 3 times in a year. Alam *et al*²⁹, Jose *et al*⁶, Benedict *et al*⁷, Rao *et al*³¹, Alzaben *et al*¹¹ and Hasan *et al*²⁸ had similar findings in their studies with majority of the participants having correct knowledge about the number of times a healthy person can donate in a year. While Nwogoh *et al*³⁵, Safizadeh *et al*¹, Sharma *et al*⁸, Amatya *et al*³, Salaudeen *et al*³⁸, Shidam *et al*³⁷, Misganaw *et al*³², Mathias *et al*²⁷ and Manikandan *et al*⁵ found in their studies that

majority participants had misbelieves about the number of times a healthy person can donate blood.

Table 30: Comparison of Research question 8: “Maximum number of lives saved from single unit of donated blood” between different studies

STUDY	CORRECT RESPONSE PERCENTAGE	INCORRECT+DON'T KNOW RESPONSE PERCENTAGE
Manikandan <i>et al</i> ⁵	22%	78%
Jose <i>et al</i> ⁶	84.6%	15.4%
Rao <i>et al</i> ³¹	91.7%	8.3%
Sanayaima Devi <i>et al</i> ³³	63.9%	36.1%
Present study	53.3%	46.7%

Question 8 showed that 53.3% participants had correct knowledge about the maximum number of lives saved from a single unit of donated blood. When the blood is collected in triple bag, it is separated into 3 components namely Packed Red Blood Cells (PRBC), Fresh Frozen Plasma (FFP) and Platelet concentrate. This increases the utility of blood as it can serve 3 patients. Also this increases the shelf life of the blood. This also showed that almost half of the participants were wrong about this question. This result is in consistence with the study conducted by Sanayaima Devi *et al*³³ who found 63.9% participants had correct knowledge about number of lives saved from a single whole blood donation. Also studies conducted by Rao *et al*³¹ and Jose *et al*⁶ found that majority of the participants had correct knowledge while study conducted by Manikandan *et al*⁵ found that majority of the participants in their study had misbelieves about this question.

Table 31: Comparison of Research question 9: “Blood donation makes you weak” between different studies

STUDY	“NO”	“YES”
Safizadeh <i>et al</i> ¹	79.5%	20.5%
Manikandan <i>et al</i> ⁵	19.61%	80.39%
Dubey <i>et al</i> ¹⁰	95.75%	4.25%
Alzaben <i>et al</i> ¹¹	91.5%	8.5%
Mathias <i>et al</i> ²⁷	87.2%	12.8%
Misganaw <i>et al</i> ³²	76.6%	23.4%
Salaudeen <i>et al</i> ³⁸	62.5%	37.5%
Rathod <i>et al</i> ³⁹	72.67%	27.33%
Present study	91.5%	8.5%

Question 9 showed that 91.5% didn’t feel that the blood donation can make them weak. This shows that majority of the participants had a positive attitude and didn’t feel any type of weakness. This result is in consistence with the studies conducted by Alzaben *et al*¹¹, Mathias *et al*²⁷, Dubey *et al*¹⁰, Safizadeh *et al*¹, Misganaw *et al*³², Rathod *et al*³⁹, and Salaudeen *et al*³⁸. But Manikandan *et al*⁵ found that majority of participants in their study were unaware and had misbelieves that blood donation can make them weak.

Table 32: Comparison of Research question 10: “Blood donation can lead to anaemia.” between different studies

STUDY	NO	YES	DON’T KNOW
Amatya <i>et al</i> ³	23.16%	76.84%	-
Manikandan <i>et al</i> ⁵	19.61%	80.39%	-
Dubey <i>et al</i> ¹⁰	95.75%	4.25%	-
Hasan <i>et al</i> ²⁸	91%	9%	-
Misganaw <i>et al</i> ³²	65.4%	34.6%	-
Present study	83.70%	11.60%	4.80%

Question 10 showed that 83.70% participants didn't feel that the blood donation can lead to anaemia. During blood donation 350ml or 450 ml blood is donated after fulfilling all the criteria, so that removal of this much amount of blood does not lead to any adverse effect on body such as anaemia. This shows that majority of participants knew that blood donation does not lead to anaemia and had a positive attitude towards blood donation. This result is in consistence with the result of studies conducted by Hasan *et al*²⁸, Dubey *et al*¹⁰ and Misganaw *et al*³². While Amatya *et al*³ and Manikandan *et al*⁵ found that majority of participants in their study had misbelieves that blood donation can lead to anaemia.

Research question 11: Your motivation to blood donation

Question 11 showed that 68.30% participants were self-motivated. Many persons are motivated through altruism and self-motivation, which is strongest motivation and helps donor retention programme. Up to 31.70% participants told that they were motivated from friends, relatives, media (TV/ Radio), and banners. It was also found that giving blood donation certificate and blood donation credit card also motivated donors to donate again in the future on regular basis, if the donor requires blood in future he can get it by showing the blood donation credit card. In study conducted by Alam *et al*²⁹ they found that 67.7% donors were motivated by friends/relatives, 19.2% were motivated by blood bank staff, 11.3% were motivated by newspaper/books and 1.7% were motivated by radio/television. In a study by Wilkinson *et al*³⁰, they found that 46% were motivated by friends, 28% were motivated by blood donation camps, 28% were motivated by television, 13% were motivated by radio, 13% were motivated by newspaper, 5% by internet and 4% by movies. Shidam *et al*³⁷ found that 48% were motivated by media, 19.7% were

motivated by health workers, 13.1% were motivated by relatives and 13.1% were motivated by friends.

Table 33: Comparison of Research question 12: “Will donate blood again voluntarily” between different studies

STUDY	YES	NO
Bharatwaj <i>et al</i> ²	55.76%	44.24%
Amatya <i>et al</i> ³	35.6%	64.4%
Sharma <i>et al</i> ⁸	82%	11%
Nwogoh <i>et al</i> ¹³	57.1%	42.9%
Mathias <i>et al</i> ²⁷	35.5%	64.5%
Rao <i>et al</i> ³¹	61.36%	38.64%
Misganaw <i>et al</i> ³²	100%	0%
Sanayaima Devi <i>et al</i> ³³	89.8%	10.2%
Nwogoh <i>et al</i> ³⁵	41.1%	58.9%
Rathod <i>et al</i> ³⁹	74.67%	25.33%
Present study	94.20%	5.80%

Question 12 showed that 94.20% of the participants had positive attitude towards blood donation and were willing to donate again on voluntary basis. Based on the experience of blood donation done previously donors make their decision whether to donate blood again in the future. So the whole process of blood donation should be focused on giving donor a pleasant experience. This result is in consistence with the results of studies conducted by Misganaw *et al*³², Sanayaima Devi *et al*³³, Sharma *et al*⁸, Rathod *et al*³⁹, Rao *et al*³¹, Benedict *et al*¹³, and Bharatwaj *et al*², in which majority of the participants were willing to donate blood voluntarily on a regular basis.

Research question 13: Experienced some discomfort after blood donation

Question 13 showed that 90.2 % of the participants didn't feel any discomfort after blood donation. 9.8% of participants felt some discomfort but none were severe enough to require medical attention. Out of the 39 participants who felt discomfort, majority i.e. 34 felt pain at the site of venepuncture, 4 felt weakness and 1 participant had hematoma formation at the site of venepuncture. Based on the experience of blood donation and discomfort experienced during the process, donors make their decision whether to donate blood again in the future. So the whole process of blood donation should be focused on reducing the discomfort experienced and making the whole process more pleasant to the donors.

CONCLUSION

In this study it was found that 61% of the participants had average knowledge [cumulative score 4-6], 34% of the participants had good knowledge [cumulative score 7-8] and 5% of participants had poor knowledge [cumulative score 0-3]. Participants from urban background had more knowledge score than the participants from the rural area. Students from the Nursing College had highest knowledge level with mean score of 7.8, while the students of Commerce College had lowest knowledge level with mean score of 4.2.

The majority of the participants i.e.84.7% in the study belonged to under 30 years of age group. Also 83.4% of the total participants were male participants and 68.8% of the total participants were from the urban area. This shows that the females in our society are not actively participating in the blood donation process and also the rural population is lagging behind. So there is need for educational programmes and campaigns focusing on the rural population and also encouraging females to take participation in the blood donation programmes.

In this study it was found that above 80% of participants were having correct knowledge about criteria of deferral from blood donation and attempted correctly to questions like

- Suitable age for blood donation
- Minimum weight for blood donation
- Blood pressure should be normal before blood donation.
- Healthy person can donate blood how many times in a year?

It was also found that participants had less knowledge regarding blood donation process, tests done on collected blood and storage of blood and approximately 50 – 60% participants can attempt correctly to questions like:

- Donated blood is tested for blood borne infections
- Blood volume that donated in every blood donation
- Maximum number of days donated blood can be stored at 2-4°C
- Maximum number of lives saved from single unit of donated blood

The participants in this study had more positive attitude towards blood donation as 80-90% participants felt that blood donation does not make them weak or blood donation does not lead to anaemia. Positive attitude of the participants also reflects from the fact that 94.2% participants showed willingness to donate blood again on voluntary basis, which is a good thing as it helps in the donor recruitment and retention. Also 90.2% participants didn't feel any discomfort during the blood donation process. This helps to alleviate the fear of donors about the donation process and promotes them to donate blood voluntarily on a regular basis.

This study also found that 68.3% participants were self-motivated and approximately 31.7% participants were motivated by friends, relatives, TV, radio, media and banners. Self-motivation through altruism is the most strong force which drives donors to donate voluntarily on regular basis. Donors motivated by friends, relatives and other factors do not donate blood on regular basis.

The young population is a vast resource of easily accessible safe blood which is still underexplored. Lack of knowledge, misbelieves and fear are some of the factors which prevent young population from donating blood regularly. Though many

students are willing to donate blood, they end up not donating as they are not sufficiently motivated. So incorporating blood donation awareness programmes into curriculums of the students will motivate them more to donate blood voluntarily on a regular basis.

RECOMMENDATIONS FOR IMPROVING BLOOD DONOR RECRUITMENT AND RETENTION

- Use of various marketing strategies aimed at general population using posters, brochures, T.V. or Radio ads by popular personalities
- Blood donation awareness programmes to be included into school curriculum
- Organising more blood camps at public places during holidays and festivals
- Programmes involving health visitors and hospital personnel educating the public about blood donation by visiting homes and increasing awareness among the public visiting hospital for various reasons
- Incentives for voluntary blood donors such as one day leave form work, blood donation certificate and blood donation credit card which he can use in future

SUMMARY

The purpose of this study was to gain a better understanding of the knowledge and attitude levels prevalent in the blood donors of Bijapur district. Exploring the possible barriers such as lack of knowledge can contribute to implementation of new educational interventions aimed at improving knowledge and attitude of population towards blood donation.

Total 398 participants were included in the study and their knowledge and attitude towards blood donation was assessed. Majority of the participants had average knowledge score followed by good knowledge score. Majority of the participants were willing to donate again in the future. But still donors have poor knowledge regarding facts like transfusion transmissible infections, which affects their decision of becoming regular voluntary blood donor. So there is need to educate general population regarding blood donation process and conducting more blood camps focusing more on the rural area. In general, males were more readily donating blood than females, in both rural as well as in urban areas. Also females had less knowledge and attitude of blood donation, so there is need for programmes focusing more on females.

Limitations of the Study:

- This study was limited by time and resources. It was limited for a period of 1 year and 8 months.
- The questions included in the study were based on the concept to assess common facts about the blood donation process and they cannot assess all the aspects of knowledge and attitude towards blood donation.

- The study was limited to the Bijapur district and was conducted only among blood donors registered in blood donation camps, so it cannot give the exact knowledge and attitude level of the general population. Such studies on a larger scale and on different population groups needed to be conducted to get the real image of the level of the knowledge and attitude prevalent in the general population.

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ANNEXURE-I

ETHICAL CLEARANCE



B.L.D.E. UNIVERSITY'S
SHRI.B.M.PATIL MEDICAL COLLEGE, BIJAPUR-586 103
INSTITUTIONAL ETHICAL COMMITTEE

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this college met on 13-11-2013 at 3-30pm to scrutinize the Synopsis of Postgraduate Students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected & revised version synopsis of the Thesis has been accorded Ethical Clearance.

Title "Study on Knowledge and attitude of blood donors towards blood donation in Bijapur District"

Name of P.G. student Dr. Mulay Himanshu Dilip
Department of Pathology.

Name of Guide/Co-investigator Dr. Prakash. M. Patil
Assoc Prof of Pathology.

DR. TEJASWINI VALLABHA
CHAIRMAN
INSTITUTIONAL ETHICAL COMMITTEE
BLDEU'S, SHRI.B.M.PATIL
MEDICAL COLLEGE, BIJAPUR.

Following documents were placed before E.C. for Scrutinization

- 1) Copy of Synopsis/Research project.
- 2) Copy of informed consent form
- 3) Any other relevant documents.

ANNEXURE-II

RESEARCH INFORMED CONSENT FORM

TITLE OF THE PROJECT : KNOWLEDGE AND ATTITUDE OF
BLOOD DONORS TOWARDS BLOOD
DONATION IN BIJAPUR DISTRICT.

PRINCIPAL INVESTIGATOR : Dr. MULAY HIMANSHU DILIP
P.G.
DEPARTMENT OF PATHOLOGY

P.G.GUIDE : Dr. PRAKASH M. PATIL_{M.D}
ASSOCIATE PROFESSOR,
DEPARTMENT OF PATHOLOGY

PURPOSE OF STUDY:

To assess the level of knowledge and attitude regarding blood donation amongst blood donors in Bijapur district, Karnataka.

PROCEDURE:

You should have breakfast before the blood donation. The level of your knowledge and attitude regarding blood donation will be assessed by using pre-tested close ended questionnaire given to you before blood donation and the results will be interpreted using a scoring system. After your initial health check-up, 350 or 450 ml of blood will be removed from your body in blood bags containing Citrate Phosphate Dextrose Adenine (CPDA) as anticoagulant.

POTENTIAL RISKS:

Possible risks and discomforts expected in this study are nausea and giddiness.

No other side effects seen.

BENEFITS:

Blood donation helps to save many lives and gives a feeling of goodwill.

FINANCIAL INCENTIVE FOR PARTICIPATION:

You will not receive any payment for participation in this study. You will receive refreshment juice after successful donation of blood.

PRIVACY:

The people who will know that you are a participant in this research are members of the research team. No information about you, or provided by you during the research, will be disclosed to others without your permission, except if necessary to protect your rights or welfare or if required by law.

A possible small risk of the research is that your participation in the research or information about you and your health might become known to individuals outside the research. However you will not be identified by name on any research forms or records.

AUTHORIZATION TO PUBLISH RESULTS:

Results of this study may be published for scientific purposes or presented to scientific groups; however, you will not be identified in any Study or presentation.

INSTITUTIONAL POLICY:

The Shri B. M. Patil Medical College and Research Centre in Bijapur, Karnataka will provide, within the limitations of the laws of the State of Karnataka, facilities and medical attention to subjects who suffer injuries as a result of participating in its projects. In the event you believe that you have suffered any

physical injury as the result of your participation in the study, you may contact Blood Bank In charge.

VOLUNTARY PARTICIPATION:

Your participation in this study is voluntary (up to you to decide). Your doctor will still take care of you during this procedure. You are free to stop participation in this study at any time and for any reason. In case you need any further information regarding your rights as a participant, you may please contact Blood Bank In charge.

STATEMENT OF CONSENT:

I volunteer and consent to participate in this study. I have read the consent form or it has been read to me. The study has been fully explained to me and I may ask questions at any time.

Signature or left hand thumb impression

Date

KEY TO MASTER CHART

Q1	QUESTION 1
Q2	QUESTION 2
Q3	QUESTION 3
Q4	QUESTION 4
Q5	QUESTION 5
Q6	QUESTION 6
Q7	QUESTION 7
Q8	QUESTION 8
Q9	QUESTION 9
Q10	QUESTION 10
Q11	QUESTION 11
Q12	QUESTION 12
Q13	QUESTION 13
M	MALE
F	FEMALE
1	CORRECT RESPONSE
0	WRONG RESPONSE
DON'T	DON'T KNOW
SELF	SELF-MOTIVATED
OTHERS	OTHERS – FRIENDS, RELATIVES, MEDIA (TV/ RADIO), BANNERS

MASTER CHART

Sl. No	Age	Sex	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13
1	35	M	1	1	don't	1	0	don't	0	1	no	no	self	yes	no
2	32	M	1	1	1	don't	0	don't	0	don't	no	no	self	yes	no
3	32	M	1	1	1	don't	don't			don't	no	no	self	yes	no
4	25	M	1	1	1	don't	0	don't	don't	don't	no	don't	self	yes	no
5	25	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
6	33	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
7	19	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
8	44	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
9	24	M	1	1	1	1	0	1	1		no	no	self	yes	no
10	24	M	1	don't	1	don't	1	1	1	don't	no	no	other	yes	no
11	24	M	1	1	1	don't	don't	1	1	don't	no	don't	other	yes	no
12	24	M	1	1	1	don't	don't	1	1	1	no	no	other	yes	no
13	25	M	1	1	1	don't	don't	1	1	1	no	no	other	yes	no
14	25	M	1	1	1	1	1	1	1	don't	no	no	self	yes	no
15	27	M	1	1	1	1	1	1	1	don't	no	no	self	yes	no
16	35	M	1	1	1	don't	1	don't	1	1	no	no	self	yes	no
17	26	M	1	1	1			1	1	1	no	no	self	yes	no
18	24	M	1	1	1	0	0	0	1	don't	no	yes	self	no	yes
19	25	M	1	1	1	1	1		1		no	no	self	yes	no
20	29	M	1	1	1	don't	don't	don't	1	don't	no	don't	other	yes	no
21	26	M	1	1	1	1	don't	don't	1	don't	no	no	self	yes	no
22	27	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
23	29	M	1	1	1			1	1	1	no	no	self	yes	no

24	22	M	1	1	1	1	0	1	1	don't	no	no	self	yes	no
25	20	M	1	don't	1	0	don't	don't	1	don't	no	no	other	yes	no
26	20	M	1	1	1	0	0	0	1	1	no	no	self	yes	no
27	19	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
28	25	M	1	1	1	don't	don't	1	1	0	no	don't	other	yes	no
29	26	M	1	1	1	don't	don't	1	1	1	no	no	other	yes	no
30	26	M	1	1	1	1	1	1	1	don't	no	no	self	yes	no
31	19	M	1	1	1		1		1	1	no	no	self	yes	no
32	21	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
33	24	M	1	1	1	0	0	0	1	don't	no	no	self	yes	no
34	28	M	1	1	1	0	0	0	1	don't	no	YES	self	no	yes
35	23	M	1	1	1	1	1		1		no	no	self	yes	no
36	22	M	1	1	1	don't	don't	don't	1	don't	no	no	self	yes	no
37	35	M	1	1	1	1	1		1		no	no	self	yes	no
38	28	M	1	1	1	0	don't	0	1	don't	yes	don't	other	yes	no
39	28	M	0	1	1	don't	0	don't	1	1	no	no	self	yes	no
40	22	M	1	1	1	don't	1	1	0	1	yes	yes	self	no	yes
41	20	M	1	1	1	0	1	1	1	1	no	no	other	yes	no
42	23	M	1	1	1		1	1	1	1	no	no	self	yes	no
43	41	M	1	1	1	0	1	0	0	1	yes	no	other	no	yes
44	20	M	0	1	1	0	0	1	1	1	no	no	other	yes	no
45	35	M	1	1	1	0	1	1	0	1	yes	yes	self	no	yes
46	34	M	1	1	1	0	1	1	1	1	no	no	other	yes	no
47	19	M	1	1	1	0	1	1	1	1	no	no	other	yes	no
48	19	M	1	1	1	0	1	1	1	1	no	yes	other	yes	yes
49	19	M	1	1	1	1	1	1	1	1	no	no	self	yes	no

50	33	M	0	1	0	0	1	1	1	1	no	yes	self	yes	no
51	24	M	0	0	1	0	1	0	0	1	no	yes	other	yes	no
52	19	M	1	0	1	0	0	0	1	1	no	no	other	yes	no
53	19	M	1	1	1	1	1	1	0	1	no	no	self	yes	no
54	21	M	1	1	0	1	1	0	0	1	no	yes	self	no	yes
55	19	M	1	1	1	0	1	1	1	0	yes	yes	other	yes	no
56	23	M	1	1	0	1	1	0	0	1	yes	no	self	yes	yes
57	18	M	1	1	1	0	1	1	0	0	yes	yes	self	yes	no
58	21	M	1	1	1	0	1	1	1	1	no	yes	other	yes	no
59	18	M	1	1	1	0	1	0	0	1	no	no	other	yes	no
60	18	M	1	1	0	1	1	0	1	0	yes	yes	other	no	no
61	22	M	1	1	1	0	1	0	1	1	yes	no	other	yes	no
62	18	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
63	19	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
64	50	M	1	1	1	don't	don't	1	1	don't	no	don't	other	yes	no
65	35	M	1	1	1	1	1	0	1	1	no	no	self	yes	no
66	22	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
67	19	M	1	1	1	0	0	0	1	0	no	no	other	yes	no
68	28	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
69	18	M	0	1	1	1	1	0	0	0	yes	no	self	yes	no
70	22	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
71	20	M	1	1	1	1	0	1	0	1	no	YES	self	yes	no
72	20	M	1	1	1	1	1	don't	1	0	no	no	self	yes	yes
73	20	M	1	1	1	0	1	0	1	0	no	YES	other	yes	no
74	20	M	1	1	1	0	1	1	1	1	no	no	self	yes	no
75	20	M	0	1	1	1	1	don't	0	don't	no	no	other	no	no

76	20	M	1	0	0	0	0	1	1	0	no	no	self	yes	no
77	18	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
78	19	M	1	1	1	1	0	1	1	1	no	no	self	yes	no
79	19	M	1	0	1	1	1	1	1	1	no	no	self	yes	no
80	18	M	1	1	1	0	1	0	0	1	no	no	self	yes	no
81	25	F	1	1	0	1	0	don't	0	1	no	don't	other	no	no
82	18	M	1	0	don't	don't	1	don't	1	1	no	YES	other	no	no
83	20	M	0	1	1	don't	0	don't	1	0	no	no	self	yes	no
84	22	M	1	1	1	0	don't	1	1	1	no	no	self	yes	no
85	21	M	0	1	1	1	don't	0	1	0	no	no	self	yes	no
86	18	M	0	1	1	0	0	1	1	0	no	no	self	yes	no
87	19	M	1	1	1	1	0	1	0	0	no	no	self	yes	no
88	19	M	0	1	1	1	1	0	1	0	no	no	self	yes	no
89	18	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
90	19	M	1	1	1	1	0	1	1	0	no	no	self	yes	no
91	58	M	0	1	1	don't	1	1	1	0	no	no	self	yes	no
92	43	M	0	1	1	1	0	don't	1	don't	no	no	self	yes	no
93	28	M	1	1	1	1	1	0	0	1	no	no	self	yes	no
94	44	M	0	1	1	1	0	1	1	1	no	yes	self	no	no
95	19	M	1	1	1	1	1	0	1	1	no	no	self	yes	no
96	21	M	1	1	1	1	0	1	1	0	no	no	other	yes	no
97	22	M	1	1	1	1	1	0	1	0	no	no	self	yes	no
98	23	M	1	1	1	1	1	0	1	0	no	no	self	yes	no
99	18	F	1	1	1	1	1	1	1	1	no	no	self	yes	yes
100	21	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
101	19	M	1	1	1	1	1	1	1	0	no	no	self	yes	no

102	19	M	1	1	1	don't	1	1	1	don't	no	no	self	yes	no
103	20	M	1	1	don't	don't	1	1	1	1	no	no	other	yes	no
104	19	M	1	1	1	don't	1	don't	don't	don't	no	don't	self	yes	no
105	19	M	1	1	1	1	don't	1	0	0	no	no	self	yes	no
106	22	M	1	1	1	don't	1	1	1	1	no	don't	self	yes	no
107	20	M	1	1	1	1	0	1	1	don't	no	no	other	yes	no
108	20	M	1	1	1	1	don't	1	1	don't	no	no	self	yes	no
109	19	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
110	20	M	1	1	1	1	1	1	1	don't	no	no	self	yes	no
111	19	M	1	1	1	1	1	don't	1	don't	no	no	self	yes	no
112	21	M	1	1	1	don't	1	don't	1	1	no	no	self	yes	no
113	20	M	1	1	1	1	don't	don't	1	don't	no	no	self	yes	no
114	20	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
115	22	M	1	1	1	don't	1	don't	don't	don't	no	no	self	yes	no
116	36	M	0	1	1	1	0	0	1	1	no	don't	self	yes	no
117	19	M	1	1	don't	don't	don't	1	1	1	no	no	self	yes	no
118	24	M	1	1	1	1	don't	1	1	don't	no	no	self	yes	no
119	25	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
120	33	M	1	1	1	1	1	don't	don't	don't	no	no	self	yes	no
121	27	M	1	1	1	1	1	don't	1	1	no	no	self	yes	no
122	25	M	1	1	1	1	don't	1	1	don't	no	no	other	yes	no
123	34	M	1	1	1	1	1	don't	1	don't	no	no	self	yes	no
124	28	M	1	1	don't	don't	1	1	1	don't	no	no	self	yes	no
125	42	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
126	32	M	1	1	1	don't	1	1	1	don't	no	no	self	yes	no
127	43	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no

128	27	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
129	28	M	1	1	don't	don't	0	1	1	don't	no	no	self	yes	no
130	21	M	1	1	1	1	don't	don't	1	1	no	no	self	yes	no
131	25	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
132	28	M	1	1	1	don't	1	don't	1	don't	no	no	other	yes	no
133	20	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
134	22	M	0	1	1	0	0	1	0	0	no	no	other	yes	no
135	19	M	1	1	1	0	0	0	1	0	yes	no	other	yes	no
136	21	M	0	1	1	1	1	0	1	1	no	no	self	yes	no
137	22	F	1	1	0	0	1	1	1	0	no	no	other	yes	no
138	21	M	1	0	1	1	0	1	1	0	no	no	self	yes	no
139	19	F	0	0	1	1	1	0	1	0	no	no	other	yes	no
140	20	M	1	1	1	1	0	0	0	1	no	no	other	yes	no
141	23	M	0	1	1	1	1	0	1	1	no	no	other	yes	no
142	21	M	1	1	1	0	1	1	1	0	no	no	other	yes	no
143	21	M	0	1	1	1	1	1	1	1	no	no	other	yes	no
144	21	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
145	22	M	0	1	1	1	0	0	1	0	no	no	other	yes	no
146	21	M	1	0	0	1	1	0	1	0	no	no	other	yes	no
147	19	M	0	0	1	1	0	0	1	0	no	no	other	yes	no
148	18	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
149	18	M	1	1	0	0	0	1	1	1	no	no	other	yes	no
150	18	F	1	1	1	1	0	0	1	1	no	no	self	yes	yes
151	18	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
152	18	F	1	1	1	1	0	1	1	1	no	no	self	yes	no
153	18	F	1	1	1	0	0	0	1	0	no	no	other	yes	no

154	20	F	1	1	1	0	0	1	1	1	no	no	self	yes	no
155	29	F	1	1	1	0	0	1	1	1	no	no	self	yes	no
156	18	F	1	1	1	0	1	1	1	0	no	no	other	yes	no
157	18	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
158	20	F	1	1	1	1	0	0	1	1	no	no	self	yes	no
159	24	M	1	1	1	1	0	1	1	0	no	no	self	yes	no
160	20	M	1	1	1	1	1	0	1	0	no	no	other	yes	no
161	19	M	1	1	1	1	0	0	1	0	no	no	self	yes	yes
162	18	M	0	1	1	0	1	1	0	0	no	no	other	yes	yes
163	19	F	1	1	1	1	0	0	0	0	no	no	self	yes	no
164	19	F	1	1	1	1	0	0	0	1	no	no	self	yes	no
165	21	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
166	21	M	1	1	1	1	1	0	1	1	no	no	self	yes	no
167	18	M	1	1	1	1	1	1	1	0	no	no	other	yes	no
168	20	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
169	20	M	1	1	1	1	0	0	1	0	no	no	other	yes	no
170	20	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
171	56	F	1	1	1	1	0	1	1	0	no	no	self	yes	no
172	21	M	1	1	1	1	1	1	1	0	no	no	other	yes	no
173	20	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
174	21	M	1	1	1	1	0	1	1	1	no	no	other	yes	no
175	21	M	1	1	1	1	0	0	1	don't	no	no	self	yes	no
176	19	F	1	1	1	0	0	0	1	0	no	no	self	yes	no
177	19	F	1	1	1	1	1	0	1	0	no	no	other	yes	no
178	20	M	1	1	1	0	1	0	1	1	no	no	other	yes	no
179	20	M	1	1	1	1	0	0	1	0	no	no	self	yes	no

180	20	M	1	1	1	1	1	1	1	1	yes	no	other	yes	yes
181	32	M	1	1	1	1	1	0	0	0	yes	yes	other	yes	no
182	18	F	1	1	1	1	1	0	1	1	no	no	other	yes	yes
183	19	F	1	1	1	1	1	0	1	1	no	no	other	yes	yes
184	20	M	1	1	1	1	1	0	1	0	no	yes	other	yes	no
185	18	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
186	18	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
187	19	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
188	19	F	1	1	1	1	1	1	1	1	no	no	other	yes	no
189	19	M	1	1	1	1	1	0	0	0	no	no	other	yes	no
190	19	M	1	1	1	1	1	1	1	0	no	no	other	yes	no
191	25	M	1	1	1	1	1	0	1	0	no	no	self	yes	no
192	21	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
193	22	M	1	1	1	1	0	1	1	1	no	no	self	yes	no
194	21	M	1	1	1	1	1	0	1	0	no	no	other	yes	no
195	19	F	1	1	1	0	1	1	0	0	no	no	self	yes	no
196	38	F	1	1	1	1	1	1	1	0	no	no	self	yes	no
197	23	M	1	1	1	1	0	1	0	1	no	no	self	yes	no
198	19	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
199	21	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
200	19	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
201	20	M	1	1	1	0	1	0	1	1	no	no	self	yes	no
202	30	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
203	21	F	1	1	1	1	1	1	0	1	no	no	self	yes	no
204	20	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
205	21	M	0	1	1	1	1	0	1	1	no	no	self	yes	no

206	24	M	0	1	1	1	1	1	1	0	no	no	self	yes	no
207	21	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
208	21	M	1	1	1	1	1	0	1	0	no	no	other	no	no
209	22	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
210	23	M	1	1	1	0	0	1	1	0	no	no	self	yes	no
211	21	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
212	23	M	1	1	1	1	1	0	1	0	no	no	self	yes	no
213	21	F	0	1	1	1	0	1	1	1	no	no	self	yes	no
214	19	F	1	1	1	1	1	1	1	0	no	no	self	yes	no
215	25	M	1	1	1	0	1	0	0	1	no	no	self	yes	no
216	18	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
217	21	M	1	1	1	1	1	0	1	1	no	no	self	yes	no
218	19	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
219	22	M	1	1	1	0	1	1	1	1	no	no	self	yes	no
220	21	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
221	21	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
222	20	M	1	1	1	1	1	1	1	0	no	no	self	yes	no
223	18	F	1	1	1	1	1	0	1	0	no	no	self	yes	no
224	20	M	0	1	0	1	1	0	1	0	no	no	self	yes	no
225	18	M	1	1	1	1	1	0	0	0	no	no	self	yes	no
226	22	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
227	19	M	1	1	1	0	1	1	1	1	no	no	other	yes	no
228	22	M	1	1	1	1	1	1	0	1	no	no	other	yes	no
229	19	M	1	1	1	1	1	0	1	1	no	no	other	yes	no
230	22	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
231	19	M	1	1	1	0	1	1	1	1	no	no	self	yes	no

232	20	M	1	1	1	1	1	0	1	1	no	no	other	yes	no
233	19	M	1	1	1	1	1	1	1	0	no	no	other	yes	no
234	19	M	1	1	1	1	1	1	1	0	no	no	other	yes	no
235	19	M	1	1	1	1	1	1	1	0	no	no	other	yes	no
236	20	M	1	1	1	1	1	1	1	0	no	no	other	yes	no
237	41	M	1	1	1	1	0	0	1	1	no	no	other	yes	no
238	22	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
239	22	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
240	20	F	1	1	1	0	1	1	1	1	no	no	other	yes	no
241	19	M	1	1	1	1	0	1	1	1	no	no	other	yes	no
242	21	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
243	20	M	1	1	1	1	0	1	1	1	no	no	self	yes	no
244	20	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
245	33	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
246	38	F	1	1	1	1	1	don't	1	1	no	no	other	yes	no
247	36	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
248	36	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
249	26	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
250	28	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
251	21	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
252	21	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
253	22	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
254	18	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
255	22	M	1	1	1	1	1	don't	1	don't	no	no	self	yes	no
256	19	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
257	20	M	1	1	1	1	1	1	1	1	no	no	self	yes	no

258	22	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
259	22	F	1	1	1	1	1	1	don't	1	no	no	self	yes	no
260	21	F	1	1	1	1	1	1	1	1	no	no	other	yes	no
261	19	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
262	22	M	1	1	1	1	1	1	1	1	no	no	other	yes	no
263	25	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
264	22	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
265	20	F	1	1	1	1	1	1	1	1	no	no	other	yes	no
266	32	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
267	22	M	1	1	1	1	1	1	don't	1	no	no	self	yes	no
268	19	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
269	26	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
270	19	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
271	19	F	1	1	1	1	1	1	1	1	no	no	other	yes	no
272	19	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
273	18	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
274	20	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
275	18	M	0	1	1	1	don't	don't	1	don't	no	yes	other	no	no
276	22	F	0	1	1	0	don't	don't	1	don't	no	no	self	yes	no
277	20	F	1	1	1	1	1	0	1	1	yes	yes	other	no	yes
278	20	F	0	0	1	1	0	0	1	0	no	no	self	yes	yes
279	22	M	0	1	1	1	0	0	0	1	no	no	self	no	yes
280	19	M	0	1	1	don't	1	0	don't	1	yes	no	self	yes	no
281	19	F	1	don't	don't	1	0	don't	1	1	yes	yes	other	no	no
282	19	M	0	0	don't	don't	don't	don't	1	1	yes	yes	other	no	yes
283	20	M	0	1	don't	don't	1	don't	1	don't	no	no	self	yes	no

284	21	M	0	don't	1	don't	1	don't	1	1	no	no	self	yes	no
285	21	F	0	1	1	1	1	0	1	1	yes	yes	other	no	no
286	21	F	0	0	1	1	1	don't	don't	1	no	no	self	no	no
287	20	F	1	1	1	1	1	0	don't	don't	yes	no	self	yes	no
288	20	M	0	1	1	don't	don't	don't	1	don't	no	no	self	yes	no
289	19	M	1	1	1	don't	1	don't	1	don't	no	no	other	no	yes
290	18	M	1	1	1	1	1	1	don't	1	no	no	self	yes	no
291	20	M	1	1	1	1	1	0	don't	don't	no	no	self	yes	yes
292	20	M	1	1	1	1	don't	don't	1	don't	yes	yes	other	no	yes
293	20	M	0	1	1	1	don't	don't	don't	don't	yes	no	self	yes	yes
294	19	M	1	1	1	1	don't	0	1	1	no	no	self	yes	no
295	18	M	0	1	1	1	don't	don't	don't	don't	no	no	self	yes	no
296	21	F	0	don't	don't	don't	don't	don't	don't	don't	yes	yes	other	no	no
297	19	F	1	0	don't	1	1	don't	1	1	no	yes	self	yes	no
298	18	F	0	1	1	1	0	0	1	don't	no	no	self	yes	no
299	37	M	1	1	1	1	1	0	1	1	no	no	self	yes	no
300	23	M	1	1	1	0	1	0	1	don't	no	yes	other	yes	yes
301	28	M	0	1	1	don't	0	1	1	1	no	no	other	yes	no
302	25	M	1	1	1	don't	1	don't	1	don't	no	don't	self	yes	no
303	20	M	1	1	1	0	1	don't	1	1	no	yes	other	yes	no
304	45	M	1	1	1	0	1	1	1	1	no	no	self	yes	no
305	22	M	1	1	1	don't	don't	1	1	don't	no	no	other	yes	no
306	30	M	1	1	1	0	1	1	1	1	no	yes	other	yes	yes
307	41	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
308	30	M	0	don't	1	1	0	0	1	1	no	yes	self	yes	no
309	25	M	0	0	1	0	1	0	0	1	no	yes	other	yes	no

310	45	M	1	0	1	don't	1	don't	1	1	no	no	self	yes	no
311	25	M	1	1	1	1	1	1	0	1	no	no	self	yes	no
312	43	M	1	1	0	1	1	0	0	1	no	yes	self	yes	yes
313	23	M	1	1	1	0	1	1	1	0	yes	yes	other	yes	no
314	29	M	1	1	0	1	1	0	1	0	no	no	self	yes	no
315	26	M	1	1	1	0	1	1	1	1	no	no	self	yes	no
316	33	M	1	1	1	don't	1	1	1	don't	no	don't	self	yes	no
317	22	M	1	1	don't	1	1	don't	1	don't	no	no	self	yes	no
318	41	M	1	1	1	1	0	1	0	0	no	no	self	yes	no
319	34	M	1	1	1	1	1	0	1	0	no	yes	self	yes	no
320	35	M	1	0	1	0	1	0	1	1	yes	yes	self	yes	no
321	26	M	1	1	1	1	1	don't	1	1	no	don't	other	yes	no
322	44	M	1	1	1	don't	1	don't	1	1	no	no	other	yes	yes
323	38	M	1	1	1	1	1	0	1	1	no	no	other	yes	yes
324	33	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
325	28	M	1	1	1	0	1	don't	don't	don't	no	no	other	yes	no
326	23	M	1	0	1	0	1	0	1	0	no	yes	other	yes	no
327	38	M	1	1	1	1	0	0	1	0	no	no	self	yes	no
328	40	M	1	1	1	1	0	0	1	0	no	no	other	yes	no
329	30	M	1	1	0	1	1	0	1	0	no	yes	self	yes	no
330	33	M	1	1	1	0	1	0	1	1	yes	no	other	yes	no
331	30	M	1	1	1	0	1	1	0	0	yes	yes	self	yes	no
332	29	M	1	1	1	1	1	don't	1	don't	no	yes	self	yes	yes
333	19	M	1	1	1	don't	1	don't	1	don't	no	no	other	yes	yes
334	30	M	1	1	1	1	1	0	1	don't	no	no	self	yes	no
335	24	M	1	1	1	1	1	0	1	0	no	no	self	yes	no

336	30	M	1	1	1	1	1	0	1	0	no	no	self	yes	no
337	19	M	1	1	1	0	0	0	1	1	no	yes	other	yes	yes
338	36	M	1	1	1	1	don't	don't	1	don't	no	no	other	yes	no
339	42	M	1	1	don't	1	0	don't	0	1	no	no	self	yes	no
340	33	F	1	1	1	don't	0	don't	1	don't	no	yes	self	yes	no
341	33	M	1	1	1	don't	0	don't	0	don't	no	no	self	yes	no
342	37	M	1	1	1	don't	don't	1	1	don't	no	no	self	yes	no
343	19	M	1	1	1	don't	0	don't	don't	don't	no	don't	self	yes	no
344	19	M	1	1	1	1	1	1	1	1	no	no	self	yes	no
345	19	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
346	21	M	1	1	1	1	0	1	1	don't	no	no	self	yes	no
347	20	M	1	don't	1	don't	1	1	1	don't	no	no	other	yes	no
348	19	F	1	1	1	0	0	0	1	1	no	no	self	yes	no
349	19	F	1	1	1	1	1	1	1	1	no	no	self	yes	no
350	19	F	1	1	1	don't	don't	1	1	don't	no	don't	other	yes	no
351	19	F	1	1	1	don't	don't	1	1	1	no	no	other	yes	no
352	19	F	1	1	1	1	1	1	1	don't	no	no	self	yes	no
353	21	M	1	1	1	don't	1	don't	1	1	no	no	self	yes	no
354	20	M	1	1	1	don't	don't	1	1	1	no	no	self	yes	no
355	19	M	1	1	1	0	0	0	1	don't	no	yes	self	no	yes
356	29	F	1	1	1	1	1	don't	1	don't	no	no	self	yes	no
357	40	M	1	1	1	don't	don't	don't	1	don't	no	don't	other	yes	no
358	20	F	1	1	1	1	don't	don't	1	don't	no	no	self	yes	no
359	19	M	1	1	1	don't	1	don't	1	1	no	no	other	yes	no
360	25	M	1	1	1	don't	1	don't	1	1	no	no	self	yes	no
361	55	M	0	0	1	1	1	don't	1	1	no	no	self	yes	no

362	21	M	0	1	1	don't	0	1	1	don't	yes	no	self	yes	no
363	24	M	1	1	1	1	1	don't	don't	don't	no	no	self	yes	no
364	20	M	1	1	1	1	1	don't	don't	don't	yes	don't	self	yes	no
365	20	M	1	1	1	1	1	1	0	1	no	no	self	yes	no
366	23	M	1	1	1	1	1	1	0	1	no	no	self	yes	no
367	19	M	1	1	1	1	1	1	0	1	no	no	self	yes	no
368	21	M	1	1	1	1	1	1	0	1	no	no	self	yes	no
369	22	M	1	1	1	1	1	1	0	1	no	no	self	yes	no
370	24	M	1	1	1	1	1	don't	1	1	no	no	self	yes	no
371	21	M	1	1	1	1	1	don't	1	1	no	no	other	yes	no
372	28	M	1	1	1	1	1	1	don't	don't	yes	no	self	yes	yes
373	24	M	1	1	1	1	1	1	don't	1	yes	yes	self	yes	yes
374	22	F	1	1	1	1	1	1	0	1	yes	yes	self	yes	no
375	29	F	1	1	1	1	1	0	1	1	yes	yes	other	yes	no
376	30	M	1	1	1	1	1	1	don't	don't	yes	don't	self	yes	yes
377	21	M	1	1	1	1	1	1	1	1	no	don't	self	yes	no
378	25	M	1	1	1	1	1	0	1	1	yes	yes	self	yes	yes
379	32	M	0	1	1	1	1	don't	1	don't	no	no	self	yes	no
380	31	M	1	1	1	don't	0	1	1	1	no	no	self	yes	no
381	32	M	1	1	1	don't	0	1	1	1	no	no	self	yes	no
382	37	F	don't	1	1	1	0	0	1	don't	no	no	other	yes	no
383	35	F	0	1	1	1	0	1	1	don't	no	no	other	yes	no
384	34	F	1	1	1	1	1	0	1	1	no	no	self	yes	no
385	33	F	1	1	1	0	0	1	1	1	no	no	self	yes	yes
386	21	M	0	1	1	0	0	1	1	1	no	no	self	yes	no
387	22	M	0	1	1	0	0	1	1	don't	no	no	self	yes	no

388	19	M	0	1	1	1	0	0	1	don't	no	no	self	yes	no
389	26	M	0	1	1	0	0	1	1	don't	no	no	self	yes	no
390	26	M	0	1	1	0	0	1	1	1	no	no	other	yes	no
391	19	F	0	1	1	0	0	1	1	don't	no	no	self	yes	no
392	25	M	1	1	1	1	don't	don't	1	don't	no	no	other	yes	no
393	33	M	1	1	1	1	0	0	1	1	no	no	self	yes	no
394	20	M	1	1	1	0	0	1	1	don't	no	no	self	yes	no
395	20	F	1	1	1	0	0	1	1	1	no	no	self	yes	no
396	20	M	1	1	1	0	0	1	1	1	no	no	self	yes	yes
397	20	M	1	1	1	0	0	1	1	1	no	no	self	yes	no
398	26	M	don't	1	1	1	don't	1	1	don't	no	no	other	yes	no

