

Influence of Age and Education on Blood Donation: A Qualitative Research

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ABSTRACT Studies on blood donor motivations in Indian context are scarce. The aim of this study was to examine the variables that cardinaly affect the blood donors' decision on donating blood in India. Responses were collected from 670 prospective donors from three cities by adopting snowball and convenience sampling approach. Content analysis was firstly performed with the help of software for qualitative data analysis with an aim to know the perception of donors. Secondly, correspondence analysis was used to decipher an association among variables relating to blood donation and demographics (age and education). Findings suggest that new variables such as religion, caste and peaceful protest influence blood donation in India. Correspondence analysis justified the association of demographics. Blood banks may use these inputs to launch awareness programmes to motivate and educate individuals for blood donation and help them in recruitment and retention of donors to ensure adequate supply of safe blood.

INTRODUCTION

Blood plays an important role in saving human life from any incident that leads to death (Masser 2008). In a modern world, blood transfusions play a pivotal role in healthcare delivery system (Kasraian 2010). One of the most significant aspects of the blood transfusion is the increasing need of blood and its components (Jalalian et al. 2010). Likewise, the availability of blood and its components depends on the rate of blood donation and on quantum donors (Fernandez et al. 1996). Further, the study in context to India was necessitated based on World Health Organization (WHO 2014) reports, the objective evidences collected from www.indiastat.com till 2015, and review of many scholarly evidences from India reveals that our country needs an estimated 16 million of blood units per year, but it only collects just about 9.4 million units annually, thus leaving a gap of 7 million units (Aggarwal and Sharma 2012). India is one of the largest

populated countries in the world as well as in Asia, with a staggering population of 1.2 billion out of which more than eighty percent are youth, comprising age group of 15-59 years, but was lagging behind in blood donation. The majority of this mass faces numerous health care issues and one of them was the deficiency of blood; especially, in under aged children and on emergency patients (Agnihotri 2010). The report further adds that lowest per capita allotment of GDP for expenditure on health care, coupled with lack of guaranteed medical facility and social security followed by the existing social bigotry for example religion and caste (Saha and Chandra 2016) that donned with illiteracy and backed by poverty made the situation dreadful (Saha and Chandra 2015). To date in Indian context many researchers studied the knowledge, beliefs, motivation of blood donors towards blood donation (Choudhury 2009; Agnihotri 2010; Aggarwal and Sharma 2012), however their studies were based on factors explored in western context, so, there is a possibility that such findings might not reflect the true picture of Indian mindsets. Therefore, the researchers sought to qualitatively explore the psychographic factors affecting blood donating motivations grounded in Indian context. Besides that age and education have been found to play a crucial role in donor motivations (Tscheulin and Lindenmeier 2005; Lem-

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mens et al. 2009). Given the increasing young generations and changing education scenario in India, the study of role of age and education towards donor motivations in Indian context could yield interesting observations. Additionally, associations between age and education as demographic factors were analysed.

Objectives

The objectives of the current study were to qualitatively discover psychographic factors influencing blood donation in Indian context and to show the correspondence of demographic variables especially age and education towards donating blood in India.

METHODOLOGY

Data Collection Tools

The data were collected on self-administered questionnaire containing items on demographic characteristics, question on whether they donate blood or not (Close ended: Yes or No) with reasons (Open ended), subsequently question asked over on whether they came for repeat blood donation or not. Respondents were selected by snowball sampling and convenient sampling techniques.

Participants

Total 670 blood donors (response rate 74.4%) responses were selected purposively out of 900. Blood donors who donated blood in the middle of January 1, 2015 to June 30, 2015 were considered for this study. The donors participated in the study belonged to Kolkata, Kanpur and Dhanbad cities of India.

Data Analysis

For possible evaluation of blood donors' perception on blood donation, a computer aided qualitative data analysis software (CAQDAS) package called Atlas.ti 7 was used to perform content analysis and SPSS 20.0 (Statistical Package for Social Science) for correspondence analysis (Benzecri 1992). Content analysis and Correspondence analysis together have been used in various studies for exploring factors and anal-

ysing their associations (Glaser and Strauss 1967; Benzecri 1992; Strauss and Corbin 1998; Allan 2003; Charmaz 2008; Doey and Kurta 2011; Lowe et al. 2015).

RESULTS AND DISCUSSION

Exploring Contextual Variables by Content Analysis

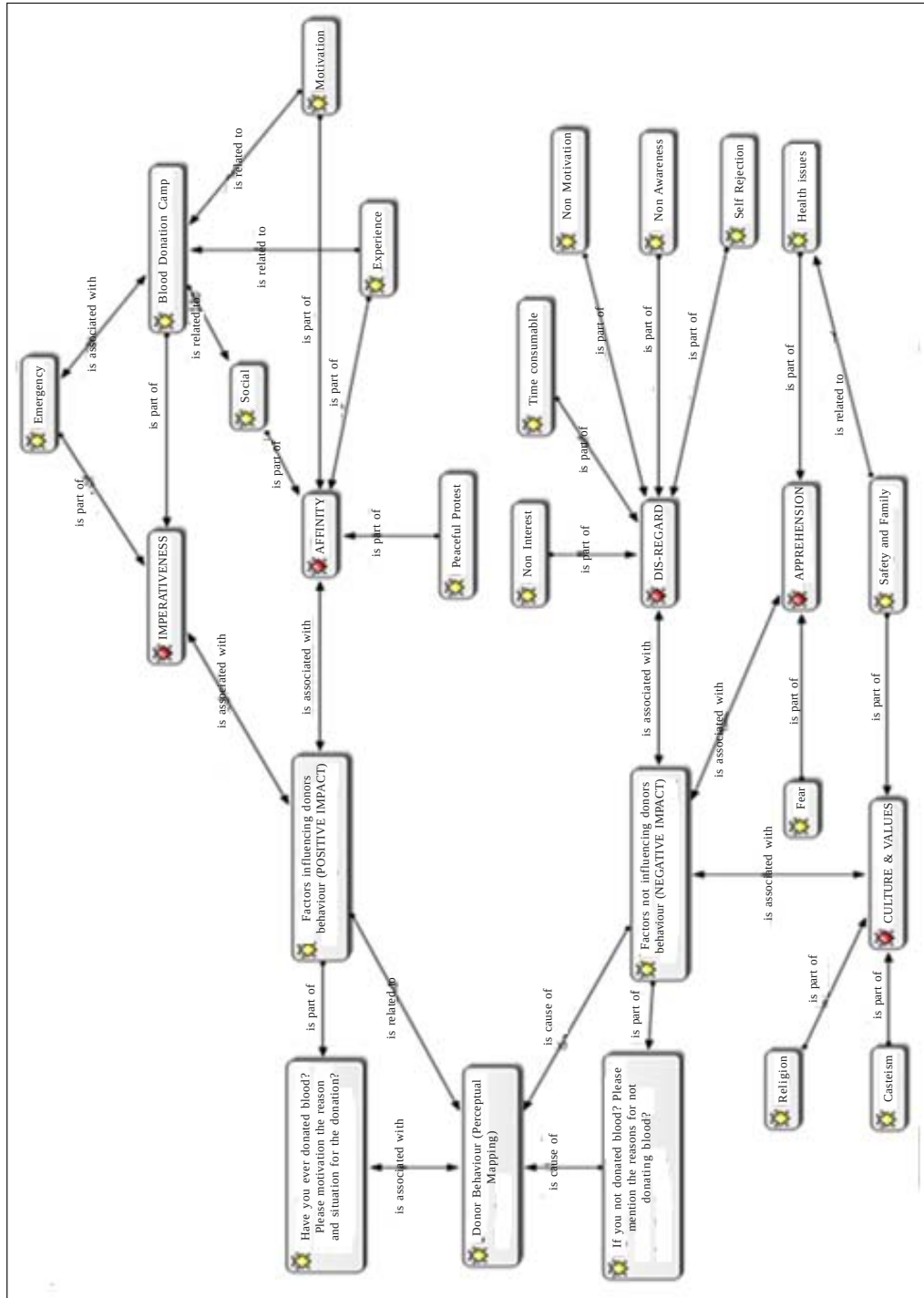
Atlas.ti 7 effectively administers content analysis, and as a result, researchers came up with numerous open codes and their corresponding axial codes (See Fig. 1) as suggested by Wright (2008); Allan (2003) and Charmaz (2008). The newly along with earlier discovered variables are shown in Table 1 and have been explained in sub-sections by using the verbatim of respondents obtained from Atlas.ti 7.

Table 1: The earlier discovered variables and the newly found variables

<i>Open codes (Previously discovered variables)</i>	<i>Axial codes (New variables in Indian context)</i>
Motivation	Peaceful protest
Social	Blood donation camps
Emergency	
Awareness	
Time consumable	
Non-interest	
Fear	Safety and family
Health issues	Religion
	Caste

Variables Influencing Blood Donation

The content analysis results revealing in Figure 1 articulate that donating of blood, during an 'Emergency' is a sort of help to those in critical situations, requiring the immediate need of blood transfusion. Most of the respondents in our study admitted that, they donate blood, mostly for their relatives, family members and friends, who need a blood transfusion in an emergency. For instance, one of the respondents quoted that, he donated blood only once and that too for his "*friend requiring blood in an emergency*". This variable is also consistent with the findings of Gillespie and Hillyer (2002). It has also been observed during 'blood donation camps' that people donated blood en-mass to discharge their social obligations and responsibility, cooperating to social welfare and needs.



Source: Author

For instance, one of the respondents said that, *"he donated blood in the ensuing camp for someone in need of blood during an emergency or during an operation"*. A similar observation was found consistent with the article of Gillespie and Hillyer (2002) and Sojka and Sojka (2008). In context to 'motivation' of blood donors, it has been found that, volunteer donors are motivated by multiple factors for example by friends, their self-esteem, standing among peer groups and being influenced by advertisement. A similar finding in context of motivation consistently supports the study of Misje et al. (2005) and Steele et al. (2008). Furthermore, many blood donors want to 'experience' the effect of post blood donation, for exploring their own strength. Generously, this kind of experience creates attraction and encourages others to donate blood; for instance, one of the respondents has said *"I have donated blood to experience the effect of post blood donation"*. A similar observation in context of experiencing post effect of donation was found consistent with the article of Moore (1991) and Lee et al. (2008). In addition, 'social' reasons are seen as a positive impact that influences the donor in the social group and motivates him/her enough to donate blood again and again, making it an impression that, blood donation is an important social cause; for instance, one of the respondent said *"He donated blood for social reasons"*. This variable is also consistent with the findings of Montano and Kasprzyk (2015).

Besides, many youth in colleges or at university level donates blood en-mass to 'protest peacefully' to emphasize their view or it may even be for a social cause/ benefit; for instance, one of the respondent said *"The reasons for my blood donation is for a particular change or demand for social benefits"*.

Variables Prohibiting Blood Donation

Content analysis in Figure 1 also reveals the variables (open codes) that prohibit donors from donating blood. 'Health issues' has been commonly seen in men and women. However, majority indicates towards women, who are first time donors. The most frequent reason for deferral is due to underweight issue, low haemoglobin and high/low blood pressure; for instance, one of the respondents has said *"I am underweight and I feel that I am ineligible to donate blood at this age"*. The finding is coherent with re-

sults of Godin et al. (2005). In addition, 'fear' about the blood donation process has been indicated as a primary factor of negative trait. Fear of extracting blood from the body, blood related diseases from non-sterilization of syringe and fear of needles basically distract both men and women from donating blood; for instance, one of the respondents has said *"Because of fear associated with syringe and all those clinical tests, communicable diseases and family pressure"*. This finding (fear) is consistent with observations of Lattimore et al. (2015). Moreover, the reason impeding blood donation seemed lack of time owing to busy schedule of prospective donors. Many volunteer donors think that, donation of blood is a 'time consumable' process, as it takes fairly long time to process the procedure of blood donation in most of the blood banks, because of which most of the first timers never turns up again for blood donation, until and unless it is an emergency for one of the near and dear ones; for instance, one of the respondents said *"Blood Donation is time consuming process"*. Thus, time consuming process variable was found to be similar to the findings of Ranasinghe and Harrison (2000). Similarly, the belief of 'apathy' surmounted on the basis that, they are physically weak or unfit and are prone to diseases; for instance, one of the respondent admitted that, *"he never donated blood because he was scared of needles and he may contract a disease"*. Therefore, apathy (time consumable) variable was consistent with the result of Agnihotri (2010). The reason for being 'non-interested' is due to careless approach and not knowing the benefits of blood donation. Most of the gender wants to donate blood and perceives that they are not doing enough or are not getting enough opportunity to donate blood. For instance, one of the respondents said *"I never got an opportunity to donate blood"*. Furthermore, 'lack of awareness' is also one of the major factors that, governs the decision of blood donors. Lack of knowledge is a major contributor in generating misconception of ill health and associated fear: for instance, one of the respondents said *"I am underweight and I feel that I am ineligible to donate blood at this age"*. Thus, health issues among blood donors found was to be consistent with the findings of Amrein et al. (2012). Additionally, 'Lack of motivation' deprived many in donating blood, even if they were interested in the same: for instance,

one of the respondents said *“Did not get motivated enough to donate blood”*. This variable was found to be reliable with Saha and Chandra (2015). ‘Safety issues’, ‘prejudices’ and ‘family pressure’ are also some of the major factors, which affects the psychology of the blood donor. The fear of syringe is not new to us, coupled with belief and prejudices prevailing even in educated mass for clinical tests. The fear of transmission of communicable diseases also plays up in the mind of the donor. In case of women donors, it is the dictum or family pressure, that plays up the most; for instance, one of the respondents said *“Due to some family pressure and fear of communicable diseases, that can spread through syringes, used by the blood bank, that she restricts herself in donating blood”*. This finding (fear) is consistent with Lattimore et al. (2015). India is a nation with diverse religious beliefs, as one witnessed a shocking, revealing fact, when one of the educated blood donors confessed that, it is the religion and caste to which he belongs, keeps him out of the reach of the social benefits of blood donation, this is a stark and dreadful revelation (Saha and Chandra 2016). Thus, from the above two negative examples inference is that, social awareness and education on blood donation is still to reach the masses. Blood donors of a particular ‘religious’ faith explains that, they do not want to donate blood because they do believe that, blood is sacred and should not be donated for use of other people of different religion; for instance, one of the respondent said *“I do not want to donate blood because I do believe that blood is sacred and should not be donated to*

other people of different religion”. Following on the trait of ‘casteism’, the very same people said that they do not want to accept others blood due to different classes of people; for instance, one of the respondent said *“I do not like to accept others blood due to different caste”*.

Exploring Association among Variables and Demographics by Corresponding Analysis

For correspondence analysis, researchers entered the frequencies of age, education and important extracted variables from content analysis of blood donation in SPSS as per the guidelines of Benzecri (1992), Fellenberg (2001) and Hair et al. (2006). Here researchers selected important variables for correspondence analysis based on their frequencies. As a result, SPSS produce tabulation in Table 2 known as correspondence table.

From Table 3, researchers found that the chi-square value was 646.703 for age and 744.726 for education, which was highly significant at the .000 level at 27 degrees of freedom. The total inertia for age and education (total variance explained) was observed 10.6 percent and 15.7 percent, indicating that model knows something about age and education, and explains around eleven percent and sixteen percent of something about variables related to blood donation. However, this association was weak, but found to be highly significant as indicated by Chi-square statistic. In the analysis of age depicted in Table 3, where dimension 1 explains 9.6 percent and Dimension 2 explains 0.06 percent of the total 10.6 percent of variance accounted for. Dimension 3

Table 2: Correspondence of age and education with variables

Demographics	Variables									
	EM	CA	EX	SO	PP	TC	AP	SF	RE	CE
18-21 years	429	134	375	321	321	13	53	107	107	27
22-25 years	228	134	241	187	174	27	53	120	107	80
26-29 years	201	120	187	147	161	148	80	147	120	107
30-33 years	174	94	147	201	147	148	80	161	134	174
UG	281	161	201	214	187	27	53	67	27	134
G	161	107	161	94	94	107	134	80	67	134
PG	107	94	120	94	67	134	134	161	94	147
DRF	107	80	94	40	13	161	147	161	134	161
Active Margin	1688	924	1526	1298	1164	765	734	1004	790	964

Notes: UG- Under graduate; G- Graduate; PG- Post graduate; DRF- Doctoral research fellow; EM- Emergency; CA- Camps; EX- Experience; SO- Social; PP- Peaceful protest; TC- Time constraints; AP- Apathy; SF- Safety and family; RE- Religion; CE- Caste

Source: Author

only explains 0.04 percent of the total variance accounted for, and would therefore drop from further analysis. In case of education as reflected in Table 4, dimension 1 explains 14.9 percent and dimension 2 explains 0.06 percent of the total 15.7 percent of variance accounted for. Additionally, dimension 3 explains 0.03 percent of the total variance accounted for, and would eliminate from further analysis. The analysis essence dictates that there are two dimensions that possibly explain the most variance between extracted variables with age and education group.

The biplot, provides a visual display of each of the values in the dataset plotted along their axes. In our model, SPSS displays two dimensional results in the form of biplot because of only two dimensions were extracted. Researchers named, checked and present the corresponding relation among variables and demographic characteristics in the form of biplot in Figures 2 and 3 as per the guidelines of Greenacre and Blasius (1994) and Doey and Kurta (2011). According to the rule of thumb for naming dimensions suggested by Fellenberg et al. (200) and Hair et al. (2006), that any variables which contributes above average (that is, >10 %) is considered significant for dimension 1 and those

above 12.5 percent are considered significant for dimension 2. Thus, from Table 4 on overview of row point, researchers found that under-graduates (56.7 %), doctoral research fellows (35.8 %) were significant contributors of dimension 1. Moreover, graduates (72.6 %) and post-graduates (17.6 %) are significant contributors of dimension 2. Doctoral research fellows and post-graduates scored positively and is used for naming the right side of the dimension 1 along with post-graduates in upper half of the dimension 2, while, under-graduates and graduates scored negatively and is used for naming the left side of the dimension 1, and graduate in lower half of the dimension 2 that is placed on the horizontal axis of the perceptual map based on their relative score in the dimension as reflected in Figure 3.

Similarly Table 5 on overview of column point elucidate that, 18-21 years (48.2 %), 26-29 years (14.8 %) and 30-33 years (33.9 %) are significant contributors of dimension 1 while 22-25 years (52.7 %) and 26-29 years (32.4 %) are significant contributor of dimension 2, represented by the vertical axis on Figure 2. Moreover, 26-29 years, 30-33 years scored positively and is used for naming the right side of the dimension 1, while

Table 3: Summary of age and education

<i>Age</i>							
<i>Dimension</i>	<i>Singular value</i>	<i>Inertia</i>	<i>Chi - square</i>	<i>Sig.</i>	<i>Proportion of inertia</i>		<i>Confidence singular value</i>
					<i>Accounted for</i>	<i>Cumulative</i>	<i>Standard deviation</i>
1	0.309	0.096			0.904	0.904	0.011
2	0.076	0.006			0.054	0.958	0.012
3	0.067	0.004			0.042	1.000	
Total		0.106	646.703	.000 ^a	1.000	1.000	-0.01
<i>Education</i>							
<i>Dimension</i>	<i>Singular value</i>	<i>Inertia</i>	<i>Chi-square</i>	<i>Sig.</i>	<i>Proportion of inertia</i>		<i>Confidence singular value</i>
					<i>Accounted for</i>	<i>Cumulative</i>	<i>Standard deviation</i>
1	0.385	0.149			0.946	0.946	0.012
2	0.075	0.006			0.036	0.982	0.014
3	0.053	0.003			0.018	1.000	
Total		0.157	744.726	.000 ^a	1.000	1.000	0.012

a. 27 degrees of freedom

Source: Author

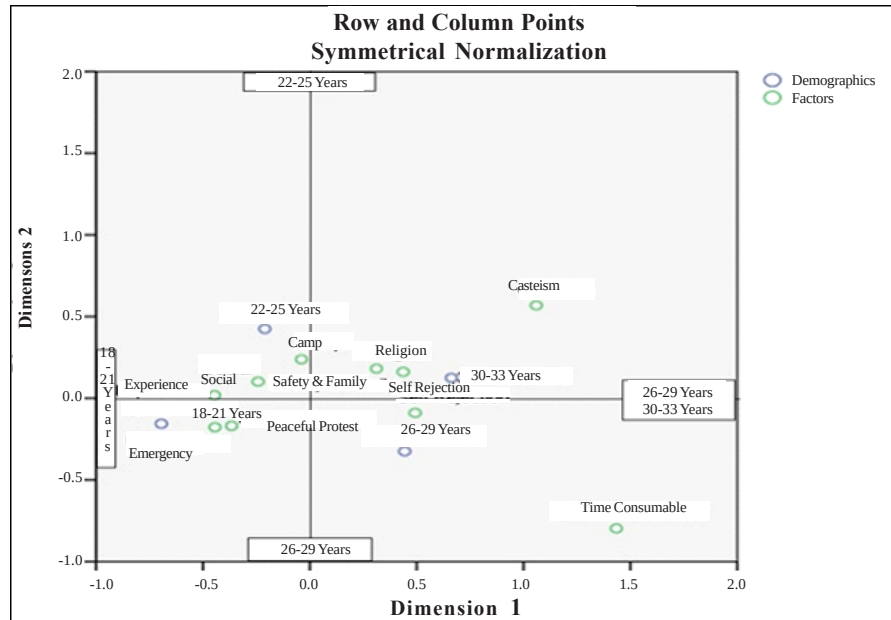


Fig. 2. Biplot of age with extracted variable

Source: Author

Table 4: Overview row points^a of age and education

Age									
Demographics	Mass	Score in dimension		Inertia	Contribution				Total
		1	2		Of point to inertia of dimension		Of dimension to inertia of point		
					1	2	1	2	
18 – 21 Years	0.309	-0.695	-0.156	0.047	0.482	0.100	0.977	0.012	0.99
22 – 25 Years	0.221	-0.211	0.425	0.007	0.032	0.527	0.431	0.428	0.859
26 – 29 Years	0.232	0.444	-0.325	0.017	0.148	0.324	0.816	0.107	0.923
30 – 33 Years	0.239	0.662	0.125	0.034	0.339	0.049	0.943	0.008	0.951
Active total	1.000			0.106	1.000	1.000			
Education									
Demographics	Mass	Score in dimension		Inertia	Contribution				Total
		1	2		Of point to inertia of dimension		Of dimension to inertia of point		
					1	2	1	2	
Under-Graduate	0.285	-0.875	0.149	0.085	0.567	0.084	0.992	0.006	0.998
Graduate	0.240	-0.051	-0.477	0.004	0.002	0.726	0.053	0.927	0.98
Post graduate	0.243	0.342	0.234	0.013	0.074	0.176	0.819	0.075	0.893
Doctoral Research fellows	0.232	0.772	0.067	0.054	0.358	0.014	0.978	0.001	0.979
Active total	1.000			0.157	1.000	1.000			

a. Symmetrical normalization

Source: Author

18-21 years scored negatively and is used for naming the left side of the dimension 1. 22-25 years scored positively and is used for naming the upper half of the dimension 2, while 26-29 years were scored negatively and is used for naming the bottom half of the dimension 2. 26-29 years is a significant contributor of both the dimensions, so, it was plotted on both dimensions. In addition, researchers also observed that the age group of 18-21 years is particularly inclined on positive blood donation traits and categorized by peaceful protest and on emergency blood donation. The researchers also see that the age group 22-25 years is particularly focused on blood donation camp, for social benefits and experience of post donation effect but less inclined on peaceful protest and vice versa. Age group 26-29 years appears to be more prone on negative constraint factors such as time consumable and apathy rather than positive constraint of social and emergency factor. Age group 30-33 years look more on safety and family, reli-

gion and caste issues along with marginal focus on apathy. From Figure 3, researchers can interpret that both under-graduates and graduates were mainly inclined on peaceful protest, social camp, emergency and experience. Likewise, the variables which affect post-graduates on their decision towards blood donation were safety and family, religion, caste, and marginally on time consumable variable. Moreover, doctoral research fellow are more prone on apathy followed by time consumable, religion and caste. The results validated and supported the study of Saha and Chandra (2016) where they only perceived petite influence of social bigotry on blood donors; however in actual it was found that the issue exists among donors.

From the analysis, the researchers came to know that, there exists a willingness to donate blood among respondents and they do consider it to be a healthy practice, mainly for social cause. Moreover, it was also evident from the analysis that, people love to donate blood, but

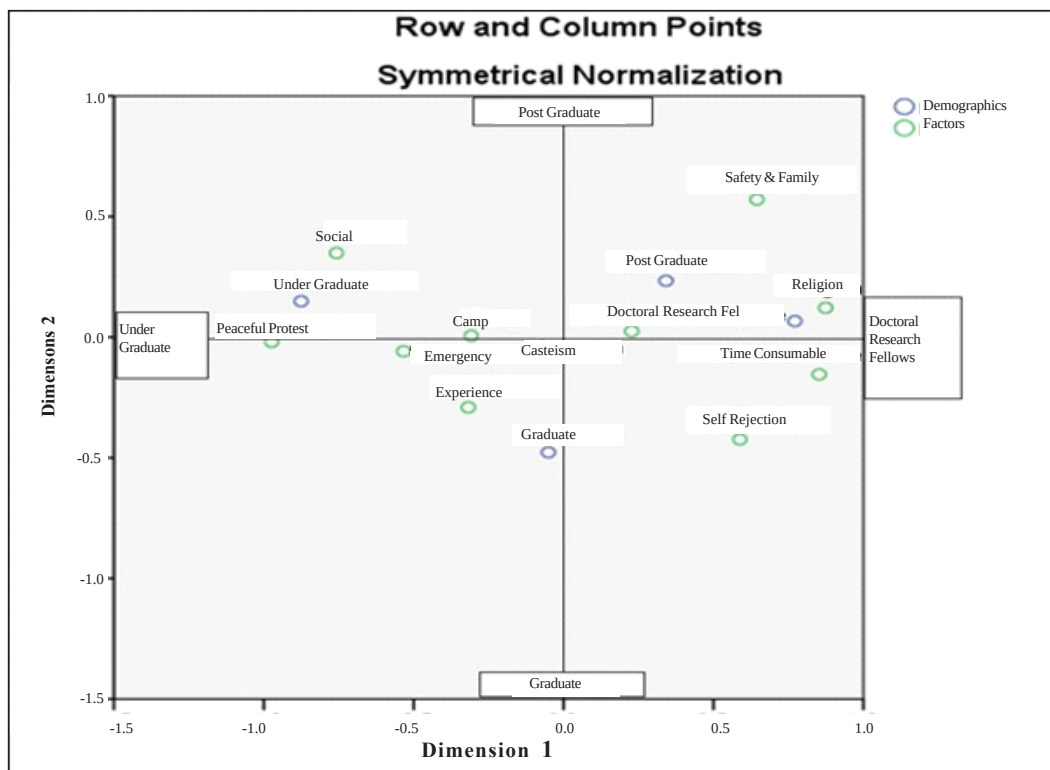


Fig. 3. Biplot of education with extracted variable
Source: Author

Table 5: Overview column points^a of age and education

Age									
Demographics	Mass	Score in dimension		Inertia	Contribution				Total
		1	2		Of point to inertia of dimension		Of dimension to inertia of point		
					1	2	1	2	
Emergency	0.169	-0.444	-0.177	0.011	0.108	0.070	0.958	0.037	0.995
Camp	0.079	-0.039	0.238	0.002	0.000	0.059	0.018	0.159	0.176
Experience	0.155	-0.446	0.018	0.010	0.100	0.001	0.965	0.000	0.966
Social	0.140	-0.242	0.101	0.004	0.027	0.019	0.606	0.026	0.631
Peaceful protest	0.131	-0.366	-0.169	0.006	0.057	0.050	0.938	0.049	0.986
Time consumable	0.055	1.434	-0.797	0.038	0.366	0.462	0.930	0.070	1.000
Apathy	0.043	0.492	-0.090	0.003	0.034	0.005	0.967	0.008	0.975
Safety and family	0.087	0.437	0.161	0.005	0.054	0.030	0.944	0.032	0.976
Religion	0.077	0.312	0.181	0.003	0.024	0.033	0.908	0.075	0.983
Casteism	0.063	1.060	0.568	0.024	0.230	0.271	0.917	0.064	0.981
Active total	1.000			0.106	1.000	1.000			
Education									
Demographics	Mass	Score in dimension		Inertia	Contribution				Total
		1	2		Of point to inertia of dimension		Of dimension to inertia of point		
					1	2	1	2	
Emergency	0.138	-0.534	-0.059	0.016	0.102	0.006	0.927	0.002	0.929
Camp	0.093	-0.308	0.006	0.003	0.023	0.000	0.994	0.000	0.994
Experience	0.121	-0.318	-0.291	0.006	0.032	0.137	0.849	0.139	0.988
Social	0.093	-0.758	0.349	0.022	0.139	0.150	0.955	0.039	0.994
Peaceful protest	0.076	-0.974	-0.019	0.028	0.187	0.000	0.987	0.000	0.987
Time consumable	0.090	0.853	-0.154	0.026	0.171	0.029	0.992	0.006	0.998
Apathy	0.099	0.588	-0.424	0.015	0.089	0.235	0.891	0.090	0.981
Safety and family	0.099	0.645	0.571	0.018	0.107	0.428	0.860	0.131	0.991
Religion	0.068	0.874	0.122	0.021	0.135	0.013	0.971	0.004	0.975
Casteism	0.121	0.227	0.025	0.002	0.016	0.001	0.972	0.002	0.974
Active total	1.000			0.157	1.000	1.000			

(a. Symmetrical normalization)

Source: Author

mainly for their relatives, in critical situations. In addition, there are volunteer donors, who donate, being motivated by their family, friends or just because they feel it was an important aspect and a certain necessity. Some respondents did confess that, they generally donate blood at a regular interval, because it gives them a sense of achievement and morale ascendancy. On the other hand, the study also throws up the negative mindsets in the society about blood donation and the various myths surrounding them, such as non-interest, non-motivation, an atti-

tude of apathy and embedded fear of contagion. The most dangerous among the educated youth is the stigma attached with blood donation, based on religious belief and prevailing social bigotry in the society and one can easily infer that such myths among educated youth is a threat to the society. Moreover, when analysing the closed ended responses, association is observed among variables in relation to age and education profile of the society. Thus, it justifies the inter se relation between positive and negative mindset of a blood donors with the demographic component of the society.

CONCLUSION

The content analysis used in this study prepares the ground for a comprehensive quantitative study. Further, the paper tries to extend the perception of blood donors in India by quantifying it through correspondence analysis. The effect of demographics on the perceptions of blood donors was further examined in correspondence analysis. The study showed significant relation of demographic that is age and education on willingness to donate blood. The results of this research are significant as it provides a real scenario on perception of Indian donors towards blood donation. Blood banks may use these inputs to launch awareness programmes to motivate and educate individuals for blood donation and help them in recruitment and retention of donors to ensure adequate supply of safe blood. Therefore, blood policy maker is expected to actuate awareness campaign with full vigour in consonance with societal needs for promoting the benefits of blood donation to the population effectively.

RECOMMENDATIONS

The government need to address the dysfunctional components of the prevalent framework and at the same time expedite improvement in the basic infrastructure, so as to create an ambience for blood donation. The explore variables can be measured by combining the extracted variables and theory of planned behaviour to measure the intention and actual behaviour of blood donors on donating blood.

LIMITATIONS

The study is limited to the three cities of India, thus lacking in predicting the motives of blood donors on blood donation on a pan India basis. Also, the sample size in this qualitative study could have been larger to give better results.

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