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Investigating the factors affecting blood donation among Israelis

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Abstract

Aim: This study examined whether the Theory of Planned Behavior adds significantly to the prediction of intention and actual blood donation of the general Israeli population.

Background: In most developed countries and in Israel in particular there is a chronic shortage of blood for transfusions. This raises questions about methods of increasing blood donations.

Design: This is a correlational quantitative study.

Methods: A questionnaire was created based on a review of the literature and the Theory of Planned Behavior. The questionnaire was distributed among a convenience sample of 190 Israeli Jewish men and women, aged 17–60.

Results: Israelis' perceived behavioral control of their blood donations, their subjective norms and their attitude regarding blood donation, predicted their intention to donate blood. It seems that intention predicted actual blood donations. A conspicuous finding is that members of the Ethiopian Jewish community displayed an extremely limited intention to donate blood.

Conclusions: The results of this study show that a number of various educational and practical strategies may be used to encourage the population to donate blood. These include: reducing perceived barriers, directing interventions specifically at the population most likely to donate blood and forming a reserve of regular donors.

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Introduction

Modern advances in the field of medicine, which have the effect of saving more lives and prolonging life expectancy, raise the number of blood units needed by human society (Hed, 1989). In addition, the current global state of affairs requires preparation for the possibility of unexpected mass

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terror incidents. As a consequence, blood banks must have a sufficient number of blood units in reserve (Shinar et al., 2006). Most developed countries have an almost chronic shortage of blood for transfusions, arousing questions regarding the methods used to recruit blood donors (Hed, 1989; WHO, 2007). Recent statistical data from Israel indicates that only 4.6% of all Israelis reach a decision to donate blood (Gal, 2004; Shinar et al., 2006).

In light of the above, the purpose of this study is to review the factors influencing the decision of the Israeli population to donate blood with the aim of constructing programs to promote blood donation among Israelis.

Literature review

The chronic worldwide shortage of blood for transfusions has led to research on the subject of blood donation. The Theory of Planned Behavior (Ajzen and Madden, 1986) is one of the theoretical contexts examined as a basis for studying this issue. According to this theory, the individual's beliefs and attitudes towards a behavior, the influence of significant others and the individual's conviction that obstacles to performing the behavior may be overcome – determine intention to engage in the behavior, ultimately leading to its actual performance.

Lemmens et al. (2005) performed a study among 284 students in the Netherlands and found that when subjects had less fear of needles and/or blood and did not perceive the process as painful and time consuming, they had more positive views of blood donation, predicting a higher intention to donate blood. In addition, they examined ethical norms as fostering behavioral intentions. Although the student population they studied had almost never donated blood, they compared those who had signed up to donate blood with those who had never done so and found the former to have more positive social norms in regard to blood donation. As Cialdini and Trost (1998) explained, social norms are simply rules of behavior that are understood or adopted by most people within a social grouping. They guide our actions without being enforced by a written law.

This finding was supported by a study performed among 116 Canadians by Godin et al. (2005) who found that people who had donated blood in the past and who expressed a high intention to donate blood in the near future had a strong feeling of personal commitment to donate blood and a high level of perceived control in regard to blood donations. They found a correlation between anticipated regret towards the idea of not donating blood and intention to donate blood. This correlation was found both among donors and non-donors.

Additional support for the effect of the model variables is provided by Giles et al. (2004) in their study of 100 Irish students. They found that subjective norms, i.e. parents, spouses and friends who support the intention to donate blood, predict a greater intention to donate blood. It must be stated that these two studies were held among a young student population.

In addition to the variables included in the theoretical model, other variables influencing the decision to donate blood have also emerged, such as level of knowledge about blood donation (Lemmens et al., 2005). Godin et al. (2005) also found that having donated blood in the past and the

shorter the length of time that elapsed since the last donation predicted a greater intention to donate in the near future. This is reinforced by Chamla et al. (2006) who found that the more donors performed blood donations during the first year after their initial donation, the higher the probability that they would donate 6 months later.

Many studies attempt to characterize the average donor. Godin et al. (2005) found that the average donor is a 50–70 year-old male, married, with a higher education. They found that there was a high likelihood that donors would be familiar with someone in their social environment who is in need of a blood transfusion, while Boulware et al. (2002) identified the average blood donor as a 20–50 year-old male who donates through organized professional or social groups.

In summary, factors identified in the various studies as influencing blood donation were not found to be homogeneous, due to differences between the research populations (for example, students vs. general population), sample sizes and cultural differences.

Aim

The aim of this study is to examine whether the Theory of Planned Behavior adds significantly to the prediction of intention and actual blood donation behavior among the general Israeli population.

Hypotheses

The more positive Israelis' attitudes, subjective norms and perceived control of the act of donating blood – the greater their intention to donate blood in the future.

The number of past blood donations and the less time elapsed since the last donation – predict Israelis' intention to donate blood.

There is a correlation between socio-demographics – and the intention to donate blood and actual blood donation.

Method

Study design

This is a correlational quantitative study.

Sample

A total of 190 questionnaires were completed, and all of them were returned. It was a convenience sampling. The sample size for this study was selected according to the recommendations provided by Cohen (1992). With power at 0.8, an alpha level of 0.05, and an anticipated medium effect size, a minimum of 107 participants in total were required for regression analysis to be carried out on six variables.

Instrument

A questionnaire was developed by the researcher based on the theoretical foundation of the Theory of Planned Behavior. The content validity of the questionnaire was

established by reviewing and editing its general appropriateness; this was performed by three nursing administrators and three nursing educators. The results showed that the content validity index values ranged between 0.78 and 0.9 for the instrument's general appropriateness and from 0.8 to 1.0 with respect to the significance of the applicability.

The questionnaire contained 70 items, 13 of which were used to collect demographic information, health-related eligibility to donate blood, acquaintance with a person in need of a blood donation, having donated blood in the past, the number of past blood donations, and the length of time that had elapsed since the last donation, while the remaining 57 items were: 19 behavioral beliefs regarding blood donation (Cronbach's $\alpha = 0.78$), 7 behavioral attitudes towards blood donation (Cronbach's $\alpha = 0.77$), 8 normative beliefs on the issue of blood donation (Cronbach's $\alpha = 0.86$), 4 subjective norms regarding blood donation (Cronbach's $\alpha = 0.86$) and 3 items relating to subjects' perceived control of the act of donating blood (Cronbach's $\alpha = 0.86$). In addition, 7 questions were asked concerning knowledge on the topic of blood donations. The questionnaire also included a number of 8 statements reflecting incentives used to encourage blood donation. All 57 items were ranked on a Likert scale from 1 – "strongly disagree" to 6 – "strongly agree".

The current study examined two dependent variables: behavioral intention and outcome behavior. Behavioral intention – the intention to donate blood – was examined by a question that probed the probability, from 1 to 6, that the subject will donate blood over the next year. Outcome behavior – actual blood donation – was examined through the question "Have you ever donated blood?"

Procedure and ethical approval

The population of the study consisted of 190 male and female residents of the town of Pardes Hanna and the city of Hadera, in central Israel. The data were collected in central places in these towns by arbitrary requests from passersby. The respondents were asked to participate in the study and they signed a consent form indicating their consent to voluntarily participate in the study. Respondents who agreed to complete the questionnaire did so on-site and returned the completed form to the researchers. Each of the subjects was ensured anonymity as well as a commitment that the research findings would be used for research purposes only.

Data analysis

SPSS software, version 11.5, was used to analyze the data. Initially, descriptive statistics (percentages, means, standard deviations, etc.) were used to describe the sample and the major variables. Then Pearson correlations coefficients were calculated in order to examine the relationship between model variables. Additionally, in order to compare different groups, an independent sample t-tests, chi-square test and Mann–Whitney U test, was performed. A linear regression model using the enter method was constructed, in order to examine predictors of the intention to donate blood, and the relative contribution of each independent variable to the dependent variable.

Results

The study employed convenience sampling of 190 Jewish Israeli men and women, aged 17–60, who were eligible to donate blood. The sample was divided almost equally between the two sexes. About 80% of the subjects were 17–35 years old. Most (approximately 60%) were single. Most of the subjects (approximately 65%) had no children and approximately 23% had one or two children. The absolute majority identified themselves as secular or traditional and only 8% defined themselves as religious. Forty-five per cent of the subjects were Israeli-born, 30% immigrated from Ethiopia and 22% immigrated from the former Soviet Union.

A total of 190 questionnaires were completed. In order to prevent possible bias of the research findings, 23 subjects who defined themselves in the questionnaire as ineligible to donate blood for health reasons were removed from the sample at the data processing stage. The study indicates that the distribution of Israelis' intention to donate blood had an inverted bell shaped curve: at one extremity most subjects had a significant or very significant (42%) intention to donate and at the other extremity most subjects had a very insignificant intention (33%) to donate blood. Approximately 65% of the subjects stated that they had donated blood in the past.

Means and standard deviations of the main research variables are presented in Table 1. Most of the subjects had a positive behavioral beliefs and attitude towards donating blood. They demonstrated heterogeneous opinions when asked whether most of their significant others (parents, friends and spouses) think that they should donate blood. However, it seems that subjects tend to attribute a great deal of significance to the opinions of their parents. Perceived control of the act of donating blood was highly rated by subjects. As anticipated in the model, significant correlation was found between attitudes, subjective norms and behavioral control – and the intention to donate blood. The strongest correlation was found between intention and perceived behavioral control ($r = 0.60$, $p < 0.01$) as presented in Fig. 1.

In order to examine which factors predict behavioral intention to donate blood and the relative contribution of each factor, enter regression analysis was undertaken (see Table 2). The Theory of Planned Behavior variables were entered to determine their ability to predict intention to donate. The results indicate that the Theory of Planned Behavior accounted for a significant 36% of variance in intention to donate blood ($F(5, 176) = 19.72$, $p < 0.001$). The variables that contributed significantly were subjective

Table 1 Mean and standard deviations of main model variables.

Variable	Mean	SD	Range
Behavioral beliefs	4.1	0.75	1–6
Behavioral attitude	4.1	0.9	1–6
Normative norm	3.8	1.2	1–6
Subjective norm	2.98	1.81	1–6
Perceived behavioral control	4.01	1.8	1–6
Intention	3.36	2.07	1–6

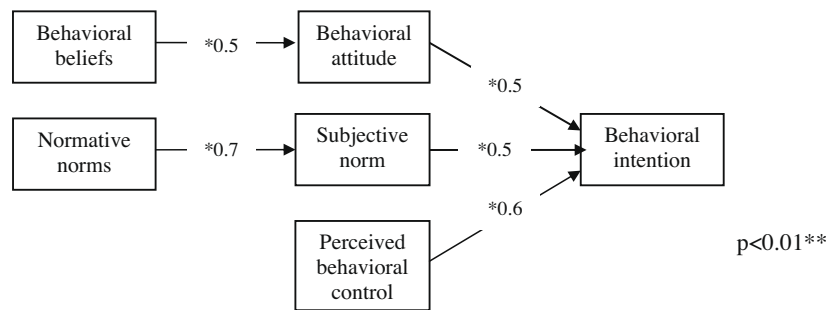


Figure 1 Pearson correlations between main model variables.

Table 2 Regression model: predictors of intention to donate blood.

Predictor	β	B	Accumulating R^2	t
Perceived behavioral control	0.43	0.48	0.36	6.88**
Subjective norm	0.30	0.34	0.46	5.013**
Behavioral attitude	0.21	0.47	0.50	3.43**

** $p < 0.01$.

norm ($\beta = 0.27$), perceived behavioral control ($\beta = 0.25$) and behavioral attitude ($\beta = 0.20$). In addition, a significant correlation ($r = 0.44$, $p < 0.01$) was found between behavioral intention and actual blood donation, as well as between perceived behavioral control and blood donation ($r = 0.25$, $p < 0.01$). It seems that intention predicted actual blood donations.

Aside from the model variables, country of birth was also found to have an effect on the intention to donate blood. Israelis of Ethiopian descent displayed little intention to donate blood compared to the rest of the population. Ethiopian Israelis tend to have more negative behavioral beliefs and behavioral attitudes, as well as more negative subjective norms, and they also tend to rate their perceived behavioral control as lower. Thus, significant differences were found between the means of native Israelis and Ethiopian Israelis on all theory variables (see Table 3). The study indicates that the absolute majority of Israelis who were found to have little intention of donating blood are of Ethiopian descent.

The research findings indicate that married native Israeli men, aged 26–45, who are highly educated and are familiar with someone who needs a blood donation, are more likely to donate blood than the rest of the population. The findings are presented in Table 4.

Conspicuous significant differences were found between the behavioral beliefs of Israelis who had donated blood in the past and Israelis who had never donated, as well as between native Israelis and Ethiopian Israelis. Israelis who had never donated blood were found to have a greater tendency to believe that needles and blood are intimidating than Israelis who had donated blood in the past. They have a greater tendency to be fearful of dizziness or faintness,

and they have a greater tendency to believe that blood donors do not feel well after giving blood (see Table 5). Ethiopian Israelis are more concerned than native Israelis that their blood will not be used and have a greater tendency to believe that decisions to discard donated blood are sometimes based on a non-medical rationale. In addition, Ethiopian Israelis declare significantly more than native Israelis that they would like to know how the blood they donated was utilized (see Table 6).

Another finding from this research demonstrates that those who had donated blood in the past within a shorter period time that had elapsed since the last donation predicted a greater intention to donate in the near future. The research findings indicate that the most significant motivations for donating blood are donations aimed at ensuring that donors and their family members will be able to receive blood transfusions if necessary, requests to donate blood, and the proximity of the donation site to the donor's place of residence/study/work. Less critical factors of willingness to donate blood are peer pressure, persuasion by the healthcare professional and receiving incentives.

Discussion

The aim of this study is to examine whether the Theory of Planned Behavior adds significantly to the prediction of intention and actual blood donation behavior among the general Israeli population. The research findings confirm the validity of the Theory of Planned Behavior: significant positive correlations were found between the basic theory variables, as proposed by Ajzen and Madden (1986). Israelis' perceived control of the act of donating blood, their subjective norms and their attitude towards blood donation were found to predict their intention to donate blood. Perceived control was found to be the best predictor of intention, as found by Godin et al. (2005) and Giles et al. (2004).

A conspicuous finding is that Ethiopian Israelis display little intention of donating blood. This finding is, in fact, the first research-based confirmation of the humiliation experienced by the Ethiopian community as a result of the "blood donation incidents" that occurred in 1996 and October 2006. At the time, Israeli blood bank policy was to covertly discard blood donated by members of the Ethiopian community due to the risk of HIV contamination. The incidents aroused extreme turmoil among members of the community who accused the blood bank of racism. The sense of insult was related, among other things, to the stigma that

Table 3 Differences in model variables: native Israelis vs. Israelis born in Ethiopia ($N = 167$).

Model variables	Country of birth	n	Mean	SD	df	t
Behavioral beliefs	Israel	75	4.33	0.70	124	5.56**
	Ethiopia	51	3.65	0.64		
Behavioral attitude	Israel	75	4.31	0.78	124	4.0**
	Ethiopia	51	3.66	1.0		
Normative norms	Israel	75	56.85	38.00	124	4.7**
	Ethiopia	51	28.27	25.00		
Subjective norm	Israel	75	3.53	1.70	124	5.0**
	Ethiopia	51	2.04	1.59		
Perceived behavioral control	Israel	75	4.52	1.58	124	5.08**
	Ethiopia	51	2.90	1.98		
Intention	Israel	75	4.72	1.58	124	11.48**
	Ethiopia	51	1.63	1.33		

** $p < 0.01$.**Table 4** Correlations between socio-demographics and actual blood donation.

Socio-demographics	Categories ^a	Ever donors, n	Never donors, n	χ^2	df	p
Sex	Man	72 (77%)	21 (23%)	15.5	1	0.000
	Female	35 (48%)	38 (52%)			
Age	17–25	38 (51%)	34 (49%)	10.4	3	0.02
	26–35	46 (71%)	19 (29%)			
	36–45	20 (80%)	5 (20%)			
Marital status	Single	56 (55%)	46 (45%)	12.3	1	0.000
	Married	50 (82%)	11 (18%)			
Level of education	High school	22 (41%)	31 (59%)	6.2	2	0.05
	Professional	18 (46%)	21 (54%)			
	Academic	56 (75%)	19 (25%)			
Country of birth	Israel	57 (76%)	18 (24%)	11.08	1	0.001
	Ethiopia	27 (53%)	24 (47%)			
Knowing someone who needed blood	Yes	(72%) 62	(28%) 24	4.4	1	0.04
	No	(56%) 44	(44%) 34			

^a Variable categories with small number of cases were omitted.**Table 5** Differences in behavioral beliefs: Israeli ever donors vs. never donors.

Behavioral beliefs	Ever donor?	n	Mean	SD	df	t
Needles and blood are frightening	Yes	107	2.53	1.73	164	-2.3**
	No	59	3.22	2.08		
I am afraid of dizziness and fainting	Yes	108	2.31	1.55	165	-3.06**
	No	59	3.15	1.93		
You do not feel well after the blood donation	Yes	108	2.34	1.40	165	-3.08**
	No	59	3.10	1.72		

** $p < 0.01$.

Table 6 Differences in behavioral beliefs: native Israelis vs. Israelis born in Ethiopia.

Behavioral beliefs	Country of birth	n	Mean	SD	df	t
I am afraid they will not make use of my blood	Israel	75	1.93	1.29	124	-12.6**
	Ethiopia	51	5.18	1.60		
Sometimes the decision not to make use of someone's blood is made on a non-medical basis	Israel	75	3.52	1.73	124	-4.5**
	Ethiopia	51	4.92	1.71		
It is important for me to know how my blood is used.	Israel	75	3.64	1.86	122	-7.2**
	Ethiopia	51	5.55	1.12		

** $p < 0.01$.

Ethiopian Israelis might be at risk of contracting AIDS (Weil, 1997; Kaplan, 1998; Ben-Eliezer, 2004; Yasur-Beit Or, 2006).

There are other significant differences between Israelis of Ethiopian descent and native Israelis which support the claim that the current limited intention of Ethiopian Israelis to donate blood is a direct consequence of the "blood donation incidents." Ethiopian Israelis are much more concerned than native Israelis that their blood will not be put to use. In addition, they believe much more significantly than native Israelis that sometimes donors' blood is not used on non-medical grounds. This belief undoubtedly reflects the racism issue of which the community accuses the Ministry of Health and the blood bank. It is noteworthy that native Israelis tend to agree with this claim as well, although less so than Ethiopian Israelis. This finding may be perceived as an indication that the Israeli population identifies with the insult sensed by members of the Ethiopian community.

Ethiopian Israelis have much lower perceived behavioral control than native Israelis. They tend to disagree with the statement that they can overcome any obstacles that may prevent them from actually donating blood. From their perspective, the major obstacle is undoubtedly the blood bank's policy, which they fear might cause their blood to be discarded. Most of them do not believe that they will be able to overcome this obstacle. This finding might indicate that members of the Ethiopian community have become resigned to the current situation.

A number of behavioral beliefs concerning blood donation were found to be significantly and negatively related to Israelis' intention to donate blood. Thus, the more Israelis believe that needles and blood are to be feared, are afraid of becoming dizzy or fainting, believe that blood donors do not feel well after the donation and believe that it is possible to contract a disease by donating blood – their intention to donate blood diminishes. Research findings also indicate that these behavioral beliefs distinguish Israelis who donated blood in the past from Israelis who have never donated blood. For example, Israelis who have never donated blood have a greater tendency to agree that blood donors do not feel well after the donation. It is noteworthy that similar fears emerged in other studies as well and these are in fact universal fears which serve as obstacles for people who have never donated blood (Giles et al., 2004; Godin et al., 2005). Of concern is that many of the subjects – about 40% – believe that it is possible to contract a disease by donating blood. These are myths, as blood donation does not involve any risk to donors and it causes only minimal dis-

comfort (Hed, 1989; Smeltzer and Bare, 2004). Unfamiliarity with the process of blood donation might undoubtedly lead to such myths which have the power of preventing many potential donors from donating blood.

In general, most Israelis have a positive attitude towards blood donation, reflected in their substantial intention to donate blood. Research findings indicate that specific populations – males aged 26–45, married, highly educated, and Israeli-born – have the greatest tendency to actually donate blood.

Similar to the research findings of Godin et al. (2005), the current study found that Israelis who donated blood in the past have a greater intention of donating blood once again than Israelis who have never done so. In addition, the study found medium-strength positive significant correlations between the number of previous blood donations and the time that elapsed since the last donation – and the intention to donate blood. These findings confirm that blood donation indeed becomes habitual in time and that a certain identity is formed, "the blood donor identity," as claimed by Piliavin and Callero (1991).

As indicated in the research, the motivation of Israelis to donate blood tends to be both utilitarian and altruistic. Thus, Israelis tend to agree that it is advisable to donate blood in order to ensure that when necessary they and their family members will be able to receive blood transfusions. On the other hand, they also tend to agree that if asked they would be willing to donate blood. As indicated by Glynn et al. (2002, 2006) and Godin et al. (2005), receiving a gift was rated as the least significant facilitator. This shows that blood donation is perceived by most Israelis as an altruistic act for which it is not customary to expect a material reward. Most Israelis indeed tend to perceive blood donation as an ethical norm.

Conclusions

The Theory of Planned Behavior model examined in this study proved to be a good predictor of Israelis' intention to donate blood. The factors contributing to this significance in order of strength include subjective norm, perceived behavioral control and behavioral attitude. The factors particularly motivating donors include number of times the donor had given blood in the past as well as the length of time that elapsed since the last donation. The Ethiopian Jewish community displays an extremely limited intention to donate blood.

In summary, the behavior of Israelis on the subject of blood donation is complex, not self-evident, and requires in-depth analysis. However, the study indicates a number of possible practical directions which may increase the proportion of Israeli donors.

Limitations

The current study has a number of limitations. First of all, the use of a convenience sample excludes generalization and does not represent the entire Israeli population. In addition, the research did not include unique populations such as Israeli Arabs and religious Jews.

Recommendations

The research findings indicate a number of possible methods for increasing the proportion of Israeli donors. We list some suggested steps that could be taken for this purpose. First of all, it would be necessary to remove or reduce obstacles to the donation of blood and to dispel myths connected to this act. In addition, it is possible to utilize utilitarian and altruistic justifications cited by Israelis in support of blood donation and to make use of more personal strategies to recruit potential donors. A third recommended method is to appeal to populations with a high likelihood of donating blood – married men aged 26–45 who are highly educated and are native Israelis.

Another possible intervention would be to create a reserve of regular donors based on the principle of “blood donor identity.” When people donate blood more frequently this behavior becomes a regular habit. Therefore, the MDA National Blood Services Center could keep in touch with Israelis who have donated blood and encourage them to do so again. In addition, Israelis’ intention to donate blood diminishes the longer they wait to donate again. Therefore, the National Blood Services Center should not wait too long between donations and should summon donors as frequently as possible. In addition to ensuring a steady supply of blood for transfusions, creating a reserve of regular donors might also raise the quality of the blood received. Finally, it is very important to develop a government program that will prevent recurrence of the incidents that so severely offended the Ethiopian community and impaired their willingness to donate blood.

Nurses are the key ingredient to successful blood donation programs in hospitals and in the community. Nurses work closely with patients and are capable of ensuring a steady supply of blood donations thanks to their interpersonal skills and patient relationships. Improved donor rates affect quality care of patients particularly when rare blood types are necessary.

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