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Assessment of blood donation intention among medical students in Pakistan – An application of theory of planned behavior

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ABSTRACT

Objective: Theory of Planned Behavior proposes a model which can measure how human actions are guided. It has been successfully utilized in the context of blood donation. We employed a decision-making framework to determine the intention of blood donation among medical students who have never donated blood before the study.

Methods: Survey responses were collected from 391 medical students from four various universities on a defined questionnaire. The tool composed of 20 questions that were formulated to explain donation intention based on theory of planned behavior. The construct included questions related to attitude, subjective norm and perceived behavior control, descriptive norm, moral norm, anticipated regret, donation anxiety and religious norm. Pearson's correlational relationships were measured between independent and dependent variables of intention to donate blood. ANOVA was applied to observe the model fit; a value of 0.000 was considered statistically significant. A multiple regression analysis was conducted to explore the relative importance of the main independent variables in the prediction of intention. Multi-collinearity was also evaluated to determine that various independent variables determine the intention. The reliability of measures composed of two items was assessed using inter-item correlations.

Results: Three hundred and ninety-one medical students (M:F; 1:2.2) with mean age of 21.96 years $\pm$ 1.95 participated in this study. Mean item score was 3.8 ± 0.83 . Multiple regression analysis suggested that perceived behavioral control, anticipated regret and attitude were the most influential factors in determining intention of blood donation. Donation anxiety was least correlated and in fact bore a negative correlation with intention. ANOVA computed an F value of 199.082 with a p-value of 0.000 indicating fitness of model. The value of R square and adjusted R square was 0.811 and 0.807 respectively indicating strong correlation between various independent and dependent variables.

Conclusions: Medical students as novice blood donors showed a positive attitude toward blood donation. Theory of planned behavior can be successfully utilized in determining the antecedents toward blood donation behavior.

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1. Introduction

World Health Organization report on the blood donation highlights the critical short comings in blood transfusion practices especially in the low income countries. Of the 107 million donations collected globally, median annual

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donations per blood center is 3100 in the low- and middle-income countries, as compared to 15,000 in the high-income countries [1].

Pakistan is a country with a human development index of 146 and like remaining developing countries lack safe, secure and continuous effective blood service system. The reported annual blood requirement is approximately 1.5 million bags and the Government BTS (Blood Transfusion Service) relies predominantly on first time donors. With five thousand children born with thalassemia each year and 70,000 already registered with the disease, the need for safe blood donation in Pakistan can be drawn beyond the context of this article [2,3].

Each year blood banks employ different strategies to recruit blood donors e.g. posters, leaflets and promotion activities [4]. However, recruitment has had limited success for voluntary and non-remunerated blood donations. Many studies have been conducted to construct a successful model for blood donation among developed countries, however little is known for the developing countries. El Lownik conducted a database search for KAP surveys in developing countries which emerged with multiple coherent themes; largely based on fear of blood donation and failure to transfer positive attitude into actual donation [5]. Similarly some national studies (Malik, 2010; Gilani, 2007; and Luby, 2006) also suggested anxiety, physiological effects (e.g., fainting, dizziness, nausea, pain), gender role and education level to form a barrier for effective blood donation campaign [6–8]. None of these studies employed a unique behavioral or theoretical framework to search for plausible determinants of blood donation among non-donors in Pakistan.

1.1. Theory of planned behavior

In 1998, Ajzen formulated a behavioral construct to predict the antecedents of behavior – Theory of Planned Behavior [9]. The theory proposed a model which could measure how human actions are guided. It predicts the occurrence of a particular behavior, provided that behavior is intentional. According to TPB, intention is the strongest predictor and can be used as a best proxy measure of behavior; with an obvious limitation held by act of freewill [10]. Intention is the cognitive representation of a person's readiness to perform a given behavior. Intention in turn is dependent on three parameters: attitude toward a specific behavior, subjective norm and perceived behavioral control. Attitude is a person's overall positive or negative assessment of performing a behavior [11]. Subjective norm is a person's own estimate of how people close to him would want them to behave [12]. Perceived behavioral control is a person's control over his own actions and respective confidence in performing a behavior [11].

Within the context of blood donation, this model has successfully been utilized multiple times in the previous studies [13–17]. Modifications have been made by multiple researchers to improve the model, to better delineate the parameters of blood donating behavior [18,19]. Fergusson et al. [20] and Masser et al. [16] found attitude and perceived behavioral control as significant predictors of donation intention. Subjective norm was identified as the additional factor by Lemmens et al. [17] among non donors. Anticipated

regret [21], donation anxiety [22] and moral norm [21] were proposed to be relevant in intention of donating blood.

Donation anxiety stems from the fear of sight of blood, pain, needle, fainting and nausea. El Clowes and his contemporaries showed it to be a major deterrent in the blood donation behavior [14,15,23,24]. Blood donation is a public act and hence opinions of significant others may influence the decision to donate blood for the first time [25]. While subjective norm is one's own assessment of pressure from significant others, descriptive norm reflects what people important to us actually do [18]. It has been seen that if one's friends and family engage in blood donation, the likelihood of donating blood for the first time increases in such individuals.

On the other hand, there is some evidence to suggest that anticipated regret (feeling of regret in lieu of anticipated future) and moral norm (sense of responsibility) may conceptually overlap as predictors of blood donation behavior. Studies have shown that moral norm predicts blood donating behavior greater than blood donating initiation [21,26,27], while anticipated regret has shown no such difference except that it may boost the anticipated intention of donating blood [21,28]. Hence taken together conceptual overlap is more likely when the blood donating behavior has ingrained more moral implications in the donor. In terms of constructs used in TPB, there may be significant differences between developed and emerging countries e.g. in Asian countries, attitude of monetary return for every voluntary action is deeply rooted [29]. Hence reward is expected for every blood donation in countries with low capita [29]. Similarly in a survey in an African country, 52% of 735 eligible blood donors believe that subjective norm is not important [30]. The same study showed that 93% of donors had low perceived behavioral control [30]. There is dearth of national data on non-blood donors' intention to donate blood for the first time therefore we were interested in studying this behavior in Pakistani population. We tested both Theory of Planned Behavior (attitude, subjective norm, and perceived behavioral control) and the extended version by incorporating four additional variables (descriptive norm, moral norm, anticipated regret and donation anxiety) as described by Robinson et al. [22]. Additionally religion was included as one of the predictors in blood donating behavior. Islam is the predominant religion of Pakistan. Since actions are shaped by religion, we presumed that this might be an additional factor in blood donation.

Understanding intention to blood donation among non-donors is vital for their effective recruitment. Based on our experience, we hypothesized that medical students are sensitive to the transfusion needs of patients and are motivated to donate blood. We studied the blood donation intention of medical students who had never donated blood by application of theory of planned behavior. The results were expected to assist in identifying the barriers which prevent students from donating blood.

2. Method

2.1. Setting

This survey was conducted at four medical schools situated at Karachi which is a large metropolitan city in Southern Pakistan.

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