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Application of Internet and Information Technology in Recruitment of Safe Blood Donors

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Abstract: The present study focuses on the role of information technology in blood safety policies. In order to reach to higher levels of blood safety we have to put our maximum force in the recruitment of safe blood donors via public education. Innovative use of mass media in recruitment of blood donors, especially the youth and those of higher education level and disseminating the basic information about blood donation can be our success key. There is an urgent need to find new ways of recruiting blood donors rather than traditional methods of donor education. Effectiveness of internet based educational intervention in other disciplines of health has already been proven; however, few researches exist concerning internet application for online recruitment of safe blood donors. Finally, internet users' population and blood donors are similar in many aspects of their socio-demographic determinants and it is reasonable to deduce that online education and dissemination of knowledge of safe blood donation can be considered an efficient modus of recruitment of voluntary non-remunerated blood donors.

Key words: Blood donation, internet-based educational program, blood safety, blood donor education

INTRODUCTION

In recent years, there has been an increasing interest in the development of new generation of diagnostic kits used in Enzyme Linked Immuno Sorbent Assay (ELISA) and the efficacy of Nucleic Acid Amplification Testing (NAT) technology in decreasing the risk of Transfusion Transmissible Viral Infections (Lelie and Heaton, 2006; Velati *et al.*, 2005); however, a Residual Risk of Transfusion Transmissible Infections is still present (Maresch *et al.*, 2008; Ouattara *et al.*, 2006; Pillonel *et al.*, 2005; Jean-Pierre *et al.*, 2003; Koehler, 2003; Weiland, 1999). The main reason behind it relates to blood donation during the Window Period of Transfusion Transmissible Viral Infection (TTVIs) (Lau *et al.*, 2002; Mary *et al.*, 2001; Joint United Nations Programme on HIV/AIDS, 1997; Lackritz *et al.*, 1995). Moreover, a significant number of blood donors start checking their HIV status free of charge through blood donation. In addition, Inaccurate test results, inadequate staff training and lack of standard operation procedures (Joint United Nations Programme on HIV/AIDS, 2008) have been considered the constant threats on blood safety in many countries. Finally, we realize that the existing methods of diagnosing (TTVIs) have their own weakness in providing guarantee for blood

safety (Koehler, 2003). In other words, for the purpose of reaching to the highest level of blood safety, we need sometimes to breathe out of laboratory where the public health professionals attempt to motivate, educate and recruit safe blood donors.

Strategies for blood safety: The past twenty years has seen the rapid development of new technologies in enhancing the blood safety. In the history of transfusion medicine, application of new laboratory techniques has been a key factor in development of blood safety programs. However, it is becoming increasingly difficult to ignore the role of public educational efforts in Motivating, Educating and Retaining voluntary non-remunerated blood donors to enhance the safety level of blood transfusion. In order to achieve the worldwide goal of blood transfusion organizations in providing enough amounts of safe blood and blood products we are to put our maximum force in three major directions: First, we need to innovate new laboratory techniques to decrease the length of Window Period for transfusion transmissible viral infections. Second, the development of new standard operating procedures in present trip from blood donor selection to blood transfusion is unquestionable and the recruitment of safe blood donors via public education and

informing programs is the last but not the least important approach to blood safety. The first two steps refer to blood banking aspect of blood safety while the recruitment of safe blood donors through all potential communicating channels in Motivating, educating and retaining voluntary non-remunerated blood donors is regarded as the public health view of blood safety.

The need of disseminating knowledge about safe blood donation: Today, the blood donor selection criteria are stricter than ever. This is mainly due to the introduction of new viral agents which are found to be responsible for transfusion transmissible infections. By the same token, lack of public knowledge about high risk behaviors results in the elimination of potential blood donors.

The outcomes of numerous studies have emphasized the existence of public misconceptions towards blood donation and lack of knowledge about HIV, Hepatitis B and C viruses among blood donors (Zaller *et al.*, 2005; Alam and Masalmeh, 2004; Olaiya *et al.*, 2004). It seems that both average blood donor population and more educated people suffer from lack of general knowledge of TTIVIs (Boutayeb *et al.*, 2006; Lau *et al.*, 2002). These results are inline with those of other studies in suggesting the necessity in focusing more on educating the public with regards to blood safety. Other studies have highlighted the need of disseminating information and knowledge to correct the beliefs and misconceptions about blood donation (Marantidou *et al.*, 2007; Javadzadeh, 2007; Mathew *et al.*, 2007) since increasing the knowledge of and positive attitude toward blood donation have already been proved to be effective in recruitment of safe blood donors (Harrington *et al.*, 2007; France *et al.*, 2007; Lemmens *et al.*, 2005) and facilitating the practical application of self exclusion program among high risk volunteers (Sharma *et al.*, 2001). Irrespective of these facts, we can only hope that the level of blood safety enhances at the expense of narrowing the passage between potential volunteers and real safe blood donors as we actually reject an increasing number of blood donation volunteers. Hence, we see no reason not to employ all of our public education forces to let the volunteers pass this tunnel without the risk of being stopped or marked as rejected.

To support our clients (i.e., blood Donation Volunteers) or better to say our servers to pass this step without being disqualified, it is highly advisable to employ all communication channels to convey the message of safe blood donation to our targeted groups which are previously marked as low risk population. Innovative use of mass media in educating and motivating

potential blood donors, especially the youth and those of higher education level and disseminating the basic information about the risky behaviors and the criteria of being qualified to see themselves in the clothes of blood donors can be proposed as our success key in the recruitment of safe blood donors.

Communication channels for education and recruitment of safe blood donors: Both printed and electronic media can be used as the communication platform to carry the knowledge and informative messages about safe blood donation (Fig. 1). We believe that the public health policy makers have to find the best way of educating the public and know how to employ the new technologies in their blood donor marketing campaign in order to achieve the best results in the shortest possible time, energy and cost. Therefore, there is an urgent need to find new ways of recruiting blood donors rather than using face to face education, publishing catalogues, posters and other traditional methods of donor education. This view have been attempted to be explained by several studies that examined the effectiveness of educational interventions in increasing the knowledge of and positive attitudes toward safe blood donation. One question that needs to be asked; however, is whether we need to communicate to targeted populations using specific channels of dissemination of knowledge or not. The other question to be answered is which methods are of the most cost-effectiveness to motivate the new blood donors and raise

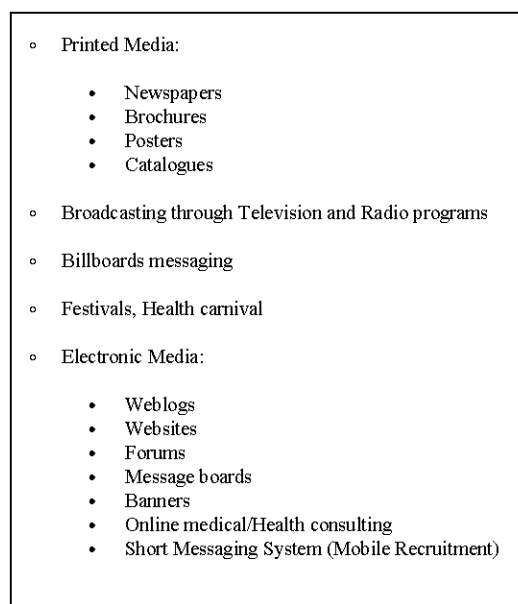
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- Printed Media:
 - Newspapers
 - Brochures
 - Posters
 - Catalogues
 - Broadcasting through Television and Radio programs
 - Billboards messaging
 - Festivals, Health carnival
 - Electronic Media:
 - Weblogs
 - Websites
 - Forums
 - Message boards
 - Banners
 - Online medical/Health consulting
 - Short Messaging System (Mobile Recruitment)

Fig. 1: Potential communication channels for Motivation, education and retention of safe blood donors

the knowledge of layman's understanding of the simple measures of protection against transmission of TTIVs.

Among the preliminary studies in this field, Sarason *et al.* (1992) illustrated that the usage of videotape was more efficacious than the standard presentations at blood centers to enhance the positive attitudes of high school students towards blood donation. Had been recognized a low donor rate among African Americans, a 1-year prospective ecologic study performed to test the effect of increased knowledge on the importance of blood donation on the performance of the subjects in the study (Price *et al.*, 2006). In this study, an educational video about blood donation was sent to residents of a region where most of them were African Americans. The results of this study again emphasized the role of educational intervention on blood donor recruitment.

Effective donor recruitment through internet: One of the most significant findings to emerge from the literature is that there are misconceptions regarding safe blood donation and there is an increasing need to find the most efficient channels of communication to motivate, educate and recruit voluntary non-remunerated blood donors. The result of a study on the knowledge of HIV/AIDS transmission and screening in United States blood donors indicated that the usage of innovative ways to increase the knowledge of high-risk individuals about the implication of risk behaviors may have a potential value in the self-deferral program of high-risk blood donation volunteers (Sharma *et al.*, 2001). Another study on the knowledge, attitudes and practices regarding blood donation among the Saudi population supported the necessity of education and motivation through dissemination of information regarding blood donation particularly on electronic media. However; no complementary research was conducted on the efficacy of Internet to support that conclusion.

The evidences from several studies have already described and supported the effectiveness of internet based educational intervention in other disciplines of health promotion and educating the patients to overcome their sickness (Vinokur *et al.*, 2006; Van Den Berg *et al.*, 2006; Kuhl *et al.*, 2006). However, a major limit with this kind of educational intervention is that very few researches exist concerning internet application for online recruitment of safe blood donors. Although; From the findings of earlier studies, it seems that the overall internet users' population and blood donors are similar in many aspects of their socio-demographic determinants as both groups are usually young men and women who are studying or possess a higher level of education than

- Public educational programs
 - Broadcasting News
 - Marketing of blood donation
 - Frequently Asked Questions
 - Recruitment of specific blood group donors
 - Online pre donation consultation
 - Pre donation check (i.e., via web based self assessment software, etc.)
 - Educational Multimedia
- Retention of repeated blood donors through web based profile connected to donor database system
- Online research:
 - Epidemiologic studies to find low risk groups for blood donation
 - Online surveys
 - Educational need assessment for public and target groups
 - Educational experiments
 - Examining the efficacy of blood donation messages
- Donor self deferral program
 - Submission of the Self deferral authorization form at the Blood donation drive
 - Automated Telephone Feedback System
 - Online Submission of Self deferral authorization form
 - Automated Short Message System (Mobile Self deferral Program)

Fig. 2: Potential application of internet for recruitment of safe blood donors

average (Tsceulin and Lindenmeier, 2005). In addition, it is suggested that the message of safe blood donation should be adapted to targeted populations (Godin *et al.*, 2005). Hence, it is reasonable if we deduce that online education and dissemination of knowledge and information about safe blood donation can be considered an efficient modus of recruitment of voluntary non-remunerated blood donors, as the internet is the best channel of broadcasting specific messages to targeted populations (Fig. 2).

Where to go next: This study has given an account of and the reasons for the widespread use of educational intervention in recruitment of safe blood donors. We explained the central importance of application of efficient communicating channels to disseminate the knowledge and information in respect to blood safety issues. Taken together, the literature and increasing level of internet penetration rate in most of countries suggest a prominent role for online recruitment of blood donors in promoting blood safety level. In addition, we threw up many questions in need of further investigations. Therefore, there is a definite need for further experimental investigations to determine how much the policy makers

of public health can rely on the internet to develop safe blood donation culture in public. A reasonable approach to tackle this issue could be the test of the effectiveness of internet-based educational programs on increasing the knowledge of and positive attitudes toward safe blood donation since it is a useful future direction for establishing online recruitment of safe blood donors. The expected results of suggested research are to contribute towards worldwide goals of reducing TTIVs, increasing the voluntary donation of blood - through online motivation, education and retention of safe blood donors, enhancing the practical application of self deferral donor programs and minimizing the usage of paper and money as well. Ideally, it will contribute towards e-health development through encouraging the e-citizens to employ the information technology in their daily life (Fig. 2).

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