Research Article

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A STUDY TO EVALUATE THE EFFECTIVENESS OF IEC CAMPAIGN ON SELF EFFICACY FOR EMPOWERMENT OF TB PATIENTS IN SELECTED TUBERCULOSIS UNITS, CHITTOOR DIST, ANDHRA PRADESH, INDIA

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Received on: 27/06/16 Revised on: 27/07/16 Accepted on: 12/08/16

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DOI: 10.7897/2277-4343.075203

ABSTRACT

The aim of this study is to evaluate the effectiveness of IEC campaign on self efficacy for the empowerment of TB patients. True experimental design was adopted for this study. 334 adult tuberculosis patients were selected from two tuberculosis units Chittoordist, Andhra Pradesh. Based on simple random sampling technique the 167 samples were allotted to each in experimental and control group. For both experimental and control group, routine treatment was given (height, weight and sputum analysis). For the experimental group the intervention (Information Education and Communication) was administered. The medians of control group pre test and experimental group pre test were 115.0 and 119.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was statistically significant (P=<0.001). After intervention the control post test and experimental post test medians were 121.0 and 156.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=<0.001). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved self efficacy in experimental group TB patients.

Keywords: Tuberculosis clients, IEC (information, education and communication), Self efficacy, empowerment and tuberculosis units.

INTRODUCTION

Tuberculosis is a deadly disease caused by Mycobacterium tuberculosis[1]. Treatment of Tuberculosis (TB) is lengthy and psychologically demanding. To conceptualize the human behavior, social cognitive theory (SCT) model is used. The main three factors used for understanding a patient's experience is observation of their behavior, environmental and personal factors and also considering of how these factors are correlating each other and influencing each other. Self efficacy beliefs are measured by psycho metric tools. It helps to know the personal skills and to achieve the goals or help to develop facilitators for effective health seeking behaviors and the treatments[2].

The purpose of information, education and communication (IEC) is to improve people's health by increasing awareness and knowledge and changing attitudes and behavior.[3]The WHO defines empowerment as a process through which people gain greater control over decisions and actions affecting their health.[4]

MATERIALS AND METHODS

The study was conducted among category I & II tuberculosis patients of both sexes who attended the OPD in Madanapalle and Tirupathi tuberculosis units Chitoor Dist, Andhra Pradesh. True experimental research design was used for this study [5]. By simple random sampling technique 167 samples were allotted to each experimental and control group. The samples were selected by random sampling method based on the inclusion criteria. Informed consent and oral consent was obtained from tuberculosis patients for their participation. This study was approved by the Institutional Human Ethics Committee of Saveetha University, (012/10/2013/IEC/SU; Dated 15 October 2013). Tuberculosis patients who were in Cat- I & II, attending medical OPD, Willing to participate in this study, Able to speak and understand Telugu or English were included. Those who are not willing to participate, absent during the time of data collection, having other complaints (i.e HIV) were excluded from this study.

Pretest phase

Pre test was conducted among tuberculosis clients on self efficacy. To assess the self efficacy of the samples, rating scale was used. It consists of 6 components (manage disease in general scale, managing the symptoms, manage shortness of breath, physical activity, emotional condition, communicate with physician) [6]. Pre test was conducted on Monday, Wednesday and Friday in outpatient department of Madanapalle and Tirupathi Tuberculosis unit Chittoor Dist, Andhra Pradesh.

During test phase

Two weeks after the pre test, IEC was administered to the experimental group. i.e. IEC- Information was given through posters, pamphlets &leaflets [7]. Education was given in the form of structured teaching Program [8]. Mass Communication was given in the form of Role play and video films [9].

Post test phase

Post test was done for both the group using the same tool 2 weeks after the intervention. At the end of the study routine health education on tuberculosis was administered to the control group tuberculosis patients.

Statistics

The data were expressed as mean ± SE, and frequency distribution. Paired and unpaired't' test, chi square test and

Pearson's correlation coefficient were used [10]. The analysis and the plotting of graphs were carried out using Sigma Plot 12 (Systat, USA).

RESULTS

Figure 1, shows the box plot of self efficacy of TB patients in managing the disease in general scale. The box plot shows, median, mean, 25 percentile, 75 percentile, minimum value, maximum value and the outliers. The mean values of control group pre test, control group post test, experimental group pre test and experimental group post test were 27, 28, 28 and 36. Since the data is a ranked data and also a discrete variable, non parametric statistics was used. The medians of control group pre test and experimental group pre test were 26.0 and 27.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was statistically significant (P=0.014). After intervention the control post test and experimental post test medians were 27.0 and 36.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=0.040). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved in managing the disease.

Figure 2, shows the box plot of self efficacy of TB patients in managing the symptoms. The box plot shows, median, mean, 25 percentile, 75 percentile, minimum value, maximum value and the outliers. The mean values of control group pre test, control group post test, experimental group pre test and experimental group post test were 24.2, 24.8, 24.5 and 31.2. Since the data is a ranked data and also a discrete variable, non parametric statistics was used. The medians of control group pre test and experimental group pre test were 24.0 and 24.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was not statistically significant (P=0.315). After intervention the control post test and experimental post test medians were 25.0 and 31.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=0.110). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved in managing the symptoms.

Figure 3, shows the box plot of self efficacy of TB patients in manage shortness of breath. The box plot shows, median, mean, 25 percentile, 75 percentile, minimum value, maximum value and the outliers. The mean values of control group pre test, control group post test, experimental group pre test and experimental group post test were 5.1, 5.5, 5.2 and 6.7. Since the data is a ranked data and also a discrete variable, non parametric statistics was used. The medians of control group pre test and experimental group pre test were 5.0 and 5.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was statistically significant (P=0.039). After intervention the control post test and experimental post test medians were 5.0 and 7.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=0.026). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved in manage shortness of breath.

Figure 4, shows the box plot of self efficacy of TB patients in physical activity. The box plot shows, median, mean, 25 percentile, 75 percentile, minimum value, maximum value and the outliers. The mean values of control group pre test, control group post test, experimental group pre test and experimental group post test were 16.2, 19.4, 16.7 and 23.2. Since the data is a ranked data and also a discrete variable, non parametric statistics was used. The medians of control group pre test and experimental group pre test were 16.0 and 16.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was not statistically significant (P=0.280). After intervention the control post test and experimental post test medians were 20.0 and 23.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=<0.001). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved in managing the disease.

Figure 5, shows the box plot of self efficacy of TB patients in emotional condition. The box plot shows, median, mean, 25 percentile, 75 percentile, minimum value, maximum value and the outliers. The mean values of control group pre test, control group post test, experimental group pre test and experimental group post test were 25.7, 26.8, 26.2 and 35.5. Since the data is a ranked data and also a discrete variable, non parametric statistics was used. The medians of control group pre test and experimental group pre test were 25.0 and 27.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was statistically significant (P=<0.001). After intervention the control post test and experimental post test medians were 26.0 and 36.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=0.073). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved in emotional condition.

Figure 6, shows the box plot of self efficacy of TB patients in communicate with physician. The box plot shows, median, mean, 25 percentile, 75 percentile, minimum value, maximum value and the outliers. The mean values of control group pre test, control group post test, experimental group pre test and experimental group post test were 16.6, 16.7, 16.7 and 23.9. Since the data is a ranked data and also a discrete variable, non parametric statistics was used. The medians of control group pre test and experimental group pre test were 16.0 and 16.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was not statistically significant (P=0.777). After intervention the control post test and experimental post test medians were 16.0 and 24.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=0.806). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved in communicate with physician.

Figure 7, shows the box plots of self efficacy of TB patients in (manage disease in general scale, managing the symptoms, manage shortness of breath, physical activity, emotional condition and communicate with physician). The box plot shows, median, mean, 25 percentile, 75 percentile, minimum value, maximum value and the outliers. Since the data is a ranked data and also a discrete variable, non parametric statistics was used. The medians of control group pre test and experimental group pre test were 115.0 and 119.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was statistically significant (P=<0.001). After intervention the control post test and experimental post test medians were 121.0 and 156.0 respectively and the difference (Mann- Whitney rank sum test; unpaired test) was highly significant (P <0.001). The control pre test and control post test were compared by Wilcoxon signed rank test (paired test). It was statistically significant (P=<0.001). The experimental pre test and experimental post test were also compared by Wilcoxon signed rank test (paired test). It was highly significant (P<0.001), showing that the intervention has significantly improved self efficacy in experimental group TB patients.

Table 1: Comparison of Mean, Standard Deviation, Mean difference and independent 't' test value of post test self efficacy among tuberculosis patients in experimental & control group

Items	Group	Mean (post test)	SD	Mean difference	Independent 't' test value	P-value
A	Experimental group	35.72	5.27			
	Control group	27.90	5.73	7.82	12.986*	P<0.001
B	Experimental group	31.24	3.27			
	Control group	24.84	3.69	6.4	16.774*	P<0.001
C	Experimental group	6.73	1.18			
	Control group	5.46	1.40	1.27	8.961*	P<0.001
D	Experimental group	23.20	2.07			P<0.001
	Control group	19.38	3.25	3.82	12.794*	
E	Experimental group	35.52	5.32			P<0.001
	Control group	26.78	4.50	8.74	16.195*	
F	Experimental group	23.87	2.21			P<0.001
	Control group	16.68	2.99	7.19	24.983*	

N= 334

The improvement mean obtained for post test between experimental & control group for self efficacy was found to be 7.82, 6.4, 1.27, 3.82, 8.74 & 7.19 respectively for which they obtained 't' calculated value was 12.986, 16.774, 8,961, 12.794, 16.195 & 24.98 respectively which was found to be highly significant at p<0.001.Therefore IEC campaign was effective in enhancing self efficacy among TB patients in experimental group.

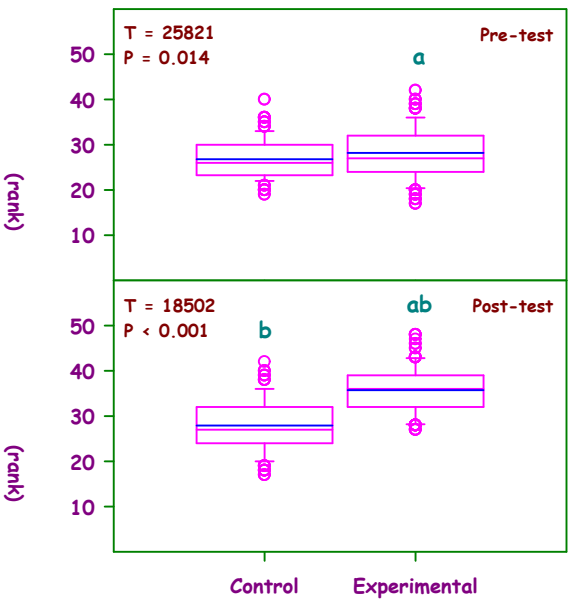

Figure 1: Box plot showing self efficacy of TB patients, manage disease in general scale (A), (n=167 each). The pink line is the median and the blue line is the mean. The 'T' and 'P' values are comparing the pre test or post test (Mann- Whitney rank sum test). The pre test and the post test are compared by Wilcoxon signed rank test. Control pre test and post test- W= 2317, P=0.040 and experimental pre test and post test- W=10635, P<0.001. a. Significantly different from control group. b. Significantly different from pre test.

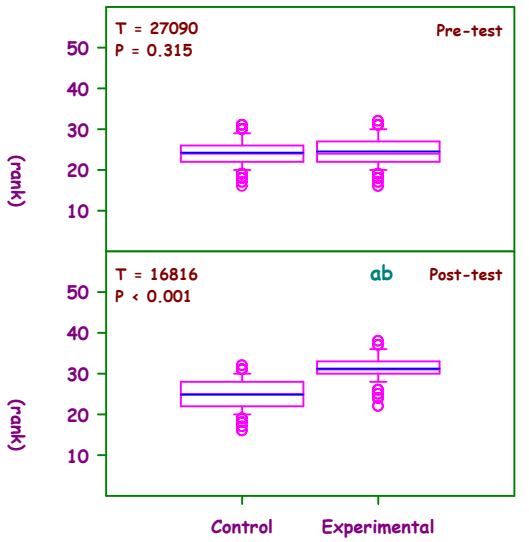

Figure 2: Box plot showing self-efficacy of TB patients, managing the symptoms (B), (n = 167 each). The pink line is the median and the blue line is the mean. The 'T' and 'P' values are comparing the pre-test or post-test (Mann-Whitney rank sum test). The pre-test and the post-test are compared by Wilcoxon signed rank test. Control pre-test and post-test – W = 1836, P = 0.110 and experimental pre-test and post test – W = 12120, P < 0.001. a. Significantly different from control group. b. Significantly different from pre-test.

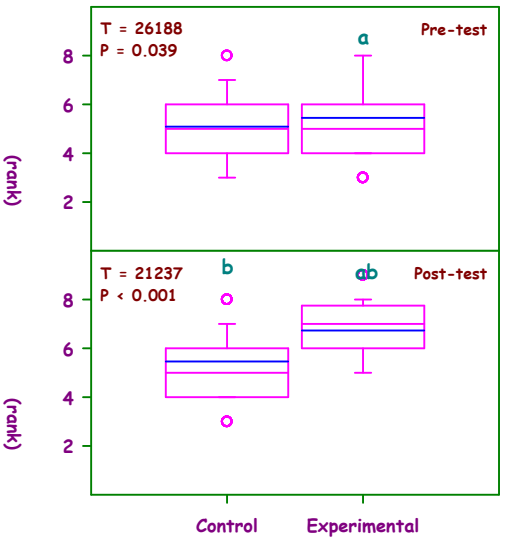

Figure 3: Box plot showing self-efficacy of TB patients, manage shortness of breath(C), (n = 167 each). The pink line is the median and the blue line is the mean. The 'T' and 'P' values are comparing the pre-test or post-test (Mann-Whitney rank sum test). The pre-test and the post-test are compared by Wilcoxon signed rank test. Control pre-test and post-test – W = 1920, P = 0.026 and experimental pre-test and post test – W =7729, P < 0.001. a. Significantly different from control group. b. Significantly different from pre-test.

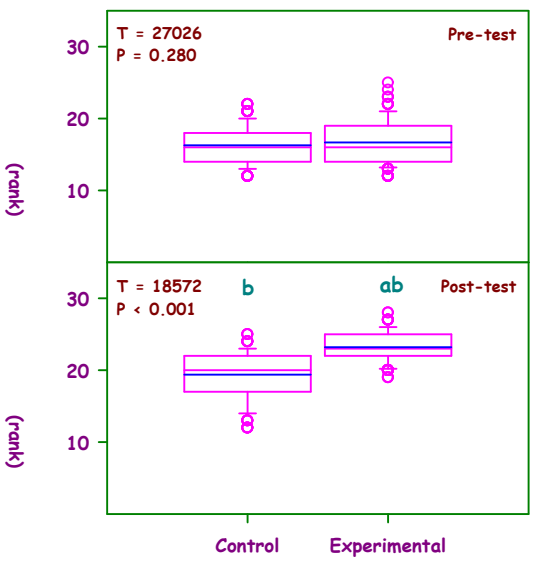

Figure 4: Box plot showing self-efficacy of TB patients, physical activity (D), (n = 167 each). The pink line is the median and the blue line is the mean. The 'T' and 'P' values are comparing the pre-test or post-test (Mann-Whitney rank sum test). The pre-test and the post-test are compared by Wilcoxon signed rank test. Control pre-test and post-test – W = 8498, P = <0.001 and experimental pre-test and post test – W = 12558, P < 0.001. a. Significantly different from control group. b. Significantly different from pre-test.

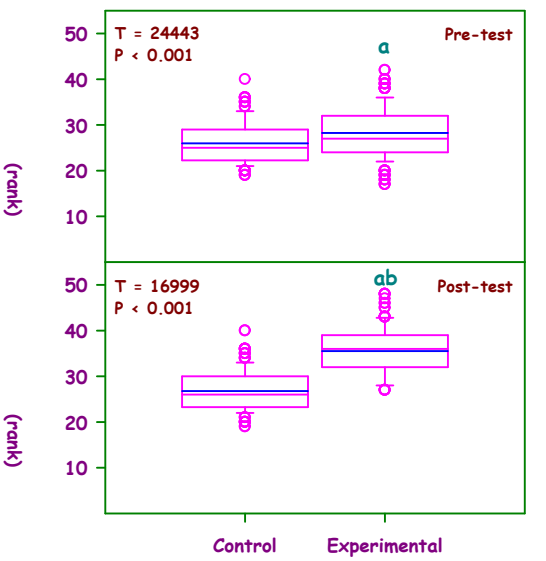

Figure 5: Box plot showing self-efficacy of TB patients, emotional condition (E), (n = 167 each). The pink line is the median and the blue line is the mean. The 'T' and 'P' values are comparing the pre-test or post-test (Mann-Whitney rank sum test). The pre-test and the post-test are compared by Wilcoxon signed rank test. Control pre-test and post-test – W = 1986, P = 0.073 and experimental pre-test and post test – W = 10764, P < 0.001. a. Significantly different from control group. b. Significantly different from pre-test.

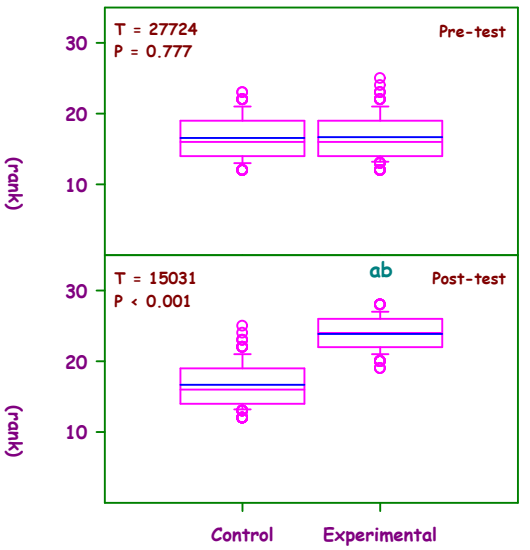

Figure 6: Box plot showing self-efficacy of TB patients, communicate with physician (F), (n=167 each). The pink line is the median and the blue line is the mean. The 'T' and 'P' values are comparing the pre-test or post-test (Mann-Whitney rank sum test). The pre-test and the post-test are compared by Wilcoxon signed rank test. Control pre-test and post-test – W = 272, P = 0.806 and experimental pre-test and post test – W = 13479, P < 0.001. a. Significantly different from control group. b. Significantly different from pre-test.

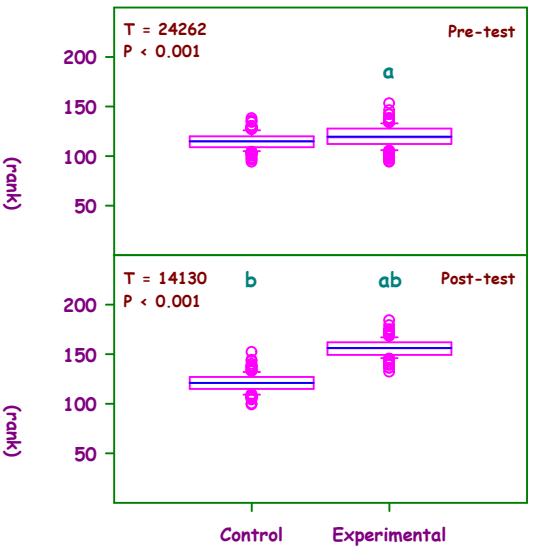

Figure 7: Box plot showing self-efficacy of TB patients,(A,B,C,D,E and F) (n = 167 each). The pink line is the median and the blue line is the mean. The 'T' and 'P' values are comparing the pre-test or post-test (Mann-Whitney rank sum test). The pre-test and the post-test are compared by Wilcoxon signed rank test. Control pre-test and post-test – W =7756, P = <0.001 and experimental pre-test and post test – W = 14025, P < 0.001. a. Significantly different from control group. b. Significantly different from pre-test.

DISCUSSION

When faced with a chronic disease, individuals should taken action (such as taking medication, engaging in daily physical activity) to reduce the effects of the disease on their well being. Self efficacy predicts adherence to medication. Youth infected with tuberculosis who participated in a self efficacy enhancing intervention acquired higher self efficacy for medication taking and self efficacy for medication taking was related to the completion of medication. In this present study, participant's self efficacy was low and then after the IEC campaign it was increased. The intervention has significantly improved self efficacy in experimental group TB patients compare to the control group.

The current study is significant, despite its limitations, in that it can save as a baseline for future impact assessments, and an essential component of RNTCP evaluation in India. The similar findings were supported by a study conducted by N.Sharma et al (2005) the IEC has been effective in raising awareness and improving self reporting, but it requires intensification with suitable modification to reach all sectors [11].

CONCLUSION

This research work revealed that IEC campaign was effective in enhancing the self efficacy among TB patients in experimental group compare to the control group. In the light of the results of the study, the IEC needs to be continued, with increased focus on disadvantaged social groups. IEC methods can be implemented for illiterates, women and lower socio economic classes. The present study should be followed by regular IEC input assessment studies to better monitor this essential component of the Revised National Tuberculosis Control Program (RNTCP).

ACKNOWLEDGEMENT

The authors are thankful to the authorities of Madanapalle and Tirupathi tuberculosis units, Chitoor dist, Andra Pradesh for giving permission to carry out the study.

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Cite this article as:

K. Juliet, Fathima Latheef. A study to evaluate the effectiveness of IEC campaign on self efficacy for empowerment of Tb patients in selected tuberculosis units, Chittoor dist, Andhra Pradesh, India. Int. J. Res. Ayurveda Pharm. Sep - Oct 2016;7(5):97-102 http://dx.doi.org/10.7897/2277-4343.075203

Source of support: Nil, Conflict of interest: None Declared