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A Comparative Study of Health Locus of Control in Patients with Schizophrenia and Their First Degree Relatives

Sarika Thakral^a, Triptish Bhatia^b, Elizabeth A Gettig^c, V.L. Nimgaonkar^d, and Smita N. Deshpande^e

^aDST MR Autism Project, Dept. of Psychiatry, PGIMER-Dr.R.M.L.Hospital, New Delhi

^b GRIP-NIH Project, Dept. of Psychiatry, PGIMER-Dr.R.M.L.Hospital, New Delhi

^c Dept of Human Genetics, University of Pittsburgh, Pittsburgh, USA

^d Dept. of Psychiatry and Dept of Human Genetics, University of Pittsburgh, Pittsburgh, USA

^eDept. of Psychiatry, PGIMER-Dr.R.M.L.Hospital, New Delhi

Abstract

Background and Aims—An individual's behaviour may be predicted from their beliefs about their locus of control (attribution). A person's "locus" can be internal or external. The present study aimed at comparing the locus of control as measured by multidimensional health locus of control scale (MHLC) in patients with schizophrenia and their healthy first degree relatives.

We hypothesized that persons with schizophrenia have different locus of control than their first degree relatives.

Method: Multidimensional Health Locus of Control Scale (MHLC) was first translated and validated in Hindi by bilingual students (n=71). Consecutive patients affected with schizophrenia (SZ) (N=125) and their siblings/offsprings (N=119) were recruited. Diagnostic Interview for Genetic Studies and MHLC Scale were administered after written informed consent.

Results: There was moderate intra-class correlation between Hindi and English versions of MHLC Scale. Schizophrenia patients were found to have more of 'chance' locus of control (F 6.625, P= 0.011) whereas their first degree relatives have more of 'internal' locus of control (F 6.760, P= 0.010).

Conclusion: Patients with SZ attributed their health to external factors which has been found to be associated with poor or late recovery. These findings may provide a theoretical base for developing intervention strategies to promote behavioural changes in patients.

Keywords

Health locus of control; first degree relatives; multidimensional; Schizophrenia

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Corresponding Author Triptish Bhatia, Ph.D., GRIP-NIH Project, Room# 30, Department of Psychiatry, Park Street, PGIMER-Dr.R.M.L.Hospital, New Delhi-110001, India Phone: +91-11-23404363, Fax: +91-11-23342122, bhatiatriptish@yahoo.co.in.

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1. Introduction

It is well known that health related behaviours can be determined by psycho-social factors. Health beliefs of an individual are one of such factors. Therefore, it becomes essential to understand the underlying health beliefs of the target population so as to educate them effectively for their betterment (Kuwahara et al. 2004). Locus of control (LOC) belief also known as "attribution" refers to how people explain events that happen to themselves and/or others. A person's "locus" can be internal (the person believes they can control their life) or external (their decisions and life are controlled by environmental factors) and this influences one's behaviour. Levenson (Levenson and Miller 1976) (Levenson 1973) theorized that locus of control is multidimensional rather than unidimensional comprising 'self', 'powerful others' and 'luck'. Wallston et al. (Wallston et al. 1978) demonstrated the validity of these three centers of control in the context of health beliefs, by introducing Multidimensional Health Locus of Control Scale (MHLC). Wallston et al. (1994) further added a separate belief, i.e., 'doctor', and further extended it to a fifth dimension in 1999, control by 'God'. The internal and external dimensions are usually seen as distinct and both have different means of control. Perceived health locus of control (HLC) is an important component in social learning theory models designed to predict behaviours and cognitive processes relevant to mental and physical health (Wallston 1992). HLC has meaningful relations with health attitudes, behaviours, coping styles, and outcomes (Armitage 2003; Haslam and Lawrence 2004; Wu et al. 2004).

There has been some research on LOC and psychosis. Schizophrenia patients are reported to believe in an external locus of control (Holmberg and Kane 1999; Buhagiar et al. 2011). Various factors may contribute to this belief such as severity and chronicity of the disorder, the persistence of major symptoms and the inability to work (Bentall and Kaney 2005; Melo et al. 2006; Hoffman and Kupper 2002a). Schizophrenia patients tend to show a stronger bias toward blaming external factors for negative outcomes, and use a self-serving attributional style (Candido and Romney 1990; Martin and Penn 2002). Paranoid patients use external-personal attributions in negative events (Aakre et al. 2009). Different studies suggested that Schizophrenia patients had greater external locus than persons who did not have schizophrenia (Martin and Anthony 2002; Harrow and Ferrante 1969). No such studies were reported in India. They also found that patients who lacked social skills and had more severe symptoms biased towards external locus of control. Hoffart and Torgensen (Hoffart and Torgensen 1991) found that relatives of patients with major depression and agoraphobia comorbidity attributed bad events to more internal causes. But there is paucity of studies assessing locus of control of relatives of schizophrenia patients.

Therefore the present study was carried out to determine the locus of control among schizophrenia patients and their caregiving first degree relatives, both staying together for at least one year. We chose the most widely used scale- Multidimensional Health Locus of Control Scale by Wallston (Wallston et al. 1978). This scale has been translated earlier into various languages such as Iranian (Cronbach's alpha ranges between 0.69-0.72; Moshki et al, 2011), Persian (Cronbach's alpha 0.66-0.72; Moshki et al. 2007), Japanese (Cronbach's alpha 0.62-0.76; Kuwahara et al. 2004) and American Sign Language (Samady et al, 2008). We translated it into Hindi and validated on normal controls. The present study also aimed at assessing the reliability of Hindi version of Multidimensional Health Locus of Control Scale.

2. Methodology

The present study was conducted at the Department of Psychiatry, PGIMER - Dr. Ram Manohar Lohia Hospital, New Delhi. Consecutive patients affected with schizophrenia

(N=125) and their siblings/offsprings (N=119) referred by clinicians from OPD RMLH were recruited after written informed consent. Hindi version of Diagnostic Interview for Genetic Studies (Deshpande et al. 1998) was used to establish the diagnosis of patients and to rule out the any psychiatric illness in their first degree relatives. Both patients and their relatives were then administered MHLC form B Hindi version. Hindi version of Form B was used in the present study as Form B has been intensively used by original authors to assess the locus of control of persons with chronic illnesses. (<http://www.vanderbilt.edu/nursing/kwallston/FAQMHLC.htm>)

Descriptive statistics was used to analyse demographic factors, and ANOVA and chisquare tests were used to compare the locus of control in patients and their relatives. Statistical Package for Social Sciences version 20 (SPSS version 20; SPSS 2012) was used for data analysis. Cronbach's alpha was computed to compare Hindi and English versions of the scale.

3. Instruments Used

To assess locus of control, Multidimensional Health Locus of Control (MHLC) by Wallston (Wallston et al. 1978) was used. The instrument has three forms. Forms A & B are equivalent forms which measure the "general" health locus of control whereas Form C is condition specific. Each Form has 18 questions, with six-point Likert response scale ranging from 'strongly agree' to 'strongly disagree', containing three subscales, Internal, Chance and Powerful Others,

Since our sample was mostly Hindi speaking, we translated and validated the form B of the scale (suitable for schizophrenia patients) into Hindi. To examine the content validity of the translated version of MHLC, as mentioned in methodology, we translated and validated the form B of the scale (suitable for schizophrenia patients) into Hindi. In order to translate the form B of MHLC from English to Hindi, the 'forward-backward' procedure was applied (Koller et al. 2007). It was translated into Hindi by the authors (TB, ST- certified psychologists), and then translated back into English by two bilingual experts (a psychologist and a psychiatrist) who were blind to the original English version. The expert panel consisting of board certified psychiatrist and psychologists reviewed the back-translation and discussed the Hindi translation and agreement was reached on consensus Hindi version. Cronbach's coefficient α was employed to estimate the internal consistency reliability of the scale, presented in Table 1.

The original English version of the questionnaire was administered on a group of randomly selected 71 bilingual students pursuing Nursing and other paramedical courses in NCR region. They completed the paper-and-pencil measures in a classroom setting under supervision of research associates who were available to answer the questions if necessary. All of the subjects participated willingly and voluntarily in this study after written informed consent, and all participants completed the questionnaires. Then after a period of one month, translated Hindi version of MHLC scale was administered on the same group of students. Intra-class correlations were computed to check for reliability between the two versions using SPSS version 20.

4. Results

To establish the validity of Hindi Version of MHLC form B, 71 bilingual college students (52 males and 19 females) with mean age of 19.93 ± 2.67 years and mean education of 13.52 ± 1.94 years were enrolled (Table 1). There was significant Intraclass correlations between Hindi and English versions on all the three subscales of form B, i.e., Internal

(Cronbach $\alpha = 0.613$, $p = 0.000$), Chance (Cronbach $\alpha = 0.690$, $p = 0.000$) and Powerful others (Cronbach $\alpha = 0.588$, $p = 0.000$) (Table 1). This suggests high internal consistency.

Using the final Hindi version of the LOC, 123 patients (60% males and 40% females) and 117 relatives (75% males and 25% females) were included for final analysis (2 patients and their relatives did not complete all tests). The mean age of patients and relatives was 33.12 ± 10.85 years and 32.03 ± 11.48 years respectively while their mean education was 9.43 ± 4.17 school years and 10.55 ± 3.85 school years respectively (Table 2). Both the groups matched significantly in terms of age and education as there was no significant difference between these two groups on age as well as education, but there were significantly more females than males. Both patients and their relatives differed significantly on subscales of Internal and Chance LOC. Schizophrenia patients had significantly higher scores on 'chance' locus of control ($F 6.625$, $P = 0.011$) whereas their first degree relatives had higher score on 'internal' locus of control ($F 6.760$, $P = 0.010$). There were no significant differences in the scores of Powerful Others (Table 2).

Discussion

Health locus of control has been an important factor in understanding the recovery and rehabilitation of patients with chronic mental illnesses including those affected with schizophrenia. MHLC (Wallston et al. 1978) is one of the most widely used and validated measure of health LOC and its Hindi translation is likely to prove useful for studying other conditions too as with other language versions (Moshki et al. 2012; Kuwahara et al. 2004). It is important to study health locus of control as mental health professionals have reported that this may influence outcome in schizophrenia as external beliefs could reduce the extent of personal efforts towards recovery and internal approaches could increase the chances of rehabilitation and recovery (Tooth et al. 2003; Warner et al. 1989; Hoffmann et al. 2000; Hoffman and Kupper 2002b).

Both patients and their relatives are comparable on their education. This is an interesting finding. This may be because the participants belonged to lower socioeconomic status and neither patients nor relatives had much education. The similarity could also be due to the policy of passing a child with adequate attendance, at least till Standard 8, which is followed in government schools. This may be because the participants belonged to lower socioeconomic status and neither patients nor relatives had much education. The similarity could also be due to the policy of passing a child with adequate attendance, at least till Standard 8, which is followed in government schools.

Persons with Schizophrenia were found to have external health locus of control in our study. Thus patients with schizophrenia tend to attribute their ill health to 'chance' rather than to the events under their own control. This is in line with other studies reporting that patients with severe mental illnesses like schizophrenia tend to have external health locus of control (Holmberg and Kane 1999; Buhagiar et al. 2011). A smaller study also showed that people with schizophrenia ($n = 22$) reported higher scores on external health locus of control measures compared with population norms (Holmberg and Kane 1999). This suggests that the intervention programs for rehabilitation should be more directive and intensive.

On the other hand, relatives attributed the illness to internal factors in our sample. Bensten et al. (1997) suggested that higher Chance scores are related to emotional over-involvement in relatives (Bentsen 1997) which may lead to further non-sensitivity to their own relative's health and this may affect coping and dealing with their patients. Bentsen (Bentsen 1997) suggested that if multidimensional LOC is measured in relatives, therapeutic intervention can be facilitated as it can be changed with behavioural intervention. Knowing their LOC

style can also help in deciding the therapy method as psychoeducation is useful for relatives to deal with their high expressed emotions etc if their powerful others score is high (Anderson et al. 1986 ; Falloon et al. 1984; Kuipers et al. 1992); more non directive approach is useful if powerful others score is low (Bentsen 1997).

The comparison of LOC of both care giver and the patient can help the health providers to design the therapeutic intervention in such a way that brings both of them understand each other and illness and work towards better outcome.

In a way LOC orientation could influence long term outcomes and probabilities for recovery. Therefore, the study of the relationship between an external LOC and outcome and recovery over a period in schizophrenia could be of considerable importance.

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Table 1

Socio-demographic Details of college students and Correlation between English and Hindi versions of all the three subscales of LOC Form B

Healthy Controls (N= 71)		
Mean Age in years $\pm$ SD		19.93 $\pm$ 2.65
Education in years $\pm$ SD		13.52 $\pm$ 1.94
Gender (M/F)		19/52
	Reliability Statistics	Intraclass Correlation Coefficient
	Cronbach's Alpha	Sig.
Form B		
Internal	0.613	0.001 *
Chance	0.690	0.001 *
Powerful Others	0.588	0.001 *

* Correlation significant at p = 0.05

Table 2

Comparison of LOC between patients and relatives

Variables	Patients (n=123)	Relatives (n=117)	F	t-value	p-value
Age in year (Mean $\pm$ SD)	33.12 $\pm$ 10.86	32.03 $\pm$ 11.48	0.333	0.575	0.565
Education in years (Mean $\pm$	9.43 $\pm$ 4.17	10.55 $\pm$ 3.85	2.463	0.902	0.119
Internal	24.52 $\pm$ 7.35	26.88 $\pm$ 6.68	6.760	0.518	0.010*
Chance	20.67 $\pm$ 7.76	18.18 $\pm$ 7.23	6.625	0.434	0.011*
Powerful Others	24.91 $\pm$ 7.98	23.79 $\pm$ 6.51	1.401	0.125	0.238

* Correlation significant at p = 0.05