Original Research

Values in First-Episode Schizophrenia

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Objective: Functional impairment continues to represent a major challenge in schizophrenia. Surprisingly, patients with schizophrenia report a level of happiness comparable with control subjects, even in the face of the prominent functional deficits, a finding at odds with evidence indicating a positive relation between happiness and level of functioning. In attempting to reconcile these findings, we chose to examine the issue of values, defined as affectively infused criteria or motivational goals used to select and justify actions, people, and the self, as values are related to both happiness and functioning.

Methods: Fifty-six first-episode patients in remission and 56 healthy control subjects completed happiness and values measures. Statistical analyses included correlations, analysis of variance, structural equation modelling, and smallest space analysis.

Results: Results indicated that patients with schizophrenia placed significantly greater priority on the value dimensions of Tradition ($P = 0.02$) and Power ($P = 0.03$), and significantly less priority on Self-direction ($P = 0.007$) and Stimulation, ($P = 0.008$).

Conclusions: Essentially, people with schizophrenia place more emphasis on the customs and ideas that traditional culture or religion provide in conjunction with a decreased interest in change, which is at odds with the expectations of early adulthood. This value difference could be related to functional deficits. To this point, we have assumed that people hold to the same values that guided them before the illness' onset, but this may not be the case. Our study indicates that values differ in people with schizophrenia, compared with control subjects, even early in the illness and in the face of symptomatic remission.

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Les valeurs au premier épisode de schizophrénie

Objectif : La déficience fonctionnelle représente encore une difficulté majeure de la schizophrénie. Étonnamment, les patients souffrant de schizophrénie déclarent un niveau de bonheur comparable à celui des sujets témoins, même devant des déficits fonctionnels proéminents, un résultat qui ne cadre pas avec les données probantes indiquant une relation positive entre le bonheur et le niveau de fonctionnement. Dans une tentative de concilier ces résultats, nous avons choisi d'examiner la question des valeurs, définies comme étant des critères imprégnés affectivement ou des buts motivationnels servant à choisir et à justifier des actions, des gens, et le soi, parce que les valeurs sont liées tant au bonheur qu'au fonctionnement.

Méthodes : Cinquante-six patients en rémission du premier épisode et 56 sujets témoins en santé ont répondu à des mesures du bonheur et des valeurs. Les analyses statistiques comprenaient les corrélations, l'analyse de variance, la modélisation par équation structurelle, et l'analyse du plus petit espace.

Résultats : Les résultats ont indiqué que les patients souffrant de schizophrénie accordaient une priorité significativement plus élevée aux dimensions des valeurs que sont la Tradition (*P* = 0,02) et le Pouvoir (*P* = 0,03), et une priorité significativement moins élevée à l'Autodétermination (*P* = 0,007) et à la Stimulation (*P* = 0,008).

Conclusions : Essentiellement, les personnes souffrant de schizophrénie mettent davantage l'accent sur ce que les coutumes et les idées de la culture traditionnelle ou de la religion amènent, et ont un intérêt réduit pour le changement, ce qui ne cadre pas avec les attentes du début de l'âge adulte. Cette différence de valeurs pourrait être liée aux déficiences fonctionnelles. Jusqu'ici, nous avons présumé que les gens conservaient les mêmes valeurs qui les ont guidés avant l'apparition de la maladie, mais ce n'est peutêtre pas le cas. Notre étude indique que les valeurs diffèrent pour les personnes souffrant de schizophrénie, comparativement aux sujets témoins, même au début de la maladie et avec la rémission symptomatique.

Functional impairment continues to represent a major challenge in schizophrenia. For example, a recent study[1] of 1175 first-episode patients reported that more than 40% did not meet criteria for functional remission, and only 29% met criteria for both symptomatic and functional remission at a 2-year follow-up. Considerable work, including our own, has addressed the importance of the illness' different symptom domains; positive, negative, and cognitive symptoms can each contribute to impaired functional recovery.[2–4]

More recently, and using a case–control design, we have reported that people with schizophrenia can manifest substantial functional impairment, even in the face of effective treatment and minimal symptoms across each of these domains, suggesting other factors may be involved. Surprisingly, these people also reported a level of happiness comparable with control subjects, even in the face of the prominent functional deficits,[5] a finding at odds with evidence indicating a positive relation between happiness and level of functioning.[6]

In attempting to reconcile these findings, our attention turned to the issue of values, defined as affectively infused criteria or motivational goals used to select and justify actions, people, and the self.[7] Prior to the prodrome, people with schizophrenia often perform on par with their peers,

Clinical Implications

- People with schizophrenia place more emphasis on the customs and ideas that traditional culture or religion provide and less emphasis on personal change.

- This is evident early in the illness and in the face of symptomatic remission.

- Current functional rehabilitation programs may benefit from incorporating this value change into their approach.

Limitations

- As a cross-sectional study, we have no access to established values prior to onset of schizophrenia that can confirm change has, in fact, occurred as a function of illness.

- Factors other than symptoms and values have been reported to impact functioning; for example, psychological factors such as defeatist performance attitude.

Abbreviations

BPRS	Brief Psychiatric Rating Scale
CAMH	Centre for Addiction and Mental Health
CDS	Calgary Depression Scale
DSM	Diagnostic and Statistical Manual of Mental Disorders
MDS-SSA	multidimensional scaling smallest space analysis
PANSS	Positive and Negative Syndrome Scale
SAI	Schedule for Assessment of Insight
SFS	Social Functioning Scale
SHS	Subjective Happiness Scale
SOFAS	Social and Occupational Functioning Assessment Scale
SVS	Schwartz Value Survey
SWLS	Satisfaction With Life Scale

although this changes markedly and rapidly, as reflected in level of functioning, even following the first episode of psychosis.[8] That they demonstrate a comparable level of happiness despite such deficits led us to speculate that, with the illness, they hold different values. There may be many factors that contribute to the levels of happiness observed in patients with schizophrenia in the face of illness and associated disability, including hope[9] and adaptation to illness.[10] We were interested in the possibility that schizophrenia may be associated with differences in the values that are not linked to the same goal-directed behaviours, as is in place beforehand. Exactly what mediates these changes is currently unclear, but the effect translates behaviourally to negative symptoms, specifically amotivation.[11] We suggest they are not amotivated, per se, as much as they are no longer motivated by the same values.

Using the SVS, values have been investigated in more than 200 samples from over 60 different countries, largely in cross-cultural and business contexts.[12–14] However, values have only been investigated qualitatively in schizophrenia and without comparison to a healthy control group.[15] As a starting point, we chose to follow a similar format to the earlier work involving happiness and establish whether differences in values existed between groups cross-sectionally, once again using a case–control design. We

hypothesized that people with schizophrenia would reflect different values from control subjects and would do so on dimensions that could translate to functional deficits.

Methods

Participants

Fifty-six patients were randomly recruited from the outpatient division of the First-Episode Schizophrenia Program at CAMH. Inclusion criteria were as follows: 18 to 35 years of age, capable of providing informed consent, DSM-IV diagnosis of schizophrenia, antipsychotic treatment for less than 3 years, and in remission.[16] Patients were identified as being in symptomatic remission before screening. Patients with a comorbid DSM-IV Axis I or II diagnosis (for example, mental retardation and substance abuse or dependence) were excluded from study participation.

Fifty-six control participants were recruited from the Greater Toronto Area through ads posted at CAMH, the University of Toronto, and on local networking websites. Control participants were matched for age and sex, on an individual basis, and each were screened for possible DSM-IV diagnoses using the General Health Questionnaire-12[17] in addition to the Psychosis Screening Questionnaire.[18] Potential participants were excluded if there was a current DSM-IV Axis I diagnosis or a history of prescribed psychotropic use.

The study was approved by CAMH's Research Ethics Board, and all participants provided written informed consent (Figure 1).

Instruments and Procedures

Five measures assessing clinical status were administered to patients only, including the PANSS ($n = 22$) or the BPRS ($n = 32$), the SAI ($n = 54$), the SFS ($n = 54$), the SOFAS ($n = 54$), and the CDS ($n = 54$).

Both patients and healthy control subjects completed 2 happiness measures, the SHS[19] and the SWLS,[20] as well as the 56-item SVS.[7] According to the leading theory of basic human values, there are 10 basic cross-cultural and independent human values, each with their own motivational content that range in importance to a person. These motivations to action reflect the basic biological needs of a person and the requirements of successful interaction and survival among people, groups, and societies. Values representing these motivations are defined as beliefs that are each associated with specific situation-invariant goals. They are ordered by their importance to a person, and it is the relative importance of specific values that guides behaviour.[14] This survey presents 56 value items, followed by a short definition (for example, Equality = equal opportunity for all), that are rated for their importance as a guiding principle in the participant's life. The rating is made on a 9-point scale, ranging from (−1) (opposed to my principles), to 0 (not important), to 7 (of supreme importance). Among the 56 items, 44 have very

similar meaning across 47 nations, and are used to index the 10 basic values.[7,21] Multiple studies have confirmed the internal reliability, temporal stability, and external validity of the SVS, and that it is resistant to social desirability.[22] As recommended by Schwartz,[12] scores were ipsatized to control for differential scale tendencies by subtracting the personal mean item score from each item.

Clinical status (PANSS, BPRS, SAI, and SOFAS) was evaluated by a single psychiatrist, while the remaining scales were administered by trained research analysts unknown to the patients before study entry.

Statistical Analyses

The primary objective of the analyses was to compare patients with schizophrenia and matched control subjects in terms of individual value priorities. Sample sizes were determined following the literature stating a minimum of 50 per group for multivariate significance testing.[23,24] Statistical analyses were conducted separately for each group. To ensure validity of the SVS, AMOS 22[25] was used for structural equation modelling, and the Hebrew University Data Analysis Package was used for MDS-SSA, to asses goodness of fit to the Schwartz theoretical model.[7,26] These analyses are advised and are currently used with SVS data.[7,14,27]

SPSS version 19 (IBM SPSS Inc, Armonk, NY) was employed for correlations and analysis of variance. Potential group differences in demographic characteristics were tested using independent Student t tests. Effect sizes for group differences were calculated using Cohen d.[28] The different relations between demographic and clinical variables and values were tested using the Pearson product–moment correlation (r) analysis. Statistical significance was set at $P < 0.05$.

Results

After data were inspected, valid sets of responses to the SVS were obtained for 55 healthy control subjects and 54 patients. Validity of the SVS was confirmed by both structural equation modelling (root mean square error of approximation < 0.05; parsimony ratio = 0.87; Table 1) and MDS-SSA analyses (online eFigure 2),[29] as both analyses indicate an adequate fit to the theoretical MDS-SSA model, both for patients and for control subjects. Personal value systems domain means for each sample were plotted on a radar chart (Figure 3).

Sociodemographic and clinical characteristics of the study sample are presented in Table 2. Patients met criteria for symptomatic remission,[16] and collectively demonstrated poor social and occupational functioning, good levels of insight, and absence of depressed mood. In line with our previous study,[5] levels of happiness were comparable between the 2 groups. As anticipated, years of education was significantly different between groups. Notably, there were no significant sex, differences within groups on any other descriptive variable or value dimension.

Figure 1 Flow chart detailing recruitment, assessments, and data analysis
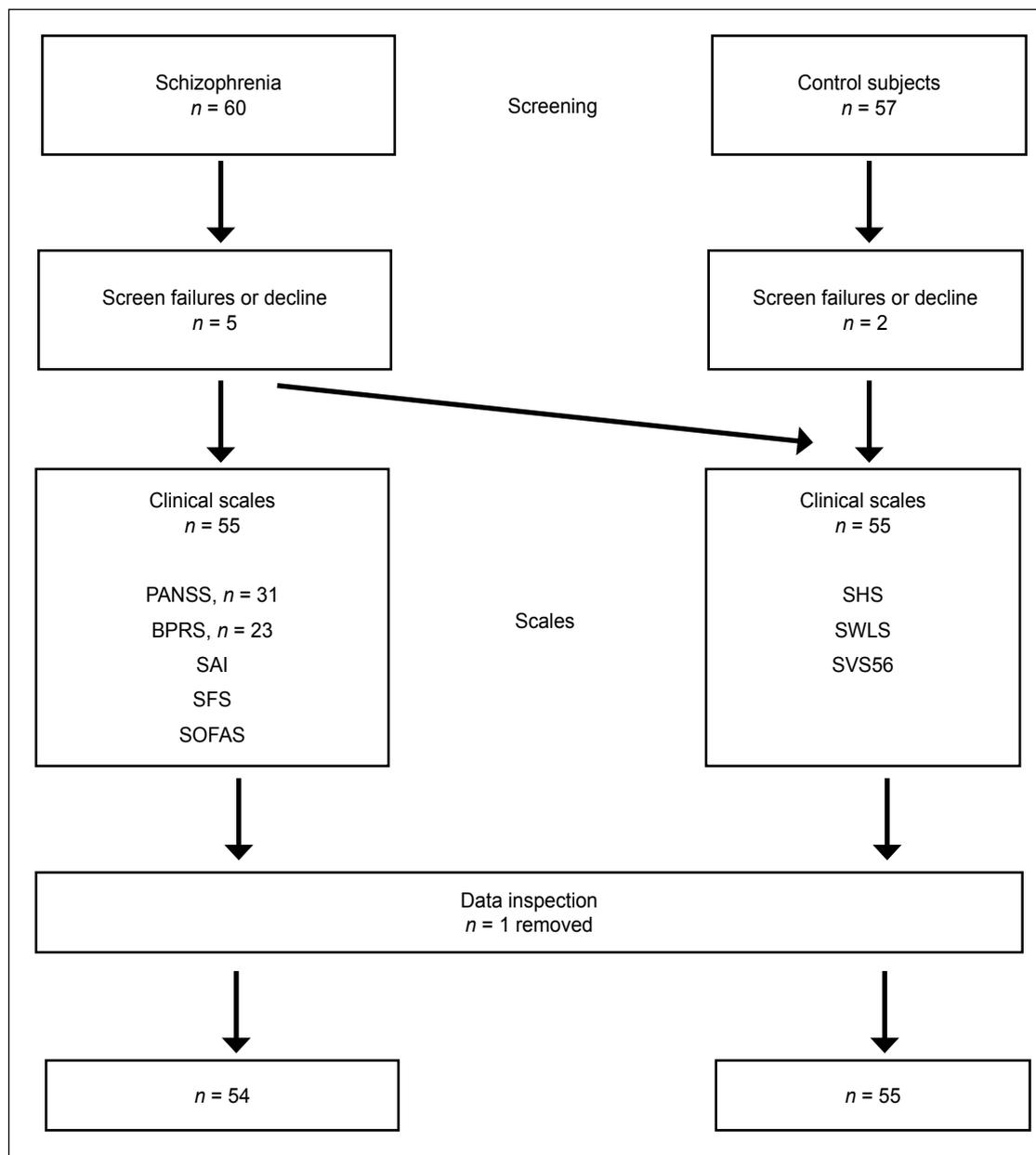
BPRS = Brief Psychiatric Rating Scale; PANSS = Positive and Negative Syndrome Scale;
SAI = Schedule for Assessment of Insight; SFS = Social Functioning Scale; SHS = Subjective Happiness Scale;
SOFAS = Social and Occupational Functioning Assessment Scale; SVS56 = Schwartz Value Survey, 56 items;
SWLS = Satisfaction With Life Scale

Personal Value Systems Group Comparisons

Significant differences between control subjects and patients with schizophrenia were found on 4 value priorities (Table 3); more specifically, patients with schizophrenia placed significantly greater priority on the value dimensions of Tradition ($P = 0.02$) and Power ($P = 0.03$), and significantly less priority on Self-direction ($P = 0.007$) and Stimulation, ($P = 0.008$). Effect size analysis found moderate differences between groups on these 4 dimensions, with small differences for the remaining dimensions (Table 3).

Two additional independent Student t tests were run within the patient group to test for differences in value dimensions. Patients were divided according to whether they were in school or working ($n = 8$; 14%) or not ($n = 48$; 84%), and according to whether they received social support ($n = 41$; 74%) or not ($n = 15$; 27%). Neither comparison revealed any statistically significant results; however, the 2 subgroups, 1 in each comparison, were quite small.

Correlational Analyses

Correlational analyses revealed significant correlations only within the patient sample. Conformity was positively

Table 1 Results of goodness of fit tests of Schwartz Value Survey data to theoretical model for control and patient samples using structural equation modelling

Patients						
Model	RMSEA	Low 90	High 90	*P* of close fit	*P* ratio	PNFI
Default model	0.004	0.004	0.004	<0.001	0.87	0.246
Independence model	0.005	0.004	0.005	<0.001	<0.001	0.000
Control subjects						
Model	RMSEA	Low 90	High 90	*P* of close fit	*P* ratio	PNFI
Default model	0.004	0.003	0.004	<0.001	0.87	0.222
Independence model	0.004	0.004	0.005	<0.001	<0.001	0.000

PNFI = Parsimony-adjusted Normed Fit Index;

RMSEA = root mean square error of approximation

Figure 3 Radar chart of value dimension means from the Schwartz Value Survey for patients and health control subjects
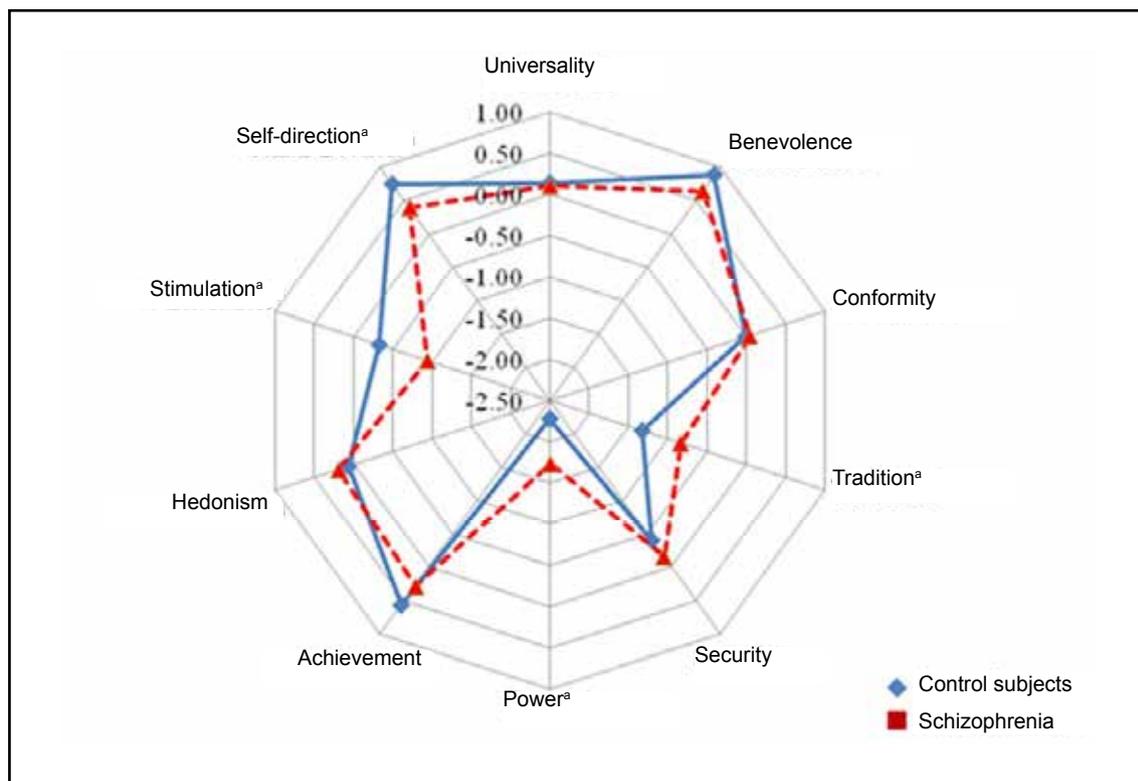
ᵃ *P* < 0.05

correlated with the SFS subscale of Independence Competence ($r = 0.392$, $P = 0.01$) and the SOFAS ($r = 0.349$, $P = 0.008$), whereas Self-direction was negatively correlated with the SFS subscale Interpersonal Communication ($r = -0.307$, $P = 0.02$) and the SOFAS ($r = -0.321$, $P = 0.02$). Such a pattern is also found in healthy populations.[13] Both Hedonism and Achievement were negatively correlated with age ($r = -0.270$, $P = 0.05$ and $r = -0.264$, $P = 0.05$, respectively), while Power was positively correlated with PANSS total score ($r = 0.418$;

$P = 0.02$), and negatively correlated with the SFS subscales of Independence Performance and Employment-Occupation, ($r = -0.303$, $P = 0.02$ and $r = -0.273$, $P = 0.04$, respectively) as well as the SAI ($r = -0.388$, $P = 0.003$). Higher scores in each of the SFS domains indicate greater functioning in that domain.

Importantly, although mean years of education did differ between groups, it was not significantly correlated with any value dimension in patients with schizophrenia or in healthy

Table 2 Demographic and clinical characteristics of first-episode schizophrenia patients and healthy control subjects

Characteristic	Patients (*n* = 54)	Control subjects (*n* = 55)	*P*
Total male, *n* (%)	35 (65)	37 (67)	0.84
Age, years, mean (SD)	26.2 (4.8)	25.6 (4.8)	0.86
Education, years, mean (SD)	13.1 (2.0)	16.7 (3.9)	<0.001
SHS > 4 (/7), *n* (%)	25 (46)	34 (62)	0.09
SWLS > 25 (/35), *n* (%)	22 (41)	31 (57)	0.09
SOFAS, mean (SD)	56.1 (11.7)	—	—
SAI total score, mean (SD)	10.5 (3.7)	—	—
CDS total score, mean (SD)	0.8 (1.4)	—	—

CDS = Calgary Depression Scale; SAI = Schedule for Assessment of Insight; SHS = Subjective Happiness Scale; SOFAS = Social and Occupational Functioning Assessment Scale; SWLS = Satisfaction With Life Scale

Table 3 Mean, standard deviation, significance, and effect size of patients and healthy control subjects value dimension scores from the Schwartz Value Survey

Value dimension	Patients (*n* = 54)		Healthy control subjects (*n* = 55)		*P*	Cohen *d*
	Mean	SD	Mean	SD		
Conformity	0.04	0.94	−0.00	0.94	0.86	0.04
Tradition[a]	−0.84	1.09	−1.32	1.01	0.02	0.46
Benevolence	0.65	0.86	0.89	0.83	0.13	−0.28
Universality	0.11	0.77	0.14	0.89	0.93	0.04
Self-direction[a]	0.40	0.80	0.75	0.65	0.009	−0.48
Stimulation[a]	−0.93	1.23	−0.33	1.28	0.01	−0.48
Hedonism	0.20	1.34	0.07	1.11	0.57	0.11
Achievement	0.28	0.93	0.57	0.81	0.10	−0.33
Power[a]	−1.74	1.33	−2.28	1.12	0.02	0.44
Security	−0.16	0.89	−0.40	0.92	0.19	0.27

[a] *P* < 0.05

control subjects, as was the case for specific antipsychotic used and any value dimension.

Discussion

In our study, people with first-episode schizophrenia in remission were shown to hold to a somewhat different personal value system, compared with healthy control subjects; specifically, patients prioritized Tradition and Power more so than healthy control subjects. The value dimension of Tradition is defined as "respect, commitment, and acceptance of the customs and ideas that one's culture or religion impose on the individual,"[7, p 10] while Power is defined as "social status and prestige, and control or dominance over people and resources."[7, p 9] Concurrently, patients placed less priority on Stimulation and Self-direction. The value dimension of Stimulation is defined as "excitement, novelty, and challenge in life,"[7, p 8] and Self-direction as "independent thought and action-choosing, creating, exploring."[7, p 5]

The 2 value dimensions to which less priority is given by patients, that is Stimulation and Self-direction, together comprise the higher order value of Openness to Change.[7] Note, a similar pattern is found with aging,[14,30] in this case predicted by the personal values theory, as the process of aging imposes different personal, social, and vocational environments. For the most part, values change to adapt to present circumstances and expression opportunities, with evidence that people become less preoccupied with their own personal achievements as they age.[14] Our findings suggest that the schizophrenia sample share a similar profile to that of an older age cohort.[14]

It is interesting to note that Power is more highly prioritized in our patient sample. As Self-direction and Power are not statistically related, this result is within theoretical limits.[13] Although speculative, perhaps relinquishing personal initiative to traditional or religious roles confers a sense of power, as it unites a person with both reason for action and social unity.

What are the implications of these findings? First and foremost, there is evidence of differences in values between schizophrenia and matched control subjects, supporting the hypothesis that people with schizophrenia hold to a different value system. Regarding the differences, in simplest terms it may be argued that people with schizophrenia place more emphasis on traditions, reflected in a greater acceptance of the customs and ideas that traditional culture or religion provide, in conjunction with a decreased interest in change. Of course, this is at odds with the expectations of emerging adulthood (that is, 18 to 29 years old),[31] a time period routinely characterized by considerable change, as people seek vocational goals and independence, and do not yet subscribe to a set of beliefs or even behaviours.[32]

Strengths of our study include the case–control design, inclusion of a homogeneous patient sample in terms of criteria for remission, and the choice of values scale, which has been used extensively in the general population.[14] However, the limitations confine any comments regarding the meaning of such differences to speculation. As a cross-sectional study, we have no access to established values prior to onset of schizophrenia that can confirm change has, in fact, occurred as a function of illness. Further, factors other than symptoms and values have been reported to impact functioning; for example, psychological factors, such as defeatist performance attitude, have been linked to functional outcome.[33] It will be important for future research to investigate whether the differences observed in values are understood from the perspective of causality, and how these differences relate to other psychological constructs. Choice of measures can be debated; for example, there are more comprehensive measures for both functioning and negative symptoms.[11,34] The benefits of a case–control design are countered by the relatively small sample size, and note that our samples differed on years of education, not uncommon in investigations addressing schizophrenia but perhaps more relevant when looking at values. Parental socioeconomic status was not measured, thus it is unclear if and how this may influence values for either group. Our control sample did include a proportion of university students, although the case has been made that a community-based sample may be more appropriate in first-episode schizophrenia research.[35] Finally, although substance use was acceptable, DSM-IV diagnosed substance abuse or dependence was not, and all first-episode patients were in remission. This may limit complete generalizability from our sample to the entire first-episode population; however, both were regarded as necessary to gain a truly reflective understanding of their personal value systems.

Conclusion

In conclusion, our investigation leaves us with more questions than answers. We believe it highlights an important issue, that of values; while there is a limited body of evidence examining needs,[36] to our knowledge this is the first such study to specifically examine values. We have, at this point, assumed that people hold to the same values that guided them before the illness' onset, and this may not be the case. Our study indicates that values in people with schizophrenia differ from control subjects, even early in the illness and in the face of symptomatic remission. However, more work is needed to confirm this finding as well as to evaluate whether this represents changes in values as a function of the illness and, if so, the impact on goals and functioning.

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