



## Brief report

## Schizotypy and subjective well-being in university students

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## ABSTRACT

One hundred and thirty-nine university students completed measures of schizotypy and subjective well-being (SWB). Inverse associations were found between schizotypy and SWB scores. These results provide evidence that diminished SWB is characteristic along the schizophrenia continuum. Further research is required to determine the mechanisms by which schizotypal individuals experience reduced life satisfaction.

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## 1. Introduction

Diminished quality of life is well established in schizophrenia (Kasckow et al., 2001; Pinikahana et al., 2002; Pukrop et al., 2003), and it appears that those with this illness may experience lower subjective well-being (SWB) than non-affected individuals (Awadalla et al., 2005; Kurs et al., 2005; Cheng-Fang et al., 2008; Uzenoff et al., 2010). However, it may be useful to examine the prevalence of diminished well-being across the psychosis spectrum, particularly in those with symptoms at the sub-clinical level who lack possible confounds to their well-being such as medication, hospitalisation, and severity of illness. Continuum theories of psychosis (Crow, 1990; Claridge, 1994) posit that it may be considered along a dynamic scale, where schizophrenia and other psychotic disorders are placed at the extreme end, schizotypal personality disorder (SPD) in the intermediate range, and schizotypy at the mild non-psychotic end of the spectrum. Non-clinical individuals high on psychometrically measured schizotypy are found to share many of the social, neurocognitive, and social cognitive impairments of schizophrenia sufferers (Park and McTigue, 1997; Aguirre et al., 2008), though to a lesser extent. Furthermore, schizotypal features as measured by one prominent scale, the Schizotypy Personality Questionnaire (Raine, 1991), have been found to converge into three factors analogous to the three syndromes of schizophrenia (Liddle, 1987) – cognitive-perceptual (positive), interpersonal (negative), and disorganisation (Raine et al., 1994).

The well-being of schizotypal individuals and those with SPD has not been the focus of a great deal of research. However, there are a select number of studies suggesting that these groups do have a lower

quality of life. For example, individuals diagnosed with SPD have been found to have lower objective and subjective well-being compared to controls and other personality disorder groups (Chen et al., 2006; Cramer et al., 2006). Scarce research to date has looked at associations between schizotypy and SWB, though one study has found higher schizotypy predicts lower objective and subjective well-being (Cohen and Davis, 2009). Notably, SWB scores tended to be most strongly associated with the interpersonal factor of schizotypy.

In light of the well-established finding of lower well-being in schizophrenia, and apparent reduction in SPD, we sought to investigate the relationship between schizotypy and well-being in order to determine whether well-being is similarly diminished in psychologically healthy individuals showing mild schizophrenic-like features. The present study was conducted in an attempt to replicate Cohen and Davis' findings using the Personal Well-being Index (International Well-being Group, 2006), a well-validated and extensively used measure of SWB, in an Australian university sample. Accordingly, it was hypothesised that schizotypy scores would be associated with reduced SWB, and furthermore that the interpersonal factor would be more strongly associated with SWB than the other two schizotypal factors.

## 2. Methods

## 2.1. Participants

One hundred and forty-three first-year Deakin University students enrolled in the introductory psychology unit participated in the present study by completing an online questionnaire. Data from three participants younger than 18 or older than 55 were excluded from analyses, as well as the data from one student who had not completed all questionnaire items, leaving a final study sample of 139 participants. The mean age of the sample was 22.0 (S.D. = 7.5) years, and ages ranged from 18 to 54 years. One hundred and eleven (79.3%) participants were females. Ethical approval for this study was obtained from the Deakin University Human Research Ethics Committee.

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## 2.2. Measures

### 2.2.1. Psychometric schizotypy

Schizotypy was assessed with a Likert version of the Schizotypal Personality Questionnaire (SPQ) (Raine, 1991). The scale includes 74 items, which require the respondent to indicate their agreement to a statement or question (e.g., "I prefer to keep to myself", "Do you sometimes feel that people are talking about you?"). For the Likert SPQ used in this study (Wuthrich and Bates, 2005), response options range from 0 (Strongly disagree) to 4 (Strongly agree). The 74 SPQ items produce nine subscales. The SPQ total score was calculated by summing the scores for all 74 items, with a maximum scoring range of 0–296, and had excellent internal reliability (Cronbach's alpha = 0.96). Confirmatory factor analyses (Raine et al., 1994) indicate that the SPQ can be broken down into three factors, each representing a distinct aspect of schizotypal personality: a cognitive-perceptual factor (SPQ-CP; consisting of subscales ideas of reference, odd beliefs and magical thinking, unusual perceptual experiences, and paranoia), an interpersonal factor (SPQ-INT; excessive social anxiety, no close friends, constricted affect, paranoia), and a disorganisation factor (SPQ-DIS; odd and eccentric behaviour, and odd speech). Scores for each of these factors were calculated for each participant. The SPQ has been found to possess good psychometric properties (Raine, 1991; Wuthrich and Bates, 2005).

### 2.2.2. Subjective well-being (SWB)

SWB was assessed using the Personal Well-being Index (PWI) (International Well-being Group, 2006). The PWI consists of eight items requiring respondents to rate their level of satisfaction with regard to specific life domains: standard of living, personal health, personal relationships, personal safety, community-connectedness, future security, spirituality-religion, and what they are achieving in life. Satisfaction for each domain was rated on an 11-point Likert scale ranging from 0 (Completely dissatisfied) to 10 (Completely satisfied). The eight domain scores were then converted into scores out of 100 (i.e., multiplied by 10). The written adult version of the PWI was used, though it was adapted for computerised administration. The PWI score was created by averaging the converted domain scores. The PWI showed good internal reliability in this study (Cronbach's alpha = 0.82), and has been found to possess good reliability and validity (International Wellbeing Group, 2006).

### 2.3. Procedure

An advertisement was placed on Deakin University's first year psychology student website calling for volunteers to complete a survey on personality and wellbeing. Interested students were directed to access an online questionnaire, where they were initially asked to report their age and gender. Subsequently, participants were presented with the online adaptations of the PWI and SPQ-Likert.

### 2.4. Data analysis

Descriptive statistics were calculated for SPQ and PWI scores. The PWI domain 'Satisfaction with standard of living' was found to be negatively skewed and a square root transformation was used to render it approximately normal; this transformed variable was included in the subsequent correlation analysis. Associations between PWI and the eight PWI domains, and the three SPQ factors and total score were examined using Pearson product-moment correlations (two-tailed). Due to the high number of associations examined, statistical significance for these correlation analyses was set at a relatively stringent level of  $P < 0.005$ . In order to determine which of the three SPQ factors were most strongly predictive of PWI and PWI domains, Fisher  $r$  to  $z$  transformations (two-tailed) were used to test for differences in the strength of these associations. Finally, in order to examine the unique contributions of individual schizotypal characteristics to SWB, a multiple regression model was tested with PWI regressed on the nine SPQ subscales simultaneously.

## 3. Results

The mean (standard deviation) SPQ total score was 117.1 (42.8), while means for the cognitive-perceptual, interpersonal, and disorganised factors were 51.0 (21.3), 50.9 (22.5), and 27.9 (12.4), respectively. The mean PWI score was 68.6 (13.9) out of 100, while means for the eight domains ranged from 63.6 to 78.9.

Table 1 presents associations between the PWI and SPQ scores. Significant associations were found between PWI and all four SPQ scores, and between SPQ-total and all PWI domains apart from 'Satisfaction with spirituality or religion'. Furthermore, the vast majority of associations between the SPQ factors and PWI domains were significant. SPQ-CP was not significantly associated with the PWI domains 'Satisfaction with standard of living', 'Satisfaction with health', and 'Satisfaction with what you are achieving in life', and SPQ-DIS was not associated with 'Satisfaction with standard of living' ( $P > 0.005$ ). None of the SPQ factors was significantly associated with 'Satisfaction with spirituality or religion'. All associations were in the negative direction, such that higher SPQ factor scores predicted lower PWI scores.

Fisher  $r$  to  $z$  transformations revealed that SPQ-INT was significantly more strongly associated with PWI than was SPQ-CP ( $P = 0.031$ ). Similarly, the association between SPQ-INT and PWI domain 'Satisfaction with what you are achieving in life' was significantly stronger than between SPQ-CP and this domain ( $P = 0.018$ ). SPQ-INT was also significantly more strongly associated with PWI domain 'Satisfaction with personal relationships' than were either SPQ-CP ( $P = 0.011$ ) and SPQ-DIS ( $P = 0.037$ ). No significant differences were found between SPQ-INT and SPQ-DIS, or SPQ-CP and SPQ-DIS, in terms of their strength of associations with the remaining PWI domains. These findings indicate that schizotypy is associated with lowered SWB and satisfaction with a variety of life domains, and that these relationships are most powerfully driven by the interpersonal deficits found in schizotypy.

A standard multiple regression containing the nine SPQ subscales significantly predicted PWI, explaining 40% of the variance,  $F(9,29) = 9.475$ ,  $P < 0.0005$ . Of the subscales, only three (Ideas of reference, Paranoia, and No close friends) were significantly associated with PWI. The Paranoia ( $\beta = -0.30$ ,  $P = 0.016$ ), and No close friends ( $\beta = -0.38$ ,  $P = 0.010$ ) subscales were negatively associated with PWI, such that being suspicious of others and having few close friends predicted lower SWB. In contrast, Ideas of reference ( $\beta = 0.23$ ,  $P = 0.048$ ) was positively associated with PWI, such that a tendency to have strange ideas of reference predicted higher SWB.

## 4. Discussion

These results provide further evidence that schizotypy is associated with lowered SWB. Diminished SWB appears to be characteristic along the continuum of psychosis, even in individuals reporting subclinical manifestations of schizophrenic-like symptoms and personality features. Consistent with previous research (Cohen and Davis, 2009), the

**Table 1**  
Associations between SPQ and PWI scores.

	PWI	PWI-LIV	PWI-HEA	PWI-ACH	PWI-REL	PWI-SAF	PWI-COM	PWI-SEC	PWI-SPI
SPQ-tot	−0.53**	−0.28*	−0.30**	−0.40**	−0.41**	−0.47**	−0.49**	−0.39**	−0.18
SPQ-CP	−0.38**	−0.19	−0.19	−0.22	−0.25*	−0.37**	−0.37**	−0.33**	−0.15
SPQ-INT	−0.58**	−0.31**	−0.28*	−0.47**	−0.51**	−0.50**	−0.49**	−0.38**	−0.23
SPQ-DIS	−0.42**	−0.19	−0.30**	−0.35**	−0.30**	−0.34**	−0.42**	−0.30**	−0.07

Note: SPQ-tot = SPQ total; SPQ-CP = SPQ Cognitive-perceptual; SPQ-INT = SPQ Interpersonal; SPQ-DIS = SPQ Disorganisation; PWI = PWI score; PWI-LIV = Satisfaction with standard of living; PWI-HEA = Satisfaction with health; PWI-ACH = Satisfaction with what you are achieving in life; PWI-REL = Satisfaction with personal relationships; PWI-SAF = Satisfaction with how safe you feel; PWI-COM = Satisfaction with feeling part of the community; PWI-SEC = Satisfaction with future security; PWI-SPI = Satisfaction with spirituality or religion.

\*  $P < 0.005$ .

\*\*  $P < 0.0005$ .

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