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ORIGINAL ARTICLE

How to tell a happy from an unhappy schizotype: personality factors and mental health outcomes in individuals with psychotic experiences

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Objective: It is unclear why some individuals reporting psychotic experiences have balanced lives while others go on to develop mental health problems. The objective of this study was to test if the personality traits of harm avoidance, self-directedness, and self-transcendence can be used as criteria to differentiate healthy from unhealthy schizotypal individuals.
Methods: We interviewed 115 participants who reported a high frequency of psychotic experiences. The instruments used were the Temperament and Character Inventory (140), Structured Clinical Interview for DSM-IV, and the Oxford-Liverpool Inventory of Feelings and Experiences.
Results: Harm avoidance predicted cognitive disorganization (β = 0.319; t = 2.94), while novelty seeking predicted bipolar disorder (β = 0.136, Exp [β] = 1.146) and impulsive non-conformity (β = 0.322; t = 3.55). Self-directedness predicted an overall decrease in schizotypy, most of all in cognitive disorganization (β = -0.356; t = -2.95) and in impulsive non-conformity (β = -0.313; t = -2.83). Finally, self-transcendence predicted unusual experiences (β = 0.256; t = 2.32).
Conclusion: Personality features are important criteria to distinguish between pathology and mental health in individuals presenting high levels of anomalous experiences (AEs). While self-directedness is a protective factor, both harm avoidance and novelty seeking were predictors of negative mental health outcomes. We suggest that the impact of AEs on mental health is moderated by personality factors.

Keywords: Diagnosis and classification; outpatient psychiatry; personality disorders - cluster A (paranoid-schizoid-schizotypal); psychosis; religion

Introduction

Psychotic experiences are not necessarily pathological[1,2] and some authors suggest they could be better labeled as anomalous experiences (AEs).[3] Researchers and clinicians have looked for new insights that might allow them to understand the occurrence of AEs in the general population, especially in investigating the factors that differentiate a healthy AE from a pathological one.[2] Following other studies,[4,5] we suggest that personality factors can play a key role in these different mental health outcomes, and report how a personality factor predicted mental health in a large sample of individuals reporting high levels of AEs.

Schizotypy

Schizotypy is a personality trait that interacts with risk for psychosis and schizophrenia[6] and can be understood as a multifactorial construct with four core dimensions: 1) unusual experiences (pseudo-hallucinations and odd beliefs); 2) cognitive disorganization (difficulties in attention and social anxiety); 3) introverted anhedonia (schizoid loneliness and lack of affection); and 4) impulsive non-conformity (impulsivity and violence).[7-10]

Previous studies of individuals reporting AEs found that such individuals may experience good mental health, intelligence, and creativity, and, accordingly, have been called "happy schizotypes."[11-15] This has also led to designations such as "benign" or "healthy" schizotypy.[8,11,12] This is especially common when individuals have high levels of unusual experience, but low levels of the other schizotypal factors.[16]

The psychobiological model of temperament and character

One of the most widely used and validated personality models is Cloninger's.[17] His model considers four temperament and three character dimensions. Temperament includes: 1) novelty seeking - a measure of impulsivity, a tendency to activate exploratory activities; 2) harm

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avoidance - a measure of anxiety-proneness, a tendency to avoid aversive stimuli; 3) reward dependence - a measure of warm sociability; and 4) persistence - the tendency to persevere despite frustration.[17,18] Character addresses three key aspects about the development of self-concepts: self-directedness is the intrapersonal aspect, measuring the ability to regulate and adapt behavior in accordance with goals, and is related to self-esteem and ego maturity; cooperativeness is the interpersonal aspect, measuring the ability to accept other people and engage in empathetic and compassionate sociability; and self-transcendence is the capacity for transpersonal identification, which allows a person to be absorbed in something larger than their individual self, and is associated with a vivid imagination and interest in spiritual contemplation.[17,18]

Studies using this model have found that a particular personality structure - high harm avoidance and self-transcendence, and low self-directedness and cooperativeness - underpins schizotypal traits.[5,19] One particular study, which compared schizophrenic patients and first-degree relatives with healthy controls, found that healthy relatives scored higher than the control group in self-directedness and cooperativeness, as a way to cope with their inherited tendency towards schizophrenia. The authors suggest that mature character (high self-directedness and cooperativeness) can be a protective factor against the development of psychopathology.[19]

Other research has shown the role of character development in the differentiation between mental health and illness.[5,17,19-24] Overall, these studies show that low scores in self-directedness and cooperativeness are the most common features of all personality disorders. Moreover, psychotic disorders seem to have the same configuration as found for schizotypal traits.

AEs and spiritism in Brazil

AEs are relatively common amongst religious individuals and spiritual or religious populations, who constitute a privileged non-clinical sample in which the occurrence of psychotic-like experiences can be investigated. In the Brazilian context, practitioners of spiritism is a particularly relevant population for two reasons: first, it incorporates AEs into its beliefs and practices[25]; second, most Brazilian spiritist centers offer spiritual counseling to individuals from the general population reporting AEs or seeking general emotional support.[25-27]

Although previous studies of Brazilian spiritist mediums report normal levels of mental health and social adjustment, they have not investigated how personality structure may differentiate between healthy and unhealthy AEs.[25] We sought to bridge this gap by assessing a sample of individuals who sought help at spiritist centers. Based on the existing literature, we hypothesized that lower harm avoidance and higher self-directedness would predict better mental health outcomes. As measures of mental health, we used the Structured Clinical Interview for DSM-IV (SCID I) and the four factors of schizotypy, assessed with the Oxford-Liverpool Inventory of Feelings and Experiences - Reduced (O-LIFE-R). As far as we are

aware, this is the first study to investigate the relationships between AEs, personality structure, and schizotypy.

Methods

Participants were 115 subjects with a high frequency of AEs who sought help at seven spiritist centers in the city of Juiz de Fora, state of Minas Gerais, Brazil. Five centers, which accounted for 30% of participants, were located near the city center. However, most participants (70%) came from two spiritist centers located in the suburbs. All were individually assessed by two PhD students (a 51-year-old man and a 32-year-old woman) with degrees in Psychology. Participants were interviewed between April and August 2009 and all interviews were standardized. Participants were included in the study because they had been identified by the spiritist counselors as individuals with a particular capacity for mediumship (i.e., were prone to AEs, in the religious context). To prevent social adjustment bias, we excluded individuals who were formal members of these centers. Sample size was based on the population of people who seek help at spiritist centers in the city where the study was conducted.

The study was accepted by the Universidade Federal de Juiz de Fora Ethics Committee, and all participants signed an agreement form which explained important issues of the study and guaranteed their rights and the confidentiality of their data.

Instruments

Temperament and Character Inventory-reduced (TCI-R) (140)

The TCI-R is rated on a Likert scale ranging from 1 to 5 (1 = definitely false; 5 = definitely true). We used the validated Portuguese version of the instrument (240).[28]

O-LIFE-R[10,29]

This scale measures schizotypy and consists of 40 items. We developed a Portuguese translation, which was back-translated and checked for inconsistencies, for use in this study.

SCID I[30,31]

This questionnaire examines for the presence of DSM-IV Axis I disorders. We used a previously validated Portuguese version.[30]

Sociodemographic data (age, gender, educational level, occupation, marital status, religion) were collected.

Sample size

According to information obtained from the Associação Municipal Espírita (Municipal Spiritualist Association), spiritist centers in Juiz de Fora attend to an average of 150 individuals weekly, which represents a population of 7,800 individuals per year. Considering that 20% of these usually have psychotic dissociative experiences to some degree, a population of about 1,560 individuals was defined (the total number of cases estimated for a 1-year period).

Based on this number, we used a finite size formula to calculate the sample size. For an n=1, 560 cases, by adopting z equal to 95% and a defined error (e) equal to 10% with p equal to 0.5, a sample size of 95 cases was obtained. Accounting for potential loss of 30% of the sample, we sought to recruit approximately 120 individuals.

Statistical analysis

Data were collected and entered into an SPSS file (version 17.0). SCID-I disorders were pooled into the following categories: any disorder (any SCID-I diagnosis), any anxious disorder (any of the following: generalized anxiety disorder, panic disorder, specific phobia disorder, social phobia disorder, obsessive compulsive disorder), depressive disorders, bipolar disorder, and psychotic disorder.

All variables were normally distributed apart from O-LIFE-R dimensions, which were positively skewed. A nonparametric test (Spearman) was used to obtain correlational coefficients between all variables. Logistic and linear regression analyses, controlling for gender and age, were conducted to obtain statistical predictors (TCI-R) of more or less presence of mental disorders (SCID-I) and schizotypy (O-LIFE).

Results

The mean age of the sample was 36.8±12.5 years. Most participants were female (70.4%), and employed (58.2%) (Table 1). Almost half were married (44.3%), and more than half had a university degree (55.3%). Most of the sample was religiously affiliated with spiritism (58.9%), followed by Roman Catholicism (20%), Afro-Brazilian religions (Umbanda, 7.6%), and no religion (3.5%).

There was a high prevalence of AEs: visual hallucinations (63%), auditory hallucinations (53.9%), anomalous perceptions (53%), anomalous dreams (i.e., premonitory dreams, meeting ancestors etc.) (37.4%), out of body experiences (31.4%), premonitions (20.9%), possession (19.1%), and telepathy (6.1%). Detailed phenomenological descriptions are available elsewhere.[27]

Overall, 85% of subjects were diagnosed as having a mental disorder, but the most common diagnoses were anxiety disorders (73%). The most common specific diagnoses were generalized anxiety disorder (55%) and current major depressive disorder (28%). Seven percent of the sample was diagnosed with a psychotic disorder. The majority of individuals had two concurrent diagnoses (41%). Half of participants (53%) had received previous psychological and/or psychiatric treatment, and 53% used psychiatric medication currently and/or had done so in the past.

Table 2 presents bivariate correlations between all variables. Novelty seeking correlated positively with bipolar disorder and three schizotypy dimensions (unusual experiences, cognitive disorganization, and impulsive non-conformity). Harm avoidance was positively associated with the presence of any mental disorder, anxiety disorders, and with schizotypal cognitive disorganization. On the other hand, self-directedness and persistence

Table 1 Descriptive statistics and occurrence of mental disorders in the sample (n=115)

Age, mean (standard deviation)	36.8 (12.5)
Gender	
Male	30.6
Female	70.4
Education (years)	
8	9.6
12	35.7
17	39.1
19	16.2
Employed	58.7
Married	44.3
Religious affiliation	
Spiritism	58.9
Catholicism	20
Afro-Brazilian religions	7.6
No religion	3.5
Anomalous experiences	
Visual hallucinations	63
Auditory hallucinations	53
Anomalous dreams	37.4
Out-of-body experiences	31.4
Precognitions	20.9
Loss of energy	20
Possession	19.1
Telepathy	6.1
Mental disorders	
Any mental disorder	85
Any anxiety disorder	73
Generalized anxiety disorder	55
Panic disorder	26
Specific phobia disorder	25
Social phobia disorder	17
Obsessive compulsive disorder	11
Depressive disorder	28
Bipolar disorder	10
Psychotic disorder	7
Substance related disorder	5
Dysthymic disorder	4
Previous psychological and/or psychiatric treatment	53
Current or past psychopharmacotherapy	53

Data presented as %, unless otherwise specified.

correlated negatively with anxiety disorders. Furthermore, self-directedness and cooperativeness also correlated negatively with all schizotypal dimensions. Self-transcendence was not significantly associated with mental disorder and only presented an association with unusual experiences.

To further explore how personality structure predicted mental disorders, we performed logistic regressions (Table 3). We found that novelty seeking predicted bipolar disorder and persistence predicted depression disorder. No other personality dimensions significantly predicted mental disorder as measured by the SCID-I.

To explore how personality could predict components of schizotypy, we performed linear regressions controlling for age and gender (Table 4). Novelty seeking predicted impulsive non-conformity, and harm avoidance predicted cognitive disorganization. Overall, the most powerful indicator of mental health was self-directedness, which

Table 2 Spearman correlation coefficients between scales, age, and gender (n=115)

	Male gender	Age	AMD	DD	BD	PD	AD	NS	HA	RD	P	SD	C	ST	UE	CD	IA	IN
Male gender																		
Age	0.00																	
Any mental disorder	-0.21*	-0.11																
Depressive disorder	-0.09	0.04	0.16															
Bipolar disorder	-0.03	-0.03	0.14	0.02														
Psychotic disorder	0.19*	0.19*	0.11	-0.05	-0.09													
Any anxiety disorder	-0.33†	-0.29*	0.68†	0.13	-0.11	-0.21*												
Novelty seeking	-0.02	-0.25†	0.10	0.10	0.33†	0.01	0.03											
Harm avoidance	-0.20*	-0.27†	0.29†	0.13	0.10	-0.05	0.36†	0.11										
Reward dependence	-0.16	-0.21*	0.09	0.17	0.13	-0.15	0.10	0.14	0.02									
Persistence	0.11	0.30†	-0.06	0.12	0.00	0.01	-0.26†	-0.10	-0.45†	-0.01								
Self-directedness	0.02	0.16	-0.23*	-0.15	-0.15	0.02	-0.26†	-0.41†	-0.53†	0.06	0.31†							
Cooperativeness	-0.06	-0.02	-0.09	0.05	-0.09	-0.06	-0.11	-0.26†	-0.26†	0.48†	0.13	0.51†						
Self-transcendence	-0.01	0.08	0.13	-0.05	0.21*	0.08	0.01	0.32†	-0.11	0.27†	0.41†	-0.07	0.17					
Unusual experiences	-0.02	-0.04	0.18*	0.11	0.15	0.02	0.25†	0.29†	0.23*	0.01	0.02	-0.40†	-0.31†	0.34†				
Cognitive disorganization	-0.14	-0.17	0.27†	0.11	0.10	-0.14	0.35†	0.25†	0.51†	0.01	-0.19*	-0.55†	-0.32†	0.06	0.47†			
Introverted anhedonia	0.09	-0.04	0.12	-0.01	-0.11	0.22*	0.03	0.10	0.21*	-0.29†	-0.23†	-0.38†	-0.34†	-0.01	0.18	0.17		
Impulsive non-conformity	-0.08	-0.15	0.31†	0.10	0.27†	-0.07	0.31†	0.49†	0.23†	-0.07	-0.12	-0.54†	-0.46†	0.11	0.52†	0.51†	0.20*	

AD = anxiety disorder; AMD = any mental disorder; BD = bipolar disorder; C = cooperativeness; CD = cognitive disorganization; DD = depressive disorder; HA = harm avoidance; IA = introverted anhedonia; IN = impulsive non-conformity; NS = novelty seeking; P = persistence; PD = psychotic disorder; RD = reward dependence; SD = self-directedness; ST = self-transcendence; UE = unusual experience.
* p < 0.05; † p < 0.01.

negatively predicted all schizotypal dimensions. Self-transcendence was a predictor of unusual experiences, but did not correlate with the other schizotypal factors. On the other hand, cooperativeness negatively predicted impulsive non-conformity.

Discussion

The main aim of this study was to examine if personality structure would allow us to differentiate between positive and negative mental health in individuals reporting AEs. Our hypotheses were only partially confirmed. First, we found high levels of mental disorders and psychotic experiences. However, in a sample reporting 63% of visual hallucinations and 53% of auditory hallucinations, we would expect more than 7% to have psychotic disorders. Despite the high rate of AE, anxiety and depression were more prevalent than psychotic or bipolar diagnoses. Moreover, the majority of the sample comprised individuals who were married, employed, and well-educated, suggesting social adjustment and less cognitive impairment. We hypothesize that people with AE are part of a mixed group in which one can find psychotic and non-psychotic diagnoses. This is in line with the so-called continuum of psychosis.[32,33] People with AEs and without psychotic disorder may be distressed (anxious and/or depressed) and should seek help in mental health programs. Further studies can explore these relationships and their implications to public health.

As predicted, harm avoidance correlated with the presence of mental disorders, although it was only a predictor of schizotypal cognitive disorganization. Nevertheless, this still shows that a strong disposition toward pessimistic anticipation and fear of uncertainty is likely to generate difficulties in decision-making and social anxiety among individuals with AEs. An unexpected result was the correlation between novelty seeking and poor mental health. Prior studies have shown an association between novelty seeking and bipolar disorders,[34,35] but ours is the first to note an association with impulsive non-conformity. Further studies of the relationship between psychosis and affective disorders may be warranted.

Reward dependence was a strong predictor of less introverted anhedonia. As reward dependence seams to measure the exact opposite of introverted anhedonia, this correlation was expected. However, it is important to note the heritable path of reward dependence development and its impact on the tendency to schizotypal loneliness.[17,18] Conversely, persistence as a predictor of depressive disorder was an unexpected result. We could not find any studies reporting similar associations; rather, the opposite was reported.[36] Nevertheless, Cloninger et. al.[36] hypothesizes that high persistence could lead to compulsive self-doubt and harsh judgments of oneself and others. In this line, a prospective study found strong positive associations between perfectionism and suicide ideation in patients hospitalized for depression.[37]

Table 3 Logistic regressions between personality traits and mental disorders

	Any disorder	Depressive	Anxiety	Bipolar	Psychotic
Age	-0.017 (0.983)	0.006 (1.00)	-0.032 (0.968)	0.022 (1.02)	0.049 (1.05)
Male gender	-1.19 (0.302)	-0.399 (0.671)	-1.67 (0.187)	0.626 (1.87)	1.85 (6.45)
NS	-0.032 (0.969)	0.024 (1.024)	-0.066 (0.936)	0.136[†] (1.146)	0.010 (1.010)
HA	0.055 (1.057)	0.022 (1.022)	0.041 (1.041)	0.035 (1.035)	-0.007 (0.993)
RD	0.036 (1.036)	0.035 (1.036)	0.020 (1.020)	0.048 (1.049)	-0.007 (0.926)
P	0.009 (1.009)	0.051* (1.053)	-0.030 (0.970)	-0.012 (0.988)	-0.092 (0.912)
SD	-0.026 (0.974)	-0.045 (0.956)	-0.039 (0.962)	0.038 (1.039)	0.057 (1.059)
C	-0.058 (0.944)	0.021 (1.021)	-0.032 (0.968)	-0.024 (0.977)	-0.002 (0.998)
ST	0.059 (1.067)	-0.019 (0.982)	0.053 (1.055)	0.066 (1.068)	0.096 (1.101)

Data presented as β (Exp [β]).
Temperament and Character Inventory-reduced variables as predictors and Structured Clinical Interview for DSM-IV diagnoses as outcomes.
C = cooperativeness; HA = harm avoidance; NS = novelty seeking; P = persistence; RD = reward dependence; SD = self-directedness;
ST = self-transcendence.
* $p < 0.05$; [†] $p < 0.01$.

Table 4 Linear regressions between personality and schizotypy

	UEs	CD	IA	IN
Age	-0.026 (-0.260)	-0.014 (-0.157)	-0.079 (-0.854)	0.011 (0.134)
Male gender	0.024 (0.269)	0.058 (0.735)	-0.036 (-0.435)	0.036 (0.494)
NS	0.022 (0.197)	0.038 (0.388)	-0.105 (-1.008)	0.322[†] (3.55)
HA	0.058 (0.478)	0.319[†] (2.94)	-0.049 (-0.433)	0.000 (0.001)
RD	0.042 (0.370)	0.024 (0.237)	-0.403[†] (-3.76)	0.0.93 (0.998)
P	0.079 (0.709)	0.090 (0.893)	-0.180 (-1.70)	0.040 (0.434)
SD	-0.291* (-2.17)	-0.356[†] (-2.95)	-0.288* (-2.27)	-0.313[†] (-2.83)
C	-0.178 (-1.40)	-0.098 (-0.855)	-0.062 (-0.517)	-0.317[†] (-3.02)
ST	0.256[†] (2.32)	0.058 (0.581)	0.114 (1.09)	-0.032 (-0.354)

Data presented as β and (t).
Temperament and Character Inventory-reduced variables as predictors and Oxford-Liverpool Inventory of Feelings and Experiences variables as outcomes.
C = cooperativeness; CD = cognitive disorganization; HA = harm avoidance; IA = introverted anhedonia; IN = impulsive non-conformity;
NS = novelty seeking; P = persistence; RD = reward dependence; SD = self-directedness; ST = self-transcendence; UE = unusual experiences.
* $p < 0.05$; [†] $p < 0.01$.

Even though self-directedness did not predict any SCID outcomes, it was negatively correlated with anxiety disorders and a negative predictor of all schizotypal dimensions. This suggests that ego strength and maturity is a powerful personality factor in preventing negative perceptions of AEs and subsequent development of full-blown psychosis. In this line, a recent study compared individuals from the general population presenting with psychotic experiences vs. patients with schizophrenia and controls.[38] Participants in the "non-clinical and without a need for care" group, who in this sample were from many spiritualist groups from the United Kingdom, differed from the patient group mostly by exhibiting self-esteem, healthy schemas, and wellbeing. These findings are in line with the core hypothesis and outcomes of the present study, and support integrative models of environmental and psychological features.[38] Finally, in another study, self-directedness was also shown to protect the siblings of individuals with schizophrenia from developing psychosis.[39]

We also found a negative association between cooperativeness and all schizotypal dimensions. In addition, cooperativeness negatively predicted impulsive non-conformity, which suggests that the greater one's level of sociability and empathy, the less likely one is to show impulsivity and aggression.

The final personality dimension we expected to play a key role in the occurrence of mental disorders was self-transcendence. However, it was only shown to predict schizotypal unusual experiences. Studies have shown that low cooperativeness and the combination of high self-transcendence with low self-directedness are strong predictors of schizotypy.[5,22-24] Our findings support the view that the relationship between self-transcendence and mental illness depends on its association with other dimensions of personality.

When self-transcendence is associated with high self-directedness and cooperativeness, individuals tend to be imaginative, unconventional, and spiritual without mental illness. Such people can be described as happy eccentrics or "happy schizotypes" (high only in unusual experiences). However, if self-directedness is low and self-transcendence is high, the individual is much more likely to be psychosis-prone because of magical thinking or poor reality testing (high in unusual experiences, but also in cognitive disorganization, anhedonia, and impulsivity). With such a disposition towards mental illness, these persons could be described as "unhappy schizotypes."

Finally, despite the limitations inherent to a cross-sectional design and the multiple correlation coefficients, our results suggest that personality features are important criteria to distinguish between pathology and mental health in individuals with AEs. While reward dependence, cooperativeness, and, especially, self-directedness are protective factors, harm avoidance, novelty seeking, and

persistence were predictors of negative mental health outcomes. Cloninger et al.[4] have demonstrated the multiple interactions between temperament and character. The authors state that Cloninger's model cannot be understood in pieces of dimensions, but rather in different patterns of complex combinations between these dimensions. Therefore, we could hypothesize that a person high in harm avoidance but also high in self-directedness would be more anxious or depressed, but less expected to develop a psychotic disorder, and so on. We suggest that the impact of AEs on mental health is moderated by personality factors.

This study sought to go beyond a mere description of experiences and categories, avoiding perpetuation of fallacies between psychopathology and health because of similarities in superficial characteristics. For this reason, a thorough assessment of healthy personality traits can provide a more meaningful assessment of mental health than the mere presence of AEs. Moreover, in line with other studies, this investigation was conducted in an effort to destigmatize spiritual ideas and experiences.[25,38,40] Finally, prospective and transcultural studies are needed to further develop and extend our understanding of AEs, particularly regarding the phenomenology and incidence of mental disorders. Further studies should address how personality structure can moderate mental health outcomes in individuals reporting high levels of AEs.

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Disclosure

The authors report no conflicts of interest.

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