



## Research article

## Pathogenic beliefs among patients with schizotypal personality disorder



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## ABSTRACT

This study aimed to explore the differences in pathogenic beliefs (PBs) between patients with schizotypal personality disorder (PD) and those with other PDs or without any PD. The study was conducted among 212 patients treated with psychotherapy at the Psychotherapy and Personality Disorder Clinic, Chiang Mai University between 2007 and 2019. Collected data included sociodemographic information, psychiatric disorders and personality disorder as determined by the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition, and the Pathogenic Belief Scale (PBS). An analysis was conducted to compare three groups, i.e., patients with schizotypal PD, patients with other PDs and patients without any PD. The PBS score was compared by two outcomes: a total score and a categorical score of individual items. The entire sample was predominantly female (62.3%) with a mean age of 31.41 years. Most participants had a bachelor's degree (76.9%), lived alone (72.6%) and received diagnoses of major depressive disorder (45.8%). No significant differences were found in participants' characteristics regarding age, sex, educational level, marital status and psychiatric clinical diagnosis among the three groups. The mean PBS total score was highest for schizotypal PD (mean = 58.74, SD = 11.54), compared with non-schizotypal PD (mean = 46.14, SD = 13.15) and non-PD (mean = 46.07, SD = 11.17). Twenty of 27 items were significantly higher in the schizotypal PD group than in other groups, after adjusting for type I error. The number of PBs was significantly prominent for schizotypal PD. Possible explanations were provided.

## 1. Introduction

Personality disorders (PDs) occur in approximately 9% of the general population (Gawda and Czubak, 2017) and are comorbid with a wide range of clinical psychiatric disorders (Lenzenweger et al., 2007). Individuals with PDs typically suffer from interpersonal problems, insecure attachment, perceived stress, depression, anxiety, and somatization (Berry et al., 2006; Candrian et al., 2008; Neelapaijit, T Wongpakaran, Wongpakaran and Thongpibul, 2017).

Schizotypal PD is diagnosed on the basis of irregularities in a patient's thinking, behaviour, and appearance. People with schizotypal PD have a number of unusual tendencies and experiences (APA, 2013). Peculiar notions, magical thinking, ideas of reference, illusions, and derealization are often part of a schizotypal person's life experiences. Individuals with schizotypal PD in particular regularly employ defences that distort reality, such as magical thinking, fantasy, overvalued ideas, and extreme distortions (Bowins, 2010).

Interestingly, schizotypal PD in a cluster is found less frequently in clinical settings compared to cluster B (e.g., borderline, narcissistic, and antisocial PDs). Schizotypal PD accounts for about 3% of all PD prevalence (Hueston et al., 1999). Clinical encounters with individuals with schizotypal PD can be difficult to treat. Many clinicians place schizotypal PD on the schizophrenic spectrum, implying that neurobiological vulnerability and biological treatment attract more attention (Debbané and Barrantes-Vidal, 2015). Although some antipsychotics seem to benefit these individuals (Jakobsen et al., 2017), most studies focus on treating psychiatric symptoms related to schizotypal PD – not abating the personality features per se. Studies show that some symptoms are reduced through administration of antipsychotics such as risperidone, amisulpride, and thiothixene (Jakobsen et al., 2017; Koenigsberg et al., 2003). Although positive and negative symptoms were reduced in schizotypal PD, no differences were found in the use of these antipsychotics for schizotypal features. Based on a review, the efficacy of psychotherapy as well as other forms of therapy such as art therapy, body

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awareness, and occupational therapy are unclear based on the design features of many existing studies (Kirchner et al. (2018)). On the contrary, a study using combined treatments consisting of individual or group psychotherapy sessions of various theoretical orientations (e.g., eclectic, psychodynamic, cognitive-behavioral), including day hospital and inpatient programs, show improvement in schizotypal PD (Bartak et al., 2011).

Psychodynamic psychotherapy remains the essential model when treating this type of patient. In traditional psychotherapy, Freud conceived of the unconscious as partially comprised of primitive libidinal and aggressive wishes, fantasies, and instincts (De Masi, 2000). Alternative methods using an integrated psychodynamic framework have reported successes in treating patients with schizotypal PD. For example, a modern structural theory approach accounts for the ways emotional deficits, conflicts, and defenses give rise to the symptoms of schizotypal PD (Druck, 2011). Modern structural theory is a comprehensive psychodynamic model that integrates a variety of psychoanalytic schools including modern conflict theory, ego psychology, object relations, and self-psychology (Druck, 1998) (Druck, 1998). By applying this approach, a therapist's neutral stance can help manage bizarre countertransference, reduce a patient's ego-boundary confusion, and prevent overwhelming the ego (Ridenour, 2016).

Like modern structural theory, one psychodynamically oriented approach having its origins in Freud's later theories is known as control-mastery therapy (Weiss, 1993). It is an integrated cognitive-dynamic and relational approach focusing on unconscious beliefs instead of sexual and aggressive drives. Control-mastery theory states that early adverse experiences are internalized as conscious or unconscious beliefs (Silberschatz, 2005). For example, a person who was brought up by abusive parents acquires a belief that he or she was defective and deserves mistreatment, leading them toward forming and maintaining abusive relationships (Weiss, 1995). These emotion-laden, powerful, and painful convictions about self and others that cause severe emotional distress are referred to as "pathogenic beliefs (PBs)" (Silberschatz, 2005).

According to psychodynamic perspectives and an extensive review, PBs or cognitive factors develop in early life due to childhood trauma and are subsequently related to psychopathology (Doorn et al., 2019). Similar models to PB in control-mastery are evident in the concept of "internalized working models" from Bowlby's attachment theory (Bowlby, 1969), "core beliefs" in Beck's cognitive behavioural therapy (Beck, 1983), and "schemas" in Young's schema therapy (Martin and Young, 2010).

In a large body of empirical research about attachment theory, studies support the theoretical connection between attachment insecurity and personality pathology. However, these associations are limited more to borderline and antisocial PDs rather than other PDs (Levy et al., 2005). However, the relationships between specific PDs and attachment patterns are still less clear. Likewise, the relationships between specific PDs and PBs are underinvestigated. In addition to their relationships with personality pathology, PBs are related to psychopathology and psychiatric disorders such as agoraphobia (Shilkret, 2002), major depressive disorders (Neelapajit et al., 2017), nightmare disorder (Wongpakaran et al., 2014), low self-esteem, pessimistic attitudes, and emotional instability (Silberschatz and Doorn, 2017). In addition, PBs are significantly correlated with the submissive or hostile quadrant of interpersonal communication, which reflects a negative sense of self and disappointment in one's ability to relate to others (Neelapajit et al., 2018).

Despite the limitations of previous studies, control-mastery therapy has been shown to be useful in treating schizoid PD (Wongpakaran, 2008) and is likely beneficial for schizotypal PD patients because interpersonal features serve as the primary intervention target (Zhang et al., 2019). Control-mastery therapy uses PBs as the main outcome to be removed or minimized. This poses the question as to whether patients with schizotypal PD have different PBs from other PDs or not, and what nature of PBs among these patients would be like.

To the best of our knowledge, PBs among individuals with schizotypal PD, including in comparison with other PDs, have never been reported.

We hypothesize that those with schizotypal PD should have more PBs than other groups based on the low level of personality functioning of schizotypal PD. In addition, they have alterations in neurocognitive task performance and underlying brain functioning, both of which makes coping difficult in challenging environments (Ettinger et al., 2014). Thus, this study aimed to explore the differences in the prevalence of PBs among patients with schizotypal PD, other PDs, and those without any PD.

## 2. Materials and methods

This study employed a retrospective cross-sectional design. It was approved by the Institutional Review Board (IRB) of the Faculty of Medicine, Chiang Mai University.

### 2.1. Patients and procedure

The study included 212 patients who received psychotherapy at the Psychotherapy and Personality Disorder Clinic and Education Center at Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, Chiang Mai University between 2007 and 2019. All patients signed written informed consent and completed both the Structured Clinical Interview for DSM-IV Axis II Disorders Questionnaire (SCID-II PQ) and the pathogenic belief scale in pre-treatment assessment. All patients were assessed and completed the questionnaires at the beginning of therapy.

Inclusion criteria comprised being over 18 years of age and having received a diagnosis of psychiatric disorder (Axis I) by a psychiatrist when registered for psychotherapy at the clinic. Psychiatric disorders and PDs were diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition (DSM-5) (APA, 2013) and SCID-II PQ (Wongpakaran et al., 2012).

### 2.2. Measurements

#### 2.2.1. The Structured Clinical Interview for DSM-IV axis II disorders (SCID-II)

SCID-II was developed by First and colleagues (First et al., 1997). It is used to evaluate 12 personality types: paranoid PD, schizoid PD, schizotypal PD, narcissistic PD, histrionic PD, antisocial PD, borderline PD, dependent PD, avoidant PD, obsessive-compulsive PD, passive-aggressive PD and depressive PD. This study used the and translated and validated Thai version (Wongpakaran et al., 2012). The overall inter-rater reliability of SCID-II was good across all studies. The Thai version had Kappa values (for the diagnosis of each personality disorder) between the first and second raters ranging from 0.70 to 0.90 with a mean of 0.81 for all the personality disorders. These metrics indicate excellent reliability. The mean trait intraclass correlation coefficient (ICC) was 0.90 and the summed score was 0.83. For schizotypal PD, there was 100% agreement between raters—the ICC was 0.80 and 0.84 for the trait score and sum scores, respectively (Wongpakaran et al., 2012).

#### 2.2.2. Pathogenic belief scale (PBS)

The PBS was developed by the San Francisco Psychotherapy Research Group (SFPRG) (Curtis et al., 1994). The PBS was originally intended to be used by therapists to assess a patient's PBs according to control mastery theory (Silberschatz and Doorn, 2017). The Thai version was adapted by Wongpakaran (Neelapajit et al., 2017). It is self-rated, consisting of 54 statements (items), each statement having three possible responses: 'no' (1), 'uncertain' (2) and 'yes' (3). The PBS asks the respondents to rate whether they agree with each statement. In terms of psychometric properties, the PBS showed an excellent internal consistency, with a Cronbach's alpha coefficient of 0.92 (Silberschatz and Doorn, 2017), and being demonstrated as a unidimensional model (Neelapajit et al., 2017). However, in the present study, the short version of PBS (PBS-27), meeting the criteria of the Rasch measurement model, i.e., no misfitting items, no local dependence, unidimensionality, and

substantial person and item reliability (both greater than 0.80), were used for analysis (Wongpakaran et al., 2012).

### 2.3. Statistical analysis

Sociodemographic data (for example, sex, age, education level and marital status), clinical psychiatric disorders and PBS total scores were presented using descriptive data. The differences in PBS total scores among the three groups were evaluated using either the ANOVA F-test or the Kruskal-Wallis test, as appropriate, while 27 individual categorical items of PBS among the three groups were analysed using the Kruskal-Wallis test. The Bonferroni correction was applied for multiple comparisons among groups for each individual item.

### 3. Results

The characteristics of all 212 participants are shown in Table 1. The mean age of the participants in the schizotypal PD, non-schizotypal PD, and non-PD groups was  $28.67 \pm 12.67$  years,  $34.86 \pm 15.67$  years, and  $30.71 \pm 13.89$  years, respectively. The majority of participants in all three groups were female: 70.40% in the schizotypal PD group, 63.30% in the non-schizotypal PD group, and 60.3% in the non-PD group. The majority in all three groups had obtained a bachelor's degree (76.9%) and lived alone (72.6%). No significant differences were found among the three groups regarding demographic data or Axis I clinical disorders (all  $p > 0.05$ ) (see Table 2).

Table 3 (Appendix) shows data analysed by a non-parametric procedure (i.e., a Kruskal-Wallis test), followed by a Bonferroni test to adjust for pairwise comparisons. Twenty items had a significant difference among groups ( $ps < 0.05$ ). We also compared the subgroups on each item. The data in the schizotypal PD group showed significantly higher on most of the items compared to others?

### 4. Discussion

To the best of our knowledge, this is the first study to compare PBs among schizotypal PD patients, nonschizotypal PD patients, and non-PD patients. As hypothesized, individuals with schizotypal PD had more PBs

than those with nonschizotypal PD and those without PD. Interestingly, no significant differences were found between individuals with non-schizotypal PDs and those without a PD. This may be because the non-schizotypal PD group consists of a mixture of PD clusters. We believe that PBs are related to severe personality disorders such as schizotypal, borderline, and antisocial PDs while the remaining 9 PDs may not significantly differ in PBs compared to non-PD patients. Another explanation could be that PB is closely related to the severity of psychopathology such as mood or anxiety disorders rather than Axis II personality disorders, which were not measured in this study. Those without PDs may have a more severe psychopathology of Axis I disorders even though they did not have PDs. This possibility can be the subject for further investigation.

These findings suggest that it would take time for therapy to alleviate this long list of PBs. Limited cognitive ability, paired with a number of PBs, could be the reason why individuals with schizotypal PD require longer treatment.

From a psychodynamic perspective, the beliefs of individuals with schizotypal PD relate to the primary thinking process and the use of primitive defences that compromise reality testing (Druck, 1998; Jeremy, 2016). Berman and McCann (1995) found that schizotypal individuals often use projection and turn against the self to defend against unwanted feelings and wishes. This is illustrated in the belief that 'others will hurt, abuse, humiliate, cheat, or manipulate me'. The beliefs that 'I am weak, helpless, and vulnerable to exploitation or trauma' and 'others are superior or more competent than I am' may point to an ego deficit leading to a low sense of mastery, depressiveness, and poor self-esteem (Debbané and Barrantes-Vidal, 2015). The belief that 'I am different from other people, isolated from the rest of the world and/or not part of any group or community' may reflect psychotic reactions, oddness, and magical thinking among schizotypal PD patients. Using immature defences such as overvalued ideas, magical thinking, fantasy involvement, and extreme distortions (Bowins, 2010) could lead to more problems in social encounters and the development of more PBs in later life. However, for some PBs it may be difficult to identify what specific problems or conflicts they may be related to.

Another issue is whether the belief that 'it is dangerous to express loving feelings' is culturally constructed. In Asian cultures, individuals

Table 1. Participants' characteristics (N = 212).

Variables	N (%)	Test difference	P-value
Sex, %Female	132 (62.3)	$\chi^2$ (df,2) = 1.001	0.606
Education level			
Elementary	7 (3.3)	$\chi^2$ (df,6) = 5.188	0.520
High school	16 (7.5)		
Bachelor	163 (76.9)		
Master or higher	26 (12.3)		
Marital status			
Live alone	154 (72.6)	$\chi^2$ (df,2) = 4.227	0.121
Live with others	58 (27.4)		
Personality disorder			
Schizotypal PD	27 (12.74)		
Non-schizotypal PD	49 (23.11)		
Non-PD	136 (64.15)		
Axis I clinical disorder			
Major depressive disorder	97 (45.8)	$\chi^2$ (df,14) = 15.703	0.332
Persistent depressive disorder (dysthymia)	28 (13.2)		
Mixed anxiety and depressive disorders	17 (8.0)		
Adjustment disorder	20 (9.4)		
Bipolar disorder	15 (7.1)		
Generalized anxiety disorder	9 (4.2)		
Panic disorder	7 (3.3)		
Others	19 (9.0)		

**Table 2.** Comparison of PBs total score among groups (N = 212).

	Mean	SD	95% Confidence Interval for Mean		F	P-value	Post-hoc analysis
			Lower Bound	Upper Bound			
Schizotypal PD (N = 27)	58.74	11.46	54.21	63.27	13.805	<0.001	Schizotypal PD > non-PD***
Non-schizotypal PD (N = 49)	46.14	13.16	42.36	49.92			Schizotypal PD > Non-schizotypal PD***
Non-PD (N = 136)	46.07	11.17	46.07	11.17			

Notes: \*\*\*Adjusted P-value < .001 using Bonferroni correction for multiple test, PB: pathogenic belief, PD: personality disorder, SD: standard deviation.

accept humility and prefer not to express opinions or provide straightforward responses. Suppression is less harmful in an interdependent culture and, in fact, can aid individuals in an interdependent culture (Ford and Mauss, 2015; Intachakra, 2012). This item was more prominent in the schizotypal PD group.

One study showed that patients with schizotypal or borderline PDs experienced mood disorders (Baryshnikov et al., 2016). The cognitive-perceptual distortions and affective symptoms of borderline PD appear to overlap with disorganized and cognitive-perceptual symptoms of schizotypal PD; symptoms of depression and anxiety may also aggravate PBs (Neelapajit et al., 2017).

Despite the fact that patients with schizotypal PD suffer from social deficits and cognitive-perceptual disturbances, individuals with schizotypal personality traits are not as impaired in executive functions as schizophrenic individuals are (Zou et al., 2014). On the other hand, people with these traits are more likely to have an experience with childhood trauma than normal people (Velikonja et al., 2019). Therefore, they could experience PBs just as others do. Theoretically, PBs develop in early life (Dorpat and Miller, 1992; Weiss, 2002). However, PBs may not be directly related to specific PDs. New PBs can develop subsequently as part of the problems encountered in interpersonal learning, combined with poor cognitive-perceptual distortions. This makes patients likely to misinterpret others' motives in a negative way, resulting in more PBs. In sum, PBs in schizotypal PD could be attributable to both intrapsychic conflict and interpersonal conflict related to poor cognitive-perceptual functioning.

## 5. Limitations

Each PD in the non-schizotypal group were not differentiated from each other, and hence this group was mixed and non-homogenous for the purpose of comparison. PBs may vary across PDs in the non-schizotypal PD group. Further study specifically on borderline PD should be conducted. In addition, this study did not measure severity of clinical disorder/symptom as well as severity of personality disorder. Thus, the impact of PBs on severity of clinical disorder and personality disorder could not be captured. This should be further conducted.

## 6. Conclusion

PBs were more common in the schizotypal PD group than in the other groups, reflecting more severe personality functioning. PBs found in patients with schizotypal PD may serve as a guide for therapists to work with patients to improve their quality of life by disconfirming their PBs, rather than overlooking them and taking for granted that such beliefs are part of a broader set of cognitive-perceptual distortions.

## Declarations

### Author contribution statement

N. Pattamanusorn and T. Wongpakaran: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

N. Wongpakaran and K. Thongpibul: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

P. Kuntawong: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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### Competing interest statement

The authors declare no conflict of interest.

### Additional information

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