# Spiritual Emergence(y), Psychosis, and Personality: Investigating the Role of Schizotypy

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# Spiritual Emergence(y), Psychosis, and Personality: Investigating the Role of Schizotypy

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Spiritual emergency (SEY) refers to a process of spiritual emergence (SE) or awakening that becomes traumatic for an individual, leading to a state of psychological crisis. There is evidence that SE(Y) is associated with both psychotic symptomatology and personality traits. This study examined the relationship between SE(Y), psychotic symptoms, and schizotypy, a construct that addresses psychotic-like personality traits in the general population. A total of 250 participants completed an anonymous online questionnaire. Results showed that SE(Y) was positively correlated with positive symptoms of psychosis and schizotypy, but demonstrated only very weak to no correlations with negative symptoms of psychosis and schizotypy. The results also showed that disorganized schizotypy mediated the relationship between positive schizotypy and crisis; and positive schizotypy mediated the relationship between disorganized schizotypy and crisis. The clinical implications of these results include the identification of measurable clinical and personality markers that may help: (1) differentiate between SE(Y) and cases of clinical psychosis that have a poor prognosis, and (2) identify individuals who are at risk of experiencing the potentially debilitating effects of SE(Y).

**Keywords:** *spiritual emergence, spiritual emergency, psychosis, personality, schizotypy*

Spiritual emergency (SEY) has been described as a process of spiritual emergence (SE) or awakening that becomes traumatic for an individual, leading to a state of psychological crisis (Grof & Grof, 1989, 1991). That is, Grof and Grof (1991) described spiritual *emergence* as "the movement of an individual to a more expanded way of being that involves enhanced emotional and psychosomatic health, greater freedom of personal choices, and a sense of deeper connection with other people, nature, and the cosmos" (p. 34). Such a process may become an *emergency* or crisis if an individual does not possess the psychological framework with which to cope. Such crises are considered by some (e.g., Turner et al., 1995) to be distinct from other forms of psychosocial crises in that they are spiritual, or transpersonal[1], in nature (see Harris et al., 2019, for a comprehensive review).

Although purportedly not attributable to a mental disorder (Lukoff et al., 1992, 1995), SEY has been associated with both physical and mental health difficulties, while simultaneously providing a unique opportunity for transformation and growth (Bragdon, 2006, 2013; Grof & Grof, 1989, 1991; Jung, 1983; Lukoff, 1985; Perry, 1999, 2005; Turner et al., 1995).

   There is evidence indicating that personality variables, such as transliminality, ego resiliency, and boundary thinness may be associated with SEY (Cooper et al., 2015; Harris et al., 2015; Rooijakker's, 2013). There is also evidence indicating that SEY experiences are associated with psychotic symptomatology (Bronn & McIlwain, 2014; Goretzki et al., 2009; Harris et al., 2015), a theme that is discussed extensively within the theoretical literature (e.g., Bragdon, 2006, 2013; Grof & Grof, 1989, 1991; Johnson & Friedman, 2008; Lukoff,

1985). This study examined the relationships between spiritual emergence and emergency, psychotic symptoms, and schizotypy, a construct that addresses psychotic-like personality traits in the general population (Claridge, 2010). Investigating schizotypy in relation to spiritual emergence and emergency may offer insight into the contribution of individual personality to the experience, and its relationship with psychosis. Understanding such relationships may help differentiate between spiritual emergence, emergency, and psychotic-like experiences that appear to have a poor prognosis.

## Spiritual Emergence vs Emergency

Harris et al. (2020) recently attempted to empirically validate operational definitions of SE and SEY, in an effort to advance rigorous investigation of the phenomena. The authors were unable to achieve consensus among a panel of experts, including academic, clinical and experiential, illustrating the deep polarization that exists regarding semantic, and other, issues associated with these types of experiences. However, after thematically analyzing the lived experiences of the experts in their study, Harris et al. were able to identify a number of themes that remained stable across two rounds of a Delphi-style study. The themes included: *differentiation* between SE and SEY and between the collective SE(Y) and psychopathology; *spiritual emergence(y) continuum*, including healthy spiritual experiences through to states of crisis exhibiting symptoms that meet the conventional criteria for clinical psychosis; *crisis*, involving distress and coping difficulties; *ego* (i.e., personality structures related to a sense of self that may expand or contract as a result of the overwhelming, yet potentially transformative, nature of the experience); *understanding*, including subgroups *self* and *others*; and *transformation and growth*, following the successful integration of the experience.

The expert participants in Harris et al.'s (2020) study were divided in their opinions about differentiating between SE and SEY, an issue which is commonly highlighted in the literature (e.g., Cooper et al., 2015; Goretzki et al., 2009; Harris et al., 2015; Kane, 2005; Phillips et al., 2009; Storm & Goretzki, 2016). Some participants preferred a move away from the term SEY and advocated the use of SE as an overarching term that encompasses SEY. Participants' concern related to perceived negative connotations associated with the term *emergency*, which may detract from focusing upon the positive transformation and growth that the experience can facilitate. Harris et al.'s (2020) results supported earlier findings (i.e., Kane, 2005) indicating that SE is inherent to SEY, differentiated only by the presence of crisis in the case of SEY. Kane (2005) concluded that it is erroneous for researchers to juxtapose the two phenomena (SE and SEY), as they often co-occur.

Although Harris et al. (2020) were unable to empirically validate operational definitions of SE and SEY, their results provide a basis from which to devise definition(s) of the phenomena. Based upon the empirically derived themes identified by the authors, and the rich descriptive data provided by the participants in their study, we propose that the collective term SE(Y) is used, which may be tentatively defined as a process of integrating spiritual awareness and experience (e.g. mystical and paranormal phenomena, unusual emotional and physical sensations), which generally facilitates positive transformation and growth. However, if the process occurs very rapidly or is triggered suddenly (e.g., via a traumatic experience), it may become unmanageable and an individual may experience states of crisis involving psychological distress, coping difficulties, and a lack of understanding by self and/or others. Severe cases may exhibit symptoms commonly diagnosed as clinical psychosis. The collective term SE(Y) will subsequently be used throughout this paper.

## Spiritual Emergence(y) and Psychosis

The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; American Psychiatric Association [APA], 2013) includes dimensional assessment across various domains of psychopathology associated with psychotic disorders, reflecting research findings that indicate the existence of psychotic symptoms as a continuum in the general population (Allardyce et al., 2007; Barch et al., 2013; Heckers et al., 2013; Neuvo et al., 2012; van Os et al., 2009). There is also evidence

suggesting the existence of a spiritual-psychosis continuum (see Clarke, 2010), ranging from healthy spiritual experiences to symptoms characteristic of clinical psychosis. The results of Harris et al.'s (2020) study reflected this conceptualization, with participants describing experiences ranging from general spiritual awareness and experience (e.g., mystical and paranormal phenomena), through to severe psychological crisis manifesting symptoms that warranted a clinical diagnosis. That is, some participants reported experiences that met the objective criteria for clinical psychosis, yet they self-identified their experience as SE(Y).

Psychotic symptoms have been traditionally categorized as *positive*[2] or *negative* (Andreasen, 1985; Crow, 1980, 1985; Strauss et al., 1974). The DSM-5 (APA, 2013) discusses four categories of *positive* symptoms, which represent an excess or distortion of normal functioning and include delusions, hallucinations, disorganized thinking, and grossly disorganized or abnormal motor behavior. *Negative* symptoms represent a reduction or loss of normal functioning and include restricted emotional expression, avolition, alogia, anhedonia, and asociality (APA, 2013). See Table 1 for a description of each symptom domain. The *positive* symptoms of psychosis are more likely to be associated with

good premorbid functioning and recovery, whereas the *negative* symptoms are more strongly associated with a history of mental illness and poor prognosis (Andreasen, 1985; Brill et al., 2009; Crow, 1980, 1985; Strauss et al., 1974; Ventura et al., 2009).

Numerous authors have discussed psychosis in the context of spiritual experiences (e.g., Buckley, 1981; Jackson, 1997, 2001; Jackson & Fulford, 1997, 2002; Thalbourne, 1998). Specifically, SE(Y) has commonly been discussed in association with psychosis and psychopathology (Bragdon, 2006, 2013; Grof & Grof, 1989, 1991; Jung, 1983; Lukoff, 1985; Perry, 1999, 2005; Turner et al., 1995). For example, Bragdon (2013) explained that during a process of healthy emergence, an individual expands gracefully into their *spirit-self* in the absence of psychological crisis, whereas during states of crisis an individual may manifest symptoms commonly associated with clinical psychosis (e.g., schizophrenia and bipolar disorder) and other disorders (e.g., depression and anxiety). Nixon et al. (2010) applied an interpretative phenomenological approach to understand the experiences of individuals self-identifying as having had a psychotic experience that was transformative in nature and contained spiritual and/or mystical elements. The authors did not specify whether their participants

| Table 1. Symptom domains of clinical psychosis | |
| --- | --- |
| **Symptoms** | **Description** |
| ***Positive*** | |
| Delusions | Rigidly fixed beliefs despite conflicting evidence |
| Hallucinations | Perceptual experiences that occur in the absence of external stimuli |
| Disorganized thinking | Inferred from disorganized speech |
| Grossly disorganized or abnormal behavior | Childlike, silly behavior, catatonia |
| ***Negative*** | |
| Restricted emotional expression | Diminished facial and emotional expression |
| Avolition | Lack of motivation toward self-initiated purposeful activities |
| Alogia | Diminished speech output |
| Anhedonia | Decreased ability to experience pleasure |
| Asociality | Lack of interest in social interactions |

had received formal clinical diagnoses of psychotic disorder. Nonetheless, their analysis revealed that all six participants conceptualized their experience as a transformational journey. Nixon et al.'s participants also reported that the adoption of a spiritual life path and mindfulness practices were key in their recovery from psychosis.

An empirical measurement instrument has been developed to ostensibly identify SE(Y) experiences (Goretzki et al., 2009, 2013, 2014) and investigate them in relation to psychopathology. The *Spiritual Emergency Scale* (SES) has been shown to correlate with a measure of psychosis, namely Goretzki et al.'s (2009) *Experience of Psychotic Symptoms Scale* (EPSS), as well as psychosis indicators, such as the prescription and consumption of medication (Bronn & McIlwain, 2015; Goretzki et al., 2013; Harris et al., 2015). Harris et al. (2015) pointed out that the EPSS is weighted towards the *positive* symptoms of psychosis. Furthermore, Bronn and McIlwain (2015) reported that SES scores were statistically significantly, positively correlated with items on the EPSS that represent *positive* psychotic symptomatology, whereas items representing *negative* psychotic symptomatology (i.e., alogia) predicted SES scores in a negative direction. These results indicate that the SES is positively associated with *positive* but not *negative* psychotic symptoms. However, Harris et al. have suggested that the SES may not sufficiently capture the crisis aspect of SEY and may best be considered a measure of SE that is void of subjective crisis. For example, Harris et al. found that emotional instability and tension were not associated with SES scores. Additionally, Bronn and McIlwain found that depression, anxiety, and stress were not associated with SES scores. Nonetheless, these findings provide a basis from which to predict that the relationship between SE(Y) and psychosis may be characterized by a positive association with the *positive* but not the *negative* symptoms of psychosis.

## Spiritual Emergence(y) and Personality

An association between SE(Y) and the various symptoms of psychosis may be further explored via a personality construct known as schizotypy (Claridge, 1997; Meehl, 1962, 1990; Rado, 1953; Raine et al., 1995). Measuring schizotypy allows researchers to assess psychosis-proneness in non-clinical populations, based on the premise that psychosis is quantitative and may manifest at subclinical levels as a personality trait (Claridge, 2010; Claridge & Beech, 1995; Claridge & Davis, 2003; Stefanis et al., 2002). Researchers have identified numerous symptom factors consistent with clinical presentations of psychotic disorder (Liddle, 1987; Nelson et al., 2013; Rossi & Daneluzzo, 2002). *Positive*, *negative*, and *disorganized* are the most consistently replicated factors, with an *asocial* behavior factor and a *paranoid* factor identified in some studies (Bentall et al., 1989; Claridge et al., 1996; Fonseca-Pedrero et al., 2011; Raine et al., 1994; Stefanis et al., 2004; Venables & Raine, 2015; Wuthrich & Bates, 2006). *Positive* schizotypy corresponds to the active symptoms of psychosis, and addresses a disposition to unusual perceptual experiences, ideas of reference, magical thinking, and paranoid ideation. *Negative* schizotypy corresponds to those symptoms of psychosis that represent introverted or absent behavior, such as an inability to feel pleasure from social or physical stimulation, social anxiety and a lack of interpersonal relationships. Disorganized schizotypy includes odd behavior and speech, and disorganized forms of thinking, such as a tendency for thoughts to become derailed (Claridge, 2010; Raine, 2006).

Both *positive* and *negative* schizotypy have been associated with psychotic symptoms and predict the development of psychotic disorders (Barrantes-Vidal et al., 2013; Chapman et al., 1994; Kwapil et al., 2008, 2013). Importantly, however, the *positive* and *negative* symptoms of schizotypy are associated with the development of differential patterns of symptoms and impairment (Kwapil et al., 2013). For example, *positive* schizotypy scores have been associated with thought impairment (Kwapil et al., 2012), mood disorders (Kwapil et al., 2008), anxiety and depression (Barrantes-Vidal et al., 2013). *Negative* schizotypy scores have been associated with emotional disturbance (Barrantes-Vidal et al., 2013), affective flattening (Kwapil et al., 2008), and social impairment (Kwapil et al., 2012).

Of relevance to the current study is the association between schizotypy and spiritual and related phenomena. Studies have revealed a

positive association between *positive* schizotypy scores and spiritual belief and experience (Farais et al., 2005; Farias et al., 2013; Jackson, 1997, 2001; Willard & Norenzayan, 2017), spiritual connectedness (Unterrainer and Lewis, 2014; Willard & Norenzayan, 2017), paranormal belief and experience (Barnby & Bell, 2017; Dagnall et al., 2010; Genovese, 2005; Goulding, 2004, 2005; Hergovich et al., 2008; Kelley, 2011; Mathijsen, 2016; McCreery & Claridge, 2002; Parra, 2006; Thalbourne, 1994; Willard & Norenzayan, 2017), extraterrestrial and UFO-related beliefs (Chequers et al., 1996; Swami et al., 2011), and transliminality (Dagnall et al., 2010; Thalbourne, 1998; Thalbourne & Delin, 1994; Thalbourne & Maltby, 2008). Further, many of the abovementioned studies failed to find an association between *negative* schizotypy and spiritual and related phenomena (Barnby & Bell, 2017; Chequers et al., 1996; Dagnall et al., 2010; Farias et al., 2013; Genovese, 2005; McCreery & Claridge, 2002; Parra, 2006; Willard & Norenzayan, 2017; Unterrainer & Lewis, 2014). In addition, McCreery and Claridge (2002) found that individuals reporting out-of-body experiences (OBEs) exhibited lower *negative* schizotypy scores than individuals not reporting OBEs ($F[1,200] = 3.30$, $p = 0.071$). Although these results did not reach statistical significance, they were consistent with earlier findings by the same authors (McCreery & Claridge, 1995).

Nettle and Clegg (2006) suggested that it is *negative* schizotypy scores that differentiate *healthy schizotypes* (i.e., "the uncoupling of the concept of schizotypy from the concept of disease," McCreery & Claridge, 2002, p. 144) from those who develop a disorder due to the disorganizing effects of *positive* schizotypy (Schofield & Claridge, 2007). That is, individuals displaying *high positive/low negative* schizotypal symptoms are able to channel their schizotypal tendencies into adaptive creative endeavors, whereas those exhibiting *high positive/high negative* symptomatology are more likely to suffer from psychological disorder (Nettle, 2006; Schuldberg, 2001).

Based upon the abovementioned findings, it is proposed that individuals who self-identify with the experience of SE(Y) are likely to display *high*

*positive/low negative* psychotic and schizotypal symptomatology. The experience may be viewed as a creative, albeit chaotic, process of integrating anomalous experiences, which if successful, leads to positive transformation and psychological growth. Such findings would offer a possible way of differentiating between SE(Y) experiences, which purportedly facilitate transformation and growth (see Harris et al., 2020), and cases of malignant psychosis that have a poor prognosis (i.e., characterized by negative symptoms; Brill et al., 2009; Ventura et al., 2009).

We also aimed to examine two proposed causal pathways based upon the suggestion that the more cognitively disorganized an individual is, the more likely they are to be overwhelmed and distressed by anomalous experiences (Schofield & Claridge, 2007). Schofield and Claridge (2007) found that, for highly cognitively disorganized individuals, *negative* schizotypy scores predicted ($t = -2.181$, $p < .05$) and were correlated with ($r[29] = -0.501$, $p < .01$) negative subjective interpretations of anomalous experiences; while, for less cognitively disorganized individuals, *positive* schizotypy scores were correlated with ($r[31] = 0.402$, $p < .05$) positive interpretations of anomalous experiences. However, in the current study, we are predicting that *positive* but not *negative* schizotypy scores will be associated with SE(Y) experiences. Additionally, *positive* schizotypy scores have demonstrated positive correlations with anomalous experiences (Mathijsen, 2016), spiritual practices ($r [112] = .28$, $p < .05$ for a spiritual group and $r[84] = .37$, $p < .001$ for a religious group; Farias et al., 2013), and paranormal beliefs ($r[318] - .47$, $p < .001$; Dagnall et al., 2010). Some have argued that assessing causality is outside the scope of personality research (see White, 1990). However, Kressel and Uleman (2010) reported evidence to suggest that personality traits function as primarily causal as opposed to descriptive concepts, using a relational recognition paradigm, originally designed to demonstrate causal links in semantic memory (Fenker et al., 2005). That is, the authors found that traits and behaviors are causally related in semantic memory.

We suggest that *positive* and *disorganized* schizotypy may contribute to negative subjective interpretations of SE(Y) experiences, and propose

two possible causal pathways: (1) disorganized schizotypy mediates the relationship between *positive* schizotypy and crisis associated with SE(Y) experiences, and (2) *positive* schizotypy mediates the relationship between disorganized schizotypy and crisis associated with SE(Y) experiences. Previous studies have examined proposed bidirectional mediation models in both cross-sectional (Lee & Schwarz, 2012; Sibelli et al., 2018) and longitudinal designs (Lui, 2018; Pössel, 2017; Vittengl, 2018), in the contexts of acculturation (Lui, 2018), irritable bowel syndrome (Sibelli et al., 2018), metaphorical effects (Lee & Schwarz, 2012), and depression (Pössel, 2017; Talaei-Khoei et al., 2018; Vittengl, 2018).

Marks et al. (2012) investigated the phenomenological similarities between symptoms of PTSD and schizophrenia, drawing on a cognitive account of the development of the intrusive phenomena associated with both disorders (Steel et al., 2005). For example, Ehlers and Clark's (2000) cognitive model of PTSD refers to a dimension of information processing characterized by conceptual processing (i.e., the organized and integrated processing of incoming stimuli) at one end, and data-driven processing (i.e., associated with intense emotion and trauma, and a failure to meaningfully process and integrate incoming stimuli) at the other end of the dimension. Additionally, Hemsley (1993) proposed a cognitive model of the *positive* symptoms of psychosis, suggesting that symptoms result from intrusions from long-term memory into conscious awareness, resulting in a disruption in contextual integration (i.e., cognitive deficits in the processing of incoming stimuli). This model aligns with reported perceptual disorganization (e.g., Peters et al., 2002) and reduced cognitive inhibition (e.g., Peters et al., 2000) associated with diagnosed schizophrenia. In addition, a cognitive style characterized by poor contextual integration has been reported in individuals scoring high on schizotypy (e.g., Peters et al., 2007; Steel et al., 2002).

These findings indicate that a continuous distribution of *positive* psychotic traits in the general population (van Os et al., 2009) may also generalize to a continuous distribution of cognitive contextual difficulties (Marks et al., 2012). That is, individuals scoring high on *positive* schizotypy are more likely to experience difficulties with cognitive contextual integration, thereby rendering them more vulnerable to intrusive, traumatic experiences. Indeed, Holmes and Steel (2004) found that *positive* schizotypy scores were associated with more frequent intrusions of a traumatic event. Similarly, Marks et al. (2012) found that healthy individuals reporting anomalous experiences reported more frequent intrusive memories of a stressful event than a control group scoring low on schizotypy. The authors suggested that, for individuals more vulnerable to frequent and intense memory intrusions, there is a potential route from traumatic experiences to psychosis, dependent upon the subjective appraisal of such experiences. They also proposed that if such a predisposition is combined with externalising appraisals of anomalous experiences, it may lead to phenomena characteristic of psychosis, such as paranoid delusions.

Based upon these findings, it is proposed that if an individual exhibiting a *positive* schizotypal personality perceives anomalous phenomena or other daily stressors as emotionally intense and/or traumatic, an associated weak level of contextual integration (i.e., cognitive deficits in the processing of incoming stimui) may lead to a state of crisis (e.g., in the form of PTSD and/or psychosis). Given findings linking disorganized schizotypy with various cognitive functioning deficits such as semantic processing, visual backward masking, working memory, and emotion processing (Cappe et al., 2012; Kerns & Becker, 2008; Tan & Rossell, 2017), it is further argued that fluctuations in *positive* schizotypy may result in fluctuations in disorganized schizotypy, resulting in fluctuations in the subjective interpretation of psychotic-like experiences.

In a twin study investigating the various dimensions of schizotypy, Linney et al. (2003) found that both *positive* and *negative* schizotypy are genetically related to disorganized schizotypy. They proposed the possible explanation that disorganized schizotypy may be at the core of a tendency towards schizophrenia. The disorganization dimension (compared to *positive*, *negative*, manic, depressive, and general dimensions) of psychosis has been most strongly related to genetic liability

for psychotic symptomatology (Cardno et al., 2001), and has been associated with a history of multiple past admissions and a longer lifetime duration of inpatient treatment (Mellers et al., 1996). Linney et al. also postulated as to whether different aspects of disorganized schizotypy, such as social anxiety and disorganization, are differentially related to *positive* and *negative* schizotypy. More specifically, the social anxiety aspect may be genetically related to *negative* schizotypal traits, whereas the disorganization aspect may be genetically related to *positive* schizotypal traits. For example, Torgersen et al. (1993) found that *negative* schizotypy and social anxiety (compared to *positive* schizoypy) were significantly more common among relatives of schizophrenic patients. They concluded that excessive social anxiety, which is a component of disorganized schizotypy, may be a marker of a possible genetic link between schizotypy and schizophrenia.

Mathijsen (2016) proposed that disorganized schizotypy may lead to the emergence of paranormal beliefs or experiences, which are characteristic of *positive* schizotypy. He proposed that for cognitively disorganized individuals, unexpected and disturbing events may challenge the individual's existing belief system, creating a struggle to integrate the experience (i.e., a paradigm shift), resulting in a cognitive bias towards the interpretation of anomalous phenomena as paranormal in nature. Mathijsen also makes reference to Hemsley's (1993) cognitive model of psychosis, but his argument appears to be in the opposite direction (i.e., a cognitively disorganized personality disposition gives rise to biased perceptions of anomalous phenomena). In fact, his findings supported a bidirectional relationship between paranormal experiences and overall schizotypy, mediated by an individual paradigm shift, involving a cognitive re-organization of an individual's existing belief system (see also Heriot-Maitland, 2008; Jackson, 2010; Jackson & Fulford, 1997). The results were inconclusive as to whether disorganized schizotypy originates in the paradigm instability associated with *positive* schizotypal characteristics, or whether it inherently precedes them. Mathijsen's implied conclusion was that disorganized and *positive* schizotypy

may reinforce one another. It is important to note that the instrument used to measure schizotypy in Mathijsen's study was the Schizotypal Personality Questionnaire (Raine, 1991), which considers schizotypal symptoms as pathological.

These findings provide a compelling argument that disorganized schizotypy may be the core contributing dimension of schizotypy to the expression of psychotic-like experiences. Moreover, if disorganized schizotypy leads to the expression of *positive* rather than *negative* schizotypal traits, any resulting psychotic-like experiences may be *less* likely to be consistent with diagnostic criteria for schizophrenia than that predicted by a combination of disorganized and *negative* schizotypy. Put another way, if disorganized schizotypy leads to the expression of its genetically related trait, *positive* schizotypy, any resulting psychotic-like experiences may possibly be consistent with SE(Y). Thus, it is argued that fluctuations in disorganized schizotypy may lead to fluctuations in *positive* schizotypy, leading to fluctuations in the subjective interpretation of psychotic-like experiences.

## Aims and Hypotheses

This study is the first to incorporate self-identification with an empirically derived definition of SE(Y). An aim of the current study was to further explore the construct validity of the SES as a measure of SE(Y). It was hypothesized that participants reporting past or present psychological and/or psychiatric treatment and/or prescription of medication would report higher levels of SE(Y) compared to those reporting no treatment. An additional aim of the study was to explore the relationships between SE(Y), psychosis, and schizotypal personality. It was hypothesized that SE(Y) would be positively correlated with *positive* psychosis and schizotypy, and would demonstrate either negative or no correlations with *negative* psychosis and schizotypy. Additionally, it was hypothesized that disorganized schizotypy would mediate the relationship between *positive* schizotypy and crisis associated with SE(Y). It was also hypothesized that *positive* schizotypy would mediate the relationship between disorganized schizotypy and crisis associated with SE(Y).

## Method

Participation in this study was open to any individual aged 18 years or over and proficient in English. Members of the general population responded to advertisements placed upon special interest websites and forums (e.g., ACISTE) and social media websites (e.g., Facebook).

### Participants

A total of 250 participants (67 males, 177 females, and 6 non-gender specific) completed an anonymous online questionnaire. Ages ranged from 18 to 85 ($M = 38.1$, $SD = 15.2$). Participants were from a wide range of geographic locations (see Table 2).

Statistical power was investigated using G*Power 3.1 (Faul et al. 2007) for correlation analysis, two-tailed, effect size $p = .3$, alpha = .05, power = .95, which returned a recommended sample size of $N = 134$. Statistical power was also investigated for linear multiple regression, two-tailed, effect size $f^2 = .15$, alpha = .05, power = .95, which returned a recommended sample size of $N = 89$. Thus, the sample size was deemed adequate for the planned analyses.

### Materials

A composite questionnaire was used to measure a number of variables including psychological crisis, spiritual emergency/crisis, and symptom domains of psychosis and schizotypy.

**CSAS.** The Crisis State Assessment Scale (CSAS; Lewis, 2005) assesses psychological crisis across two domains: perceived psychological trauma and perceived problems in coping efficacy. These two domains purportedly indicate the magnitude of a crisis state (Lewis, 2005; Roberts, 2000). The CSAS includes five items for each subscale. The instrument is situation specific, meaning that participants are required to focus upon a specific event when responding to each item. For the current study, participants were required to focus upon their experience of SE(Y). Responses are obtained via a seven-point Likert scale (1 = never, 2 = very rarely, 3 = rarely, 4 = sometimes, 5 = often, 6 = almost always,

### Table 2. Geographic locations of participants

| Region/Country | | *n* | % | Region/Country | | *n* | % |
|---|---|---|---|---|---|---|---|
| **Australasia** | | **140** | **56.0** | **The Americas** | | **44** | **17.6** |
| | Australia | 134 | 53.6 | | USA | 37 | 14.8 |
| | New Zealand | 6 | 2.4 | | Canada | 6 | 2.4 |
| **Europe** | | **50** | **20.0** | | Brazil | 1 | 0.4 |
| | UK | 30 | 12.0 | **Asia** | | **10** | **4.0** |
| | Romania | 2 | 0.8 | | India | 4 | 1.6 |
| | Netherlands | 2 | 0.8 | | Maldives | 1 | 0.4 |
| | Denmark | 2 | 0.8 | | Thailand | 1 | 0.4 |
| | Italy | 2 | 0.8 | | Bali | 1 | 0.4 |
| | Switzerland | 1 | 0.4 | | Malaysia | 1 | 0.4 |
| | Norway | 1 | 0.4 | | Cambodia | 1 | 0.4 |
| | Malta | 1 | 0.4 | | China | 1 | 0.4 |
| | Slovenia | 1 | 0.4 | **Africa** | | **6** | **2.4** |
| | Slovakia | 1 | 0.4 | | South Africa | 5 | 2.0 |
| | Czechia | 1 | 0.4 | | Cameroon | 1 | 0.4 |
| | Lithuania | 1 | 0.4 | | | | |
| | Germany | 1 | 0.4 | | | | |
| | Hungary | 1 | 0.4 | | | | |
| | Belgium | 1 | 0.4 | | | | |
| | Cyprus | 1 | 0.4 | | | | |
| | Poland | 1 | 0.4 | | | | |

7 = always). To find subscale scores, item responses are added and divided by five to find the mean. To find the global score, each subscale score is added and divided by two to find the mean. The global score represents an indicator of the magnitude of the crisis state. The CSAS has demonstrated internal consistency and content, construct, convergent, discriminant, and criterion validity (Lewis, 2005). Cronbach's alpha for the current study was .95.

**SES.** The Spiritual Emergency Scale (SES; Goretzki et al., 2013, 2014) is a 30-item questionnaire designed to quantify the experience of SEY. It was derived from the original full length 84-item Spiritual Emergency Subscales (Goretzki et al., 2009). The scale has demonstrated internal consistency and test-retest reliability (Bronn & McIlwain, 2015; Cooper et al., 2015; Goretzki et al., 2009; Harris et al., 2015), and Goretzki et al. (2009, 2013, 2014) have reported criterion validity. The response format for the original scale was dichotomous (i.e., yes/no), however Goretzki et al. (2009) recommended that a continuous Likert scale response format should be considered in subsequent research. The current study utilized a five-point Likert scale (1 = never, 2 = not often, 3 = sometimes, 4 = often, 5 = very often), as presented by Storm and Goretzki (2016). Cronbach's alpha for the current study was .97.

**Spiritual Emergence(y).** Participants were asked to indicate the degree to which they self-identified with the following definition of SE(Y), based upon Harris et al.'s (2020) empirically derived themes and descriptive data relating to the experience of SE(Y):

> SE(Y) refers to a process of integrating spiritual awareness and experience (e.g., mystical and paranormal phenomena, unusual emotional and physical sensations), which generally facilitates positive transformation and growth. However, if the process occurs very rapidly or is triggered suddenly (e.g., via a traumatic experience), it may become unmanageable, and an individual may experience states of crisis (involving psychological distress, coping difficulties, and a lack of understanding by self and/or others). Severe cases may exhibit symptoms commonly diagnosed as clinical psychosis.

Responses were recorded on a Visual Analogue Scale (VAS; from 0 to 100). VASs are continuous rating scales, typically presented as a horizontal line, anchored with verbal descriptors at either extreme (Flynn et al., 2004; Funke & Reips, 2012). In the current study, the anchors used were *not at all* and *very much*. Respondents indicated their perceived status by selecting a position on the line at the most appropriate point. Compared to Likert scale scoring, VASs have demonstrated less vulnerability to bias from confounding factors and ceiling effects (Brunier & Graydon, 1996; Voutilainen et al., 2016). VASs may also be more sensitive in the detection of small subjective differences, offer greater possibilities for data analysis, and are particularly suited to web-based research (Funke & Reips, 2012; Reips & Funke, 2008).

**Spiritual Crisis.** A newly created variable, spiritual crisis (SC), was calculated by summing participants' scores for SE(Y) and CSAS. This variable is intended to capture SE(Y) plus associated crisis, which may not be sufficiently captured by SES or SE(Y) scores alone.

**CAPE.** The Community Assessment of Psychic Experiences (CAPE; Stefanis et al., 2002) assesses psychotic symptoms in the general population, across three symptom domains: *positive, negative* and depressive. It includes 20 *positive* symptom items, 14 *negative* symptom items and eight depressive symptom items. Each item is assessed on two dimensional scales, measuring frequency of the experience and degree of associated distress, respectively. Responses are obtained via four-point Likert scales (1 = never, 2 = sometimes, 3 = often, 4 = nearly always [frequency]; and 1 = not distressed, 2 = a bit distressed, 3 = quite distressed, 4 = very distressed [distress]). Participants provide responses to the distress dimensions only if they answered affirmatively to the associated frequency questions. To account for partial non-response, scores are weighted for the number of valid scores per dimension (i.e., sum score per dimension divided by the amount of items completed by participant). The *positive* and *negative* scales were used in the current study. The CAPE has demonstrated cross-cultural reliability and construct, criterion, and discriminant validity (Brenner et al., 2007; Kervoka

& Martinkova, 2017; Mark & Toulopoulou, 2016; Schlier et al., 2015; Stefanis et al., 2002). Cronbach's alpha for the current study was .90 for the *positive* dimension and .89 for the *negative* dimension. For distress associated with *positive* symptoms, alpha was .90 and for distress associated with *negative* symptoms, alpha was also .90.

**O-LIFE.** The Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE; Mason et al., 1995) assesses schizotypal personality traits across four domains: unusual experiences (UE), introvertive anhedonia (IA), cognitive disorganization (CD), and impulsive nonconformity (IN). The O-LIFE has demonstrated internal consistency (Mason et al., 1995; Rawlings & Freeman, 1997), test-retest reliability (Burch et al., 1988; Loughland & Williams, 1997), construct validity (Mason, 1995), and has been translated into several languages (Barrantes-Vidal, 1997; Goulding, 2004; Kravetz et al., 1998). The O-LIFE was chosen for use in the current study because it was specifically designed to focus on trait, rather than symptom, features of psychosis (Mason & Claridge, 2006). A short version of the original scale has demonstrated internal consistency, content validity, and concurrent validity with the original scale (Mason et al., 2005). The short version consists of 12 items for UE, 10 items for IA, 11 items for CD, and 10 items for IN. Responses are obtained via yes/no format. The UE, IA, and CD scales were used in the current study. The UE scale corresponds to *positive* schizotypy and contains items describing perceptual aberrations, magical thinking, and hallucinations. The IA scale corresponds to *negative* schizotypy and contains items that describe a lack of enjoyment from social and physical sources, and avoidance of intimacy. The CD scale corresponds to disorganized schizotypy, thought disorder and disorganized aspects of psychosis and contains items that capture poor attention, concentration and decision making, as well as social anxiety (Mason & Claridge, 2006).

Cronbach's alpha for the current study was .82 for the *positive* dimension, .68 for the *negative* dimension, and .81 for the disorganized dimension. It is noted that the internal consistency coefficient for *negative* schizotypy is below acceptable levels (Cronbach, 1951), thus analyses including this variable should be interpreted with caution.

However, in more recent writings, Cronbach has stated, "the alpha coefficient is now seen to fit within a much larger system of reliability analysis" (Cronbach & Shavelson, 2004, p. 416). Cronbach and Shavelson recommended reporting the standard error of measurement (SEM) as "the most important single piece of information to report" (p. 413). For the current study, the SEM for *negative* schizotypy was 1.28, compared to 1.52 for *positive* schizotypy and 1.40 for disorganized schizotypy. Smaller SEM's are considered to indicate higher reliability (AERA, APA, & NCME, 2014), thus, comparatively speaking, the *negative* schizotypy subscale may be considered to possess adequate reliability.

**Procedure**

Ethics approval was granted by the University of New England Human Ethics Committee (Approval Number: HE18-055). Participants completed an anonymous online questionnaire (Qualtrics software, Version 2017, Qualtrics, Provo, UT), which contained demographic questions, including age, gender, geographic location, and mental health diagnoses. Participants were asked to quantify their experience of SE(Y) on a VAS (as outlined above). Participants were informed that they were not required to identify with the experience, as we were seeking individuals across the entire SE(Y) continuum. Participants were also informed that they did not have to identify with the entire experience, but may identify with some aspects only. Participants were then asked to complete the CSAS in relation to the definition of SE(Y). Next, participants completed the SES, CAPE, and O-LIFE.

**Results**

Data was statistically analyzed using SPSS Statistical Software version 23.0. Table 3 presents descriptive statistics for all continuous variables, including the SES, SE(Y), crisis, frequency of *positive* psychosis (Pos_P_F), distress associated with *positive* psychosis (Pos_P_D), frequency of *negative* psychosis (Neg_P_F), distress associated with *negative* psychosis (Neg_P_D), *positive* schizotypy (Pos_S), *negative* schizotypy (Neg_S), and disorganized schizotypy (Dis_S). An additional variable, called spiritual crisis (SC), was created by combining participants' scores for SE(Y) and associated crisis.

## Table 3. Descriptive statistics for all variables

| Variable | SES | SE(Y) | SC | Crisis | POS P F | POS P D | Neg P F | Neg P D | Pos S | Neg S | Dis S |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *M* | 64.0 | 46.9 | 75.8 | 14.7 | 32.0 | 1.6 | 26.6 | 1.8 | 5.0 | 2.8 | 5.1 |
| *SD* | 26.8 | 35.6 | 42.4 | 7.2 | 8.5 | .54 | 7.1 | .6 | 3.8 | 2.3 | 3.2 |
| Range | 107 | 100 | 150 | 28 | 40 | 4 | 41 | 4 | 16 | 9 | 11 |
| Median | 58 | 50 | 79 | 15 | 30 | 1.5 | 26 | 1.7 | 5 | 2 | 5 |
| MAD | 28.169 | 47.443 | 52.632 | 16.309 | 7.413 | 0.489 | 7.413 | 0.600 | 4.448 | 0.000 | 4.448 |
| Skewness | .688 | .111 | .039 | .355 | 1.104 | .859 | .720 | .494 | .286 | .802 | .189 |
| Kurtosis | -.423 | -1.426 | 1.182 | -.789 | .874 | 1.551 | .427 | .278 | -.762 | -.080 | -1.046 |
| Shapiro Wilk | .931 | .899 | .949 | .953 | .909 | .926 | .962 | .965 | .952 | .912 | .951 |
| Sig. | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

## Table 4. Correlations for all variables

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. SES** | | | | | | | | | | | |
| Kendall's tau | – | | | | | | | | | | |
| Sig. | | | | | | | | | | | |
| **2. SE(Y)** | | | | | | | | | | | |
| Kendall's tau | .480** | – | | | | | | | | | |
| Sig. | .000 | | | | | | | | | | |
| **3. SC** | | | | | | | | | | | |
| Kendall's tau | .475** | .813** | – | | | | | | | | |
| Sig. | .000 | .000 | | | | | | | | | |
| **4. Crisis** | | | | | | | | | | | |
| Kendall's tau | .243** | .263** | .467** | – | | | | | | | |
| Sig. | .000 | .000 | .000 | | | | | | | | |
| **5. Pos P F** | | | | | | | | | | | |
| Kendall's tau | .523** | .337** | .378** | .325** | – | | | | | | |
| Sig. | .000 | .000 | .000 | .000 | | | | | | | |
| **6. Pos P D** | | | | | | | | | | | |
| Kendall's tau | .098* | .063 | .138** | .291** | .324** | – | | | | | |
| Sig. | .026 | .157 | .002 | .000 | .000 | | | | | | |
| **7. Neg P F** | | | | | | | | | | | |
| Kendall's tau | .136** | .057 | .123** | .252** | .357** | .394** | – | | | | |
| Sig. | .002 | .193 | .005 | .000 | .000 | .000 | | | | | |
| **8. Neg P D** | | | | | | | | | | | |
| Kendall's tau | .116** | .069 | .139** | .280** | .262** | .536** | .390** | – | | | |
| Sig. | .007 | .116 | .001 | .000 | .000 | .000 | .000 | | | | |
| **9. Pos S** | | | | | | | | | | | |
| Kendall's tau | .539** | .400** | .396** | .244** | .578** | .192** | .218** | .179** | – | | |
| Sig. | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | | |
| **10. Neg S** | | | | | | | | | | | |
| Kendall's tau | .084 | .051 | .097* | .176** | .232** | .198** | .419** | .139** | .108* | – | |
| Sig. | .198 | .884 | .488 | .051 | .004 | .001 | .001 | .001 | .037 | | |
| **11. Dis S** | | | | | | | | | | | |
| Kendall's tau | .188** | .104* | .163** | .277** | .363** | .350** | .484** | .370** | .304** | .114* | – |
| Sig. | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .019 | |

Tables 3 and 4 Note. *N* = 250. * Correlation is significant at the .05 level (2-tailed). ** Correlation is significant at the .01 level (2-tailed). MAD=absolute deviation around the median SES=SES scores; SE(Y)=SE(Y) scores; SC=combined SE(Y) and CSAS scores; Crisis=CSAS scores; Pos P F = CAPE frequency of *positive* psychosis symptoms scores; Pos P D = CAPE distress associated with *positive* psychosis symptoms scores; Neg P F=CAPE frequency of *negative* psychosis symptoms scores; Neg P D= CAPE distress associated with *negative* psychosis symptoms scores; Pos S = O-LIFE *positive* schizotypy scores; Neg S = O-LIFE *negative* schizotypy scores; Dis S = O-LIFE disorganized schizotypy scores.

Tests of normality indicated non-normal distributions for all variables (see Table 3). Visual inspection of histograms and stem-and-leaf plots indicated that SES, crisis, Pos_P_F, Pos_P_D, Neg_P_F, Neg_P_D, Pos_S, and Neg_S were positively skewed; SE(Y) and SC displayed bimodal distributions; and Dis_S was slightly positively skewed and platykurtic (i.e., flat). Inspection of normal and detrended Q-Q Plots indicated that the spread of scores for each variable were reasonably clustered around the diagonal line, and distributed above and below the horizontal line, respectively. Outliers were identified via box plots, absolute deviation around the median, Mahalanobis' Distance and Cook's Distance (Aguinis et al., 2013; Allen & Bennett, 2012; Cook, 1977; Leys et al., 2013).

The initial dataset comprised a total of 269 participants, but a number of error outliers were identified ($n = 19$), and these cases were deleted. Univariate outliers were identified for SES ($n = 3$), crisis ($n = 6$), Pos_P_F ($n = 13$), Pos_P_D, ($n = 11$), Neg_P_F ($n = 3$), Neg_P_D ($n = 6$), Pos_S ($n = 1$), and Neg_S ($n = 4$). Additionally, multivariate outliers were identified ($n = 2$). For correlation analyses, no outliers were removed as non-parametric analyses were performed, which are robust with regards to outliers and non-normal data (Croux & Dehon, 2010). For regression analyses, removal of outliers did not statistically significantly alter the results, therefore, results are reported with outliers retained.

**Validity**

To assess construct validity for the SES, SE(Y), and SC, bivariate correlation analyses were performed. As the data were non-normal, parametric and non-parametric tests were run, which returned different results. We have opted to report the more conservative results, which are those derived from the non-parametric analyses. Table 4 presents the results of Kendall's tau-b correlation analyses (Croux & Dehon, 2010; Kendall, 1938). Two variables derived from the CAPE (i.e., Pos_P_D and Neg_P_D) were used to assess convergent validity. These variables represent distress associated with *positive* and *negative* symptoms of psychosis, respectively.

The SES was statistically significantly, moderately, positively correlated with SE(Y) ($r_t = .480$) and SC ($r_t = .475$). The SES showed a statistically significant, weak, positive correlation with crisis ($r_t = .243$) and distress associated with *negative* psychosis symptoms ($r_t = .116$) and a very weak correlation with distress associated with *positive* psychosis symptoms ($r_t = .098$). SE(Y) was statistically significantly, weakly, positively correlated with crisis ($r_t = .263$) and was not statistically significantly correlated with distress associated with *positive* or *negative* psychosis symptoms. SC was statistically significantly, weakly, positively correlated with distress associated with *positive* ($r_t = .138$) and *negative* ($r_t = .139$) psychosis symptoms. The correlations between crisis associated with SE(Y) and distress associated with *positive* ($r_t = .291$) and *negative* psychosis symptoms ($r_t = .280$) were statistically significant, weak, and positive.

Associations with mental illness indicators have previously been used to assess construct validity of the SES (Goretzki et al., 2009). In the current study, past or present psychological and/or psychiatric treatment and/or prescription of medication was used as an indication of mental illness. Independent samples *t*-tests were performed to assess whether treatment (i.e., no treatment, $n = 111$; treatment, $n = 139$) was associated with SES, SE(Y), and SC scores. It is noted that variables were not normally distributed so results should be interpreted with caution. However, the results of non-parametric tests did not differ from those of parametric tests from a dichotomous significance testing perspective, so we have opted to report the results of the parametric analyses, in order to remain consistent with mediation analyses reported below.

For SES scores, Levene's test was statistically non-significant, indicating that equal variances could be assumed. The *t*-test was statistically significant, with the treatment group ($M = 70.6$, $SD = 26.5$) scoring higher, 95% CI [ -21.50, -8.56], on the SES than the no treatment group ($M = 55.6$, $SD = 24.9$), $t(248) = -4.58$, $p < .001$, two-tailed, with a medium (see Cohen, 1988) effect size, $d = -.583$.

For SE(Y), Levene's test was statistically non-significant, thus equal variances could be assumed. The *t*-test was statistically significant, with the treatment group ($M = 57.6$, $SD = 33.9$) scoring higher, 95% CI [-32.57, -15.75], on SE(Y) than the no treatment group ($M = 33.5$, $SD = 33.1$), $t(248) =$

-5.66, $p < .001$, two tailed, with a medium to large effect size, $d = -.720$.

For SC, Levene's test was statistically non-significant, thus equal variances could be assumed. The $t$-test was statistically significant, with the treatment group ($M = 89.9$, $SD = 39.6$) scoring higher, 95% CI [-32.57, -15.75], on SC than the no treatment group ($M = 58.1$, $SD = 39.1$), $t(248) = -6.33$, $p < .001$, two tailed, with a large effect size, $d = -.805$.

**Correlation Analyses**

To test the hypothesis that SE(Y) would be positively correlated with *positive* psychosis and schizotypy, but not with *negative* psychosis and schizotypy, Kendall's tau-b (Croux & Dehon, 2010; Kendall, 1938) bivariate correlation analyses were performed on the following variables: SES, SE(Y), SC, Pos_P_F, Neg_P_F, Pos_S and Neg_S.

As can be seen in Table 4, the SES displayed statistically significant, moderate to strong, positive correlations with the *positive* symptoms of psychosis ($r_t = .532$) and schizotypy ($r_t = .539$). The SES also displayed statistically significant, weak, positive correlations with the *negative* symptoms of psychosis ($r_t = .136$), but no association with *negative* schizotypy. SC displayed statistically significant, moderate, positive correlations with the *positive* symptoms of psychosis ($r_t = .378$) and schizotypy ($r_t = .396$). SC also displayed statistically significant, weak, positive correlations with the *negative* symptoms of psychosis ($r_t = .123$), and schizotypy ($r_t = .097$). SE(Y) displayed statistically significant, moderate, positive correlations with the *positive* symptoms of psychosis ($r_t = .337$) and schizotypy ($r_t = .400$), but no associations with *negative* symptoms of psychosis or schizotypy.

**Mediation Analyses**

Simple mediation analyses were performed to investigate a potentially bidirectional relationship between *positive* and disorganized schizotypy, leading to crisis. Mediation analysis is a statistical method used to evaluate a proposed causal relationship between an antecedent variable *X* and a consequent variable *Y*, via an intervening variable, *M*. In a mediation model, it is assumed that *M* is causally located between *X* and *Y* (Hayes, 2018). Hayes stated that, despite the causal implications of a mediation model, "one can conduct a mediation analysis even if one cannot unequivocally establish causality given the limitations of one's data collection and research design", explaining that, "so long as we couch our causal claims with the required cautions and caveats given the nature of the data available, we can apply any mathematical method we want to understand and model relationships between variables" (p. 81). With regards to normality, Hayes (2018) stated that "this assumption is one of the least important in regression analyses" (p. 70) and that only severe violations or small sample sizes are likely to substantially affect the results.

To investigate the first hypothesized causal pathway (i.e., disorganized schizotypy [M] mediates the effect of *positive* schizotypy [IV] on crisis [DV]), ordinary least squares path analyses were performed using Model 4 of Hayes' (2018) PROCESS macro for SPSS (version 3.0). Heteroscedasticity was adjusted using the HC3 (Davidson-MacKinnon) option (Hayes & Cai, 2007). Multicollinearity diagnostics were assessed and found to be supported. Results are reported as $b$ = unstandardized regression coefficients.

When *positive* and disorganized schizotypy were entered as predictor and mediator variables, respectively, the direct effect of *positive* schizotypy on disorganized schizotypy was statistically significant, $b = .346$, 95% CI [.232, .460], $t = 5.962$, $p < .001$, the direct effect of disorganized schizotypy on crisis was statistically significant, $b = 1.232$, 95% CI [.680, 1.784], $t = 4.399$, $p < .001$ (with a completely standardized effect size of .292), the direct effect of *positive* schizotypy on crisis was statistically significant, $b = .783$, 95% CI [.308, 1.258], $t = 3.248$, $p = .001$ (with a completely standardized effect size of .206), and the total effect of *positive* schizotypy on crisis was statistically significant, $b = 1.210$, 95% CI [.778, 1.641], $t = 5.523$, $p < .001$ (with a completely standardized effect size of .319).

Indirect effects were computed using 95% percentile bootstrap confidence intervals (BCIs) based on 10,000 samples (Hayes, 2018, noted that 5,000 to 10,000 bootstrap samples are sufficient in most applications and there is little benefit to increasing beyond 10,000); the indirect effect was deemed statistically significant if the 95% CI did

not span zero (Hayes, 2018). The indirect effect of *positive* schizotypy on crisis through disorganized schizotypy was statistically significant, $b = .426$, 95% BCI [.211, .684]. This represents a completely standardized indirect effect size of .112, 95% BCI [.055, .181]. The relationship between *positive* schizotypy and crisis was mediated by disorganized schizotypy (see Figure 1).

When the second hypothesized causal pathway (i.e., *positive* schizotypy [M] mediates the relationship between disorganized schizotypy [IV] and crisis [DV]) was investigated, the direct effect of disorganized schizotypy on *positive* schizotypy was statistically significant, $b = .427$, 95% CI [.291, .564], $t = 6.177$, $p < .001$, and the total effect of disorganized schizotypy on crisis was statistically significant, $b = 1.567$, 95% CI [1.087, 2.046], $t = 6.439$, $p < .001$ (with a completely standardized effect size of .372).

The indirect effect of disorganized schizotypy on crisis through *positive* schizotypy was statistically significant, $b = .335$, 95% BCI [.132, .587]. This represents a completely standardized indirect effect size of .079, 95% BCI [.031, .139]. The relationship between disorganized schizotypy and crisis was mediated by *positive* schizotypy (see Figure 2). When we compare the completely standardized indirect effect sizes, it appears that the first proposed causal pathway (i.e., disorganized schizotypy mediates the relationship between *positive* schizotypy and crisis) provides the strongest model.
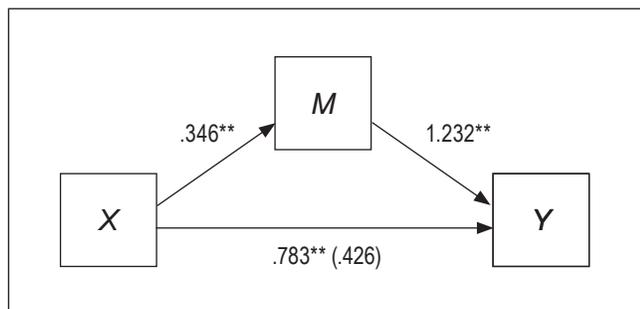
## Discussion

This study aimed to explore the relationships between SE(Y) and associated crisis, psychosis, and schizotypal personality. Three measures of SE(Y) were used – Goretzki et al.'s (2009) SES as a measure of spiritual emergency (SEY); self-identification with an empirically derived definition of SE(Y), which encapsulates a continuum of experiences ranging from healthy spiritual experiences through to symptoms that meet diagnostic criteria for clinical psychosis; and a newly created variable, spiritual crisis (SC), which includes SE(Y) plus associated psychological crisis.

In terms of validity, the SES showed moderate correlations with SE(Y) and SC, illustrating some degree of convergent validity among these variables. The SES demonstrated only weak positive correlations with measures of crisis and distress, comparable to those demonstrated by SE(Y). It is noted that the SE(Y) variable was not necessarily intended to capture crisis, as participants may identify 100% with the experience in a subjectively positive manner. That is, the SE(Y) variable was designed to capture the magnitude of an individual's experience of SE(Y), which could be wholly positive, wholly negative, or contain both positive and negative aspects.

To illustrate this important point, participants were not asked to specify whether they had experienced SE(Y) in the past, or were experiencing
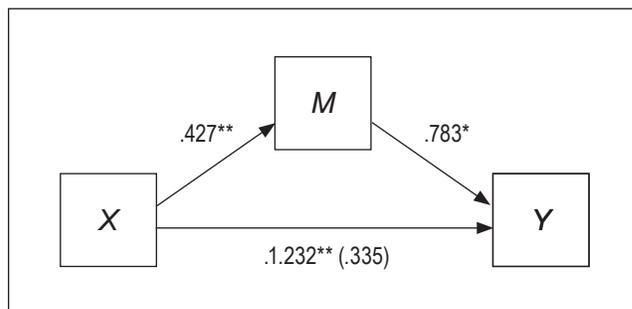
*Figure 1.* Unstandardized regression coefficients for the direct effects of positive schizotypy (X) on disorganized schizotypy (M) and crisis (Y), and disorganized schizotypy on crisis. The unstandardized regression coefficient for the indirect effect of *positive* schizotypy on crisis, mediated by disorganized schizotypy, is in parentheses.

\* $p < .05$, \*\* $p < .001$.

*Figure 2.* Unstandardized regression coefficients for the direct effects of disorganized schizotypy (X) on *positive* schizotypy (M) and crisis (Y), and *positive* schizotypy on crisis. The unstandardized regression coefficient for the indirect effect of disorganized schizotypy on crisis, mediated by *positive* schizotypy, is in parentheses.

\* $p < .05$, \*\* $p < .001$.

SE(Y) presently. This distinction may have impacted upon whether an individual had integrated their experience (i.e., past), or not (i.e., present), which may in turn impact their associated crisis. This point was further illustrated by the fact that some participants scored very high on SE(Y) while simultaneously scoring very low on crisis. Additionally, participants may have identified very strongly with only the subjectively positive elements of the description (i.e., mystical and paranormal experiences), but not the subjectively negative elements (i.e., distress, coping difficulties, clinical psychosis) resulting in a high score for SE(Y), regardless of associated crisis. Whereas, the combination of SE(Y) and crisis scores (SC) was designed to capture the crisis aspect of SE(Y), in conjunction with the magnitude of the experience itself. Thus, we argue that the SC variable is more akin to the phenomenon of SE(Y) purportedly measured by the SES, given that the authors of the scale claim that their items are designed to tap into crisis. Indeed, Storm and Goretzki (2016) argued that the SES is able to capture the magnitude of any crisis state associated with SE(Y). We acknowledge the importance of a measurement instrument that is able to make a distinction between past and present experiences. Thus, we note that this was a limitation of the current study, and should be addressed and explored in future research.

In the current study, SC also demonstrated only weak, positive correlations with measures of distress, albeit marginally higher than those demonstrated by the SES. Additionally, the correlations between crisis associated with SE(Y) and distress associated with *positive* and *negative* symptoms of psychosis were positive but weak. A possible explanation for these results is that distress associated with SE(Y) experiences is qualitatively different to distress associated with psychosis. Thus, it is still unclear whether our previous concerns (see Cooper et al., 2015; Harris et al., 2015) about the SES's inability to capture the crisis aspect of SE(Y) are justified. Nonetheless, the SC variable created in the current study appears to tap into crisis and distress to a higher degree than the SES.

Associations with mental illness indicators were also used to assess the validity of variables in the current study. Past or present psychological and/or psychiatric treatment and/or prescription of medication was associated with higher scores on the SES, SE(Y), and SC. Thus, there is some support to varying degrees for the validity of these variables as measures of SEY, SE(Y), and SC, respectively. Particularly, the operationalization of the newly created SC variable provides a brief and novel means of assessing the magnitude of (1) self-perceived SE(Y), and (2) self-perceived associated crisis.

It should be noted here that more than half of the participants in the study had previously received, or were currently receiving, treatment for psychological and/or psychiatric disorders. This may be highlighted by some as a criticism of the study, and an indication that attempts to focus on the non-pathological nature of SE(Y) is dubious. Indeed, this finding may speak to the motivation of participants to engage in the study. However, we believe this finding is unsurprising, given that a major purpose of this research is to highlight that individuals diagnosed with mental illness within the dominant Western medical paradigm may actually be self-identifying their experience as SE(Y), and alternative interventions may be more appropriate. The pathological nature of SE(Y) still requires further exploration.

We predicted that SE(Y) would be positively associated with *positive* but not *negative* symptoms of psychosis and schizotypy. This hypothesis was partially supported. We found that the SES, SE(Y), and SC variables were all moderately to strongly, positively correlated with the *positive* symptoms of psychosis and schizotypy. The SES demonstrated stronger relationships with these variables than SE(Y) and SC. These differences in strength may stem from the intentions of the authors of the SES, who concluded that SE(Y) and psychosis may be one and the same (Goretzki et al., 2009). That is, the authors appeared to focus more upon stressing the similarities between SE(Y) and psychosis rather than attempting to draw out possible differential factors, which may have created a bias in the wording of items.

In the current study, we found that the SES and SC also displayed positive but weak correlations with the *negative* symptoms of psychosis, and SC displayed a very weak correlation with the *negative* symptoms of schizotypy. However, SE(Y) (i.e.,

the variable not intended to capture crisis) was not associated with either the *negative* symptoms of psychosis or schizotypy. These results suggest that SE(Y)/SC experiences are associated with the *positive* symptoms of psychosis and schizotypy; and their association with *negative* symptoms of psychosis and schizotypy appears only to manifest to small degrees if there is associated crisis. These findings are somewhat consistent with Bronn and McIlwain's (2015) results, which showed that the SES was positively associated with *positive* psychosis symptoms and negatively associated with *negative* psychosis symptoms. The small positive association with *negative* symptoms demonstrated in the current study (as opposed to the divergent relationship found by the abovementioned authors) may be a result of our larger sample size. Moreover, it has been suggested that *negative* psychotic symptoms may represent *safety behaviors* to avoid exacerbation of *positive* symptoms (Heriot-Maitland, 2008; Morrison, 2004). That is, *negative* symptoms, which tend to be indicative of pathology and poorer outcomes, may manifest as a defensive reaction to a lack of validation and erroneous diagnoses by mental health professionals towards individuals presenting with *positive* psychotic and schizotypal symptoms. The results of the current study support this contention.

The findings of the current study also align with previous research that has reported positive associations between spiritual and paranormal belief and experience and *positive* but not *negative* schizotypy (e.g., Barnby & Bell, 2017; Farias et al., 2013; McCreery & Claridge, 2002; Willard & Norenzayan, 2017). Nettle and Clegg (2006) suggested that *negative* schizotypy scores may differentiate healthy schizotypes from those who develop a psychotic disorder due to the disorganizing effects of *positive* schizotypy (Schofield & Claridge, 2007). That is, the authors suggested that individuals who exhibit *positive* schizotypal characteristics (without the presence of *negative* schizotypal characteristics) may be considered healthy schizotypes. Whereas, those individuals who exhibit both *positive* and *negative* schizotypal characteristics may be more likely to develop psychotic disorder. The implication being that the presence of *negative* schizotypy symptoms may exacerbate the disorganising effects of *positive*

schizotypy symptoms. The authors did not report statistically significant disorganized schizotypy scores in the specific population under investigation (i.e., creatives; see also Nettle, 2006).

In line with these suggestions by Nettle and Clegg (2006), our results illustrate that *positive* schizotypy scores are associated with phenomena that may meet diagnostic criteria for psychotic disorder, however it may be that *negative* (along with disorganized) schizotypy scores differentiate these types of psychotic-like experiences (i.e., of the creative variety) from those that demonstrate a poor prognosis, which are generally characterized by *negative* symptoms (Brill et al., 2009; Ventura et al., 2009). We do note, however, that measures of schizotypy such as the O-LIFE scale, do not distinguish between unusual experiences which are associated with symptoms of mental health problems and unusual experiences which may be conceptualized as non-pathological or benign in nature (such as a non-pathological component of religious/spiritual experience).

As expected, the results revealed a bidirectional mediation effect between *positive* and disorganized schizotypy, leading to crisis associated with SE(Y). That is, disorganized schizotypy mediated the effect between *positive* schizotypy and crisis, and *positive* schizotypy mediated the effect between disorganized schizotypy and crisis. Our results support the suggestion that the more cognitively disorganized an individual is, the more likely they are to be overwhelmed and distressed by anomalous experiences (Schofield & Claridge, 2007). That is, disorganized schizotypy appears to influence the subjective interpretation and appraisal of SE(Y) experiences. However, our results differed from those of Schofield and Claridge (2007), who found that, for highly cognitively disorganized individuals, it was *negative* schizotypy that predicted negative subjective interpretations of anomalous experiences.

A possible reason for the discrepancy between these results is the types of analyses performed. In the current study, simple mediation analyses were performed in order to investigate a potentially bidirectional relationship between *positive* and disorganized schizotypy scores, both of which

demonstrated significant positive correlations with SE(Y)/SC and subjectively negative interpretations of these experiences. *Negative* schizotypy was not included in these analyses, as it demonstrated only weak to no relationships with these variables. Whereas, Schofield and Claridge (2007) performed moderation analyses to specifically explore the interaction between disorganized schizotypy and the other schizotypy variables (i.e., *positive* and *negative*) in relation to the subjective evaluation of paranormal experiences (SEPE). In their preliminary analyses, *negative* schizotypy scores showed a strong negative correlation with SEPE scores, but the authors did not report whether *positive* and disorganized schizotypy scores correlated with SEPE scores. That is, *negative* schizotypy scores showed a strong negative correlation with subjectively positive appraisals of paranormal experiences. The authors did report that none of the three schizotypy variables significantly predicted SEPE, except when split into low vs. high disorganized schizotypy groups.

Moreover, Schofield and Claridge (2007) arrived at the conclusions of their moderation analyses by creating a median split of disorganized schizotypy into high and low scoring groups. However, Hayes (2018) advises against this approach to determining a moderating effect by a continuous variable. Hayes claims that artificial categorization of a continuous variable by creating arbitrary split points produces groups that are not psychometrically meaningful, reduces statistical power, and can increase Type I error rates. The apparent discrepancy between the results of the current study and those of Schofield and Claridge warrants further investigation, particularly given that *negative* symptomatology appeared to manifest in the presence of crisis in the current study. The contribution of *negative* schizotypy to the subjective interpretation of anomalous experiences, particularly for highly cognitively disorganized individuals, may be more thoroughly borne out through more complex analyses (e.g., moderated mediation, as outlined by Hayes, 2018) in the future.

In a recent Brazilian study investigating individuals reporting psychotic experiences, Alminhana et al. (2017a) found that harm avoidance predicted disorganized schizotypy scores, while self-directedness predicted a decrease in overall schizotypy scores, predominantly in disorganized schizotypy. *Self-transcendence*, a character dimension that influences one's self-concept as an integral part of the universe as a whole (see Cloninger, 1994; Cloninger et al., 1993) predicted *positive* schizotypy scores. In a second study, Alminhana et al. (2017b) found that *negative* and disorganized schizotypy scores were associated with lower quality of life (QoL) in individuals reporting psychotic experiences. *Self-directedness*, a character dimension that influences one's self-perception as an autonomous individual (see Cloninger, 1994; Cloninger et al., 1993) predicted higher QoL. The authors concluded that personality features are important criteria in the differentiation between pathology and mental health in individuals reporting high levels of anomalous experiences.

When we consider the combined findings of the current study, those of Alminhana et al. (2017a, b), Schofield and Claridge (2008), and Nettle and Clegg's (2006) suggestion that *negative* schizotypy differentiates healthy schizotypy from psychotic disorder, it may be that *positive* and *negative* schizotypal personality traits, in combination with disorganized schizotypy, are crucial in determining the manner in which an experience is appraised (i.e., subjectively positive vs. negative), and whether the individual is subsequently able to integrate the experience or decline into states of psychopathology and deteriorated QoL. Further research is needed to elucidate this complex interrelatedness, with self-directedness and self-transcendence possibly playing important roles. In the current study, *negative* psychotic and schizotypal symptoms were measurable only in the presence of psychological crisis. It may be that there is a crucial juncture at which point *positive* vs. *negative* schizotypal disposition determines whether an anomalous experience can be endured, albeit perceived in a subjectively negatively manner (e.g., SE[Y]) or whether it leads to poorer QoL as an individual attempts to avoid self-perceived harmful effects of the experience and subsequently loses their sense of self-direction (e.g., clinical psychosis).

From our results, we may postulate that (1) fluctuations in *positive* schizotypy, the effects of

which may be disorganizing and overwhelming, may promote fluctuations in disorganized schizotypy, leading to fluctuations in the degree of crisis, and (2) fluctuations in disorganized schizotypy may lead to fluctuations in *positive* schizptypy, characterized by anomalous experiences, leading to fluctuations in the degree of crisis. It is noted that *positive* psychotic symptoms are purported to fluctuate most over the course of illness (Cornblatt et al., 2003).

Our findings support cognitive models of trauma (e.g., Ehlers & Clark, 2000) and psychosis (e.g., Hemsley, 1993), indicating that if an individual exhibiting a *positive* schizotypal personality perceives anomalous phenomena, characteristic of *positive* schizotypy, as traumatic or distressing, associated deficits in the cognitive processing of incoming stimuli (i.e., disorganized schizotypy) may result in a state of psychological crisis that is characteristic of both SE(Y) and clinical psychosis. These findings also support the proposal that disorganized schizotypy may be at the core of psychotic-like experiences (Linney et al., 2003), and that if this predisposition leads to anomalous experiences, characteristic of its genetically related trait, *positive* schizotypy, an individual's belief system may become challenged, creating a struggle to integrate the experience (i.e., a paradigm shift; Heriot-Maitland, 2008; Jackson, 2010; Jackson & Fulford, 1997; Mathijsen, 2016).

Mathijsen's (2010) Hermit Crab syndrome process suggests that if an individual is unsuccessful in establishing a paradigm shift in response to experiencing an anomalous event, involving a cognitive restructure of the individual's existing belief system to integrate the experience, psychotic symptoms may result. It appears that the subjective interpretation and appraisal of anomalous experiences is key in the development of pathological psychotic-like experiences vs. the successful integration of the experience (i.e., a cognitive paradigm shift) and the achievement of positive transformation, with cognitive disorganization playing a significant role in this process (Marks et al., 2012).

It should be noted here that, while mediation analysis provides a statistical means by which to predict a causal pathway between variables in a study, it is not conclusive with regards to causation (Hayes, 2018). Nonetheless, the results from the current study demonstrated support for two proposed causal pathways that warrant further investigation using study design methods (e.g., longitudinal designs) that are more amenable to causal inferences. What we can tentatively conclude from these results is that the effects of both *positive* and disorganized schizotypy appear to work reciprocally, reinforcing one another, to facilitate negative subjective appraisals of SE(Y) experiences, potentially resulting in psychological crisis that is characteristic of psychotic-like experiences.

These results hold important clinical implications. Specifically, we have identified measurable clinical and personality markers (i.e., symptoms of psychosis and schizotypy), that may help: (1) differentiate between SE(Y) and cases of clinical psychosis that have a poor prognosis, and (2) identify individuals who are at risk of experiencing the potentially debilitating effects of SE(Y). Specifically, (1) psychotic-like experiences that exhibit a higher degree of *positive* than *negative* symptoms may be differentiated from more malignant forms of psychosis that have a poor prognosis (Brill et al., 2009; Ventura et al., 2009); the former may be considered as a possible SE(Y) experience, and (2) individuals who exhibit a psychological profile that includes high levels of *positive* and disorganized schizotypy, irrespective of *negative* schizotypy, may be at risk of experiencing psychological crisis associated with SE(Y).

The *positive* symptoms of psychosis, alone, are currently sufficient to warrant a diagnosis of schizophrenia spectrum disorder (APA, 2013), for which current conventional treatment involves psychopharmacological and nonpharmacological interventions (Patel et al., 2014). The results of the current study indicate that individuals scoring high on *positive* psychotic and schizotypal symptomatology may be self-identifying their experiences as SE(Y), with or without the presence of psychological crisis. That is, the presence of *positive* psychotic symptoms, alone, do not necessarily indicate pathology (see also Johns & van Os, 2001; Peters, 2010; Romme & Escher, 1989; Taylor & Murray, 2012; van Os et al., 2009). As such, these results provide further support for the continued revision and reconceptualization

of diagnostic criteria (Viggiano & Krippner, 2010), to ensure that individuals self-identifying with the experience of SE(Y) are not erroneously diagnosed with schizophrenic or psychotic disorders.

SE(Y) experts have cautioned that inappropriate use of medication may impede the natural transformative process of the experience (e.g., Bradgon, 2013). Current empirically derived guidelines outline spiritual and religious competency practices for psychologists (Vieten et al., 2013, 2016). However, since the inclusion of the DSM V-code V62.89, *Religious or Spiritual Problem* (Lukoff et al., 1992, 1995; Turner et al., 1995), clinicians have not been using the code (Brown, 2005; Harrter, 1995; Hathaway et al., 2004; Scott et al., 2003) or receiving adequate training in religious and spiritual competencies (Vieten et al., 2016), despite acknowledgement of the importance of spiritual assessment (Hathaway et al., 2004; Hugulet et al., 2011; Vieten et al., 2016), and the fact that there may exist a qualitative difference between SE(Y) and clinical psychosis (Harrter, 1995).

St. Arnaud and Cormier (2017) argued that differential diagnosis between SEY and psychotic disorder may be aided by consideration of developmental psychopathology in the evaluation of an individual's experience. That is, psychotic-like episodes that are overtly similar in expression may be associated with vastly different developmental aetiology, thus providing potential markers for distinguishing between the phenomena. As such, we recommend that future research should further explore the developmental aetiology of cases of self-identified SE(Y) compared to cases of clinically diagnosed psychosis, particularly those with a long history of psychopathology. An additional recommendation for future research is a comparative analysis of treatment modalities that have demonstrated efficacy in the treatment of both SE(Y) and clinically diagnosed psychosis (e.g., transpersonal interventions such as the Soteria paradigm, psychopharmacological and nonpharmacological interventions; Calton et al., 2008; Patel et al., 2014). This may help bring us closer to identifying the most appropriate treatment and support for individuals self-identifying with SE(Y).

This study is limited by the use of a self-selected convenience sample who provided data through self-report measures. The use of a non-clinical sample limits the generalizations that can be made regarding the clinical implications of the results, therefore, follow up studies using clinical samples is recommended. The nature of the study design enabled us to gather cross-cultural data, which allows for some degree of cross-cultural generalizability. However, this may also be considered a limitation in terms of potentially different cultural interpretations of the scale items (see Henrich et al., 2010; MacDonald et al., 2015), which is beyond the scope of the study. Future research may consider comparative analyses across different cultural groups, as well as adaptation of the various scales, particularly those assessing SE(Y)/SC to foster cultural sensitivity and diversity.

The study is also limited by non-normal distributions of variables and inadequate internal consistency for *negative* schizotypy; thus results should be interpreted with caution. We recommend that further studies using a larger sample should be conducted in an effort to overcome these limitations. We also recommend that measurement instruments designed to quantify SE(Y) should address the issue of differentiating between past and present experiences. As stated previously, the study design allowed us to evaluate a *proposed* causal relationship between the variables under investigation, however it does not allow for the unequivocal establishment of cause-effect relationships. We recommend future research employs experimental and/or longitudinal designs to evaluate causality.

Finally, future research should further investigate the contribution of personality variables to the experience of SE(Y). Specifically, transliminality, "a hypothesized tendency for psychological material to cross thresholds into or out of consciousness" (Thalbourne & Houran, 2000, p. 861) has correlated positively and statistically significantly with both *positive* and disorganized schizotypy (Thalbourne et al., 2005), as well as clinical psychosis symptoms and Goretzki et al.'s (2009) SES (Harris et al., 2015). It has also been proposed to potentially underlie both spiritual and psychotic phenomena (Claridge, 2010).

## Conclusion

In conclusion, the current study found support for the use of three measures of spiritual emergence(y)-type experiences, including a newly created and operationalized construct, known as spiritual crisis. All three variables demonstrated moderate to strong positive associations with *positive* symptoms of psychosis and schizotypy. Associations with *negative* psychosis and schizotypy were weak and only existed in the presence of psychological crisis, which supports the suggestion that *negative* symptoms may manifest as safety behaviors to avoid the exacerbation of *positive* symptoms (Heriot-Maitland, 2008; Morrison, 2004). We found a bidirectional mediation effect between *positive* and disorganized schizotypy, leading to crisis associated with SE(Y). That is, disorganized schizotypy mediated the effect between *positive* schizotypy and crisis; and *positive* schizotypy mediated the effect between disorganized schizotypy and crisis. We suggest that *positive* and disorganized schizotypy may work reciprocally, leading to negative subjective interpretations of SE(Y) experiences. We further suggest that the subjective interpretation of SE(Y) experiences is key in the development of psychotic-like experiences vs. the successful integration of the experience and subsequent positive transformation, with cognitive disorganization playing a significant role in this process.

This research has addressed the pervasive issue of the differentiation between SE(Y) and psychosis (see Goretzki et al., 2009). It is the first to investigate SE(Y) in relation to the different symptom domains of both psychosis and schizotypy. Our results have identified measurable clinical and personality markers (i.e., psychotic and schizotypal symptoms) that may help differentiate between SE(Y) and more malignant forms of clinical psychosis, and detect individuals who are at risk of psychological crisis. That is, psychotic-like experiences that are characterized by *positive* but not *negative* psychotic symptoms may potentially be SE(Y), and individuals who exhibit *positive* and disorganized schizotypal personality characteristics may be at risk of experiencing crisis associated with SE(Y) experiences. Further research is needed to ascertain causal pathways and aetiological determinants of SE(Y) to further pinpoint the mechanisms underpinning these experiences, and the identification of efficacious treatment programs for those self-identifying with SE(Y) experiences.

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## Notes

1. Transpersonal experiences may be defined as "experiences in which the sense of identity or self extends beyond (trans) the individual or personal to encompass wider aspects of humankind, life, psyche or cosmos." Transpersonal disciplines are "those disciplines that focus on the study of transpersonal experiences and related phenomena. These phenomena include the causes, effects and correlates of transpersonal experiences and development, as well as the disciplines and practices inspired by them" (Walsh & Vaughan, 1993, p. 203).

2. When referring to positive and negative symptoms of psychosis and schizotypy throughout this paper, italics have been added to aid clarity and mitigate confusion with the same terms used to denote positive and negative statistical results.

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## About the Journal

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