



## Short communication

# Experiential avoidance mediates the association between paranoid ideation and depressive symptoms in a sample from the general population

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## ABSTRACT

Psychotic experiences are prevalent in the general population and are associated with negative outcomes, including depressive symptoms. The mechanisms underlying this relationship remain unclear, but new insights could be obtained by exploring the role of transdiagnostic processes such as experiential avoidance, defined as a person's attempts or desires to suppress unwanted internal experiences like thoughts, emotions, memories, or bodily sensations. Studies analyzing the link between negative emotional states and psychotic experiences are scant. We explored the association between a specific kind of psychotic experience (paranoid ideation), experiential avoidance, and depressive, anxiety, and stress symptoms in a sample from the general population. We found that experiential avoidance partially mediates the associations between paranoid ideation and stress and anxiety symptoms and that it fully mediates the association between paranoid ideation and depressive symptoms. Our results suggest that the presence of paranoid ideation and the usage of experiential avoidance to cope with it are vulnerability factors associated with psychological distress.

## 1. Introduction

It is well known that psychotic experiences (PEs) are prevalent in the general population and are associated with several negative outcomes, including greater use of mental health services (Bhavsar et al., 2017), poor functioning (Majer et al., 2019), depressive and anxiety symptoms (Oh et al., 2019; Deng et al., 2020), and stress sensitivity (Devlyder et al., 2016). The underlying mechanisms that explain the associations between PEs and these psychiatric symptoms remain unclear (McGrath et al., 2016), but it is currently accepted that negative emotional states (NES) play a prominent role (Kimhy et al., 2020). For instance, PEs co-occur with depressive symptoms (DS) (Fusar-Poli et al., 2013; Heinze et al., 2018; Krabbendam et al., 2004; Varghese et al., 2011), which may contribute to the maintenance of psychotic symptoms such as paranoia. However, the evidence about the links between PE and DS is controversial. Whereas Wigman et al. (2011) reported that one does not predict change in the other, the longitudinal study by Sullivan et al. (2014) showed that PE at age 12 were associated with depressive symptoms at

age 18. Moreover, bidirectional associations have been previously reported (McGrath et al., 2016; Moritz et al., 2016; Zavos et al., 2016). Moreover, anxiety has been posited as a crucial dimension in the psychosis continuum, acting as a mediator between PEs and social functioning in the general population (Deng et al., 2020). Likewise, stress symptoms –mainly those related to paranoid and threatening appraisals– have been shown to be associated with PEs (Peters et al., 2017). As stated by Collip et al. (2013), the role of specific underlying processes that might explain the observed associations with specific PEs is a relevant unresolved issue. Therefore, new insights could be gained by examining the unknown influence of processes not truly understood and scantily explored (Sullivan et al., 2014), like emotional difficulties (Kimhy et al., 2020) and cognitive processes (McCleery et al., 2019), recognized as core features of psychotic spectrum disorders.

One of the processes that probably influences how people cope with distressing PEs is experiential avoidance (EA), defined as a person's attempts or desires to suppress unwanted internal experiences (thoughts, emotions, memories, or bodily sensations), even when this

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leads to actions that are inconsistent with personal values and goals (Hayes et al., 1996, 2004). EA is a key component of contextual behavior approaches such as Acceptance and Commitment Therapy (ACT). Specifically, EA is conceptualized as a transdiagnostic process involved in the development and maintenance of a number of mental disorders such as depression and anxiety (Mellick, et al., 2019) and psychopathological-related processes not only in clinical samples, but also in the general population (Brereton and McGlinchey, 2020; Kashdan et al., 2006), where psychiatric symptoms and subclinical manifestations are common (Smith et al., 2018). Despite its relevance as a pathological process involved in several mental disorders (Fernández-Rodríguez et al., 2018; Spinhoven et al., 2014), studies analyzing its relationships with psychotic symptoms are still scarce (Yıldız, 2020). Goldstone et al. (2011) reported significant associations between EA and delusions and delusional distress in both non-clinical individuals and paranoid patients, while Udachina et al. (2014) found that this association could be mediated by self-esteem in adult paranoid patients. Recently, Sedighi et al. (2019) observed associations between EA and positive, negative, and general psychotic symptoms assessed by the PANSS in adult schizophrenia patients, suggesting that EA might predict a broad array of psychotic symptoms in these subjects. To the best of our knowledge, only Langer et al. (2010) have examined the relationships between PEs and EA in the general population. In a sample of university students, these authors found that the variables that best predict the predisposition to auditory hallucinations were depression and experiential avoidance. However, the variance explained by the regression model was low, suggesting that other mechanisms could also be important in this association. Under the general framework of the extended psychosis phenotype (van Os and Linscott, 2012), analyzing PEs in non-clinical samples and examining their associations with transdiagnostic factors is strongly encouraged nowadays (DeRosse and Karlsgodt, 2015; Unterrasner, 2018). Given the evidence suggesting bidirectional influences between PEs and DS (McGrath et al., 2016), that DS might not clearly predict PEs (Moritz et al., 2016; Sullivan et al., 2014), and the low certainty about the mechanisms underlying the associations between PEs and DS, anxiety (AS), and stress symptoms (SS), we explored the relationships between PEs and these symptoms in a sample from the general population. Supported by findings revealing associations between EA and paranoid symptoms in both clinical and nonclinical samples (Udachina et al., 2009, 2014a) and between negative affect and experiences of paranoia (Kramer et al., 2014), as well as by evidence showing that suspiciousness phenomena could reflect a higher vulnerability to certain specific psychosis manifestations (negative symptoms) (Unterrasner et al., 2017; 2018), we hypothesized that the associations between paranoid ideation (PI) and DS, AS, and SS are mediated by EA and that this mediation effect will be meaningful when PI is used as the independent variable. Because recent evidence shows that both sex and age differentially impact on psychotic symptoms in the general population (Schultze-Lutter et al., 2020), we did control for their possible effect.

## 2. Method

### 2.1. Participants

The participants were 302 volunteers (182 women) of legal age (mean = 36.96 years old, standard deviation = 15.50; range = 18–89) from the city of Valdivia, Chile. All the volunteers had no previous psychiatric diagnosis, were not receiving drug treatment, and were not visually impaired. The participants were mostly from community groups and the Universidad Austral de Chile. Convenience sampling was used.

### 2.2. Instruments

The participants' mental health was evaluated using the Depression, Anxiety and Stress scale (DASS-21; Lovibond and Lovibond, 1995). In

this study, we used the Chilean validation (Antúñez and Vinet, 2012), whose reliability is adequate (Cronbach's  $\alpha = 0.91$ ). This scale is made up of twenty-one items assessing symptoms of depression (7 items), anxiety (7 items), and stress (7 items). Responses are recorded on a scale ranging from 0 ("It didn't happen to me") to 3 ("It happened to me a lot, or most of the time"). In the present sample, the reliability of the DASS-21 total scores was estimated to be satisfactory (Cronbach's  $\alpha = 0.92$ ; McDonald's  $\omega = 0.92$ ). On a per-dimension basis, the internal consistencies were  $\alpha = 0.83$  and  $\omega = 0.84$  for stress scores,  $\alpha = 0.80$  and  $\omega = 0.81$  for anxiety scores, and  $\alpha = 0.84$  and  $\omega = 0.84$  for depression scores.

To evaluate experiential avoidance, we administered the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011), a widely used instrument for assessing EA. This is a 7-item self-administered scale with 7-point Likert-type response options from 1 (never) to 7 (always). A higher AAQ-II total score indicates a higher level of experiential avoidance. The AAQ-II has shown a unifactorial internal structure (Bond et al., 2011) and has been adapted to different cultural contexts and populations with satisfactory results (e.g. Turkey, Yavuz et al., 2016; China, Zhang et al., 2014; Malaysia, Shari et al., 2019; Serbia, Žuljević et al., 2020; Greece, Karekla and Michaelides, 2017). Also, even though experiential avoidance is considered a cognitive/verbal process, the AAQ-II has shown factorial invariance among non-clinical populations from six European countries with different languages (Monestès et al., 2018). In this study, the scores of the Spanish version of the AAQ-II (Ruiz et al., 2013), as estimated through Cronbach's alpha coefficient and the Omega coefficient, were found to be adequately reliable ( $\alpha = 0.84$ ;  $\omega = 0.84$ ).

To assess paranoid ideation, we used a subscale of the Community Assessment of Psychic Experiences-Positive Scale (CAPE-P15; Capra et al., 2013). This is a 15-item self-report questionnaire addressing paranoid ideation (PI; 5 items), bizarre experiences (BE; 7 items), and perceptual anomalies (PA; 3 items). Responses to items range from 1 (never) to 4 (almost always). CAPE total scores and subscale scores have shown good internal consistency in adolescents from Chile (McDonald's  $\omega = 0.91$ , PI = 0.77, BE = 0.83, and PA = 0.88; Núñez et al., 2015). In our sample, the internal consistency of the CAPE-15 total scores was satisfactory ( $\alpha = 0.84$ ;  $\omega = 0.84$ ), while the internal consistency of the PI subscale scores was acceptable ( $\alpha = 0.68$ ;  $\omega = 0.69$ ).

### 2.3. Procedure

The questionnaire was administered in person in both university and community settings by members of the research group. Respondents had approximately 15 min to answer the questionnaires. All subjects gave their informed consent and the research protocol was approved by the Ethics Committee of the Universidad Austral de Chile.

### 2.4. Statistical analyses

First, we determined descriptive statistics and calculated bivariate correlations among the variables. No missing data were present. Thereafter, to test the main hypothesis, we computed a mediation model. The independent variable of the model was paranoid ideation, the mediating variable was experiential avoidance, and the dependent variables were stress, anxiety, and depression. Age and gender were used as covariates. The mediation model was run using a maximum likelihood estimator. Bootstrap estimates were based on 5000 bootstrap samples. The confidence intervals were calculated through the bias-corrected confidence estimates at a 95% confidence level (Biesanz2010; Preacher and Hayes, 2008). This method provides an estimate (i.e. the mean of all resamples) and a confidence interval for each of the indirect effects. If the interval does not comprise a value of 0, it can be said that there is a significant mediating effect. All analyses were performed with JASP (Version 0.14; JASP Team, 2020).

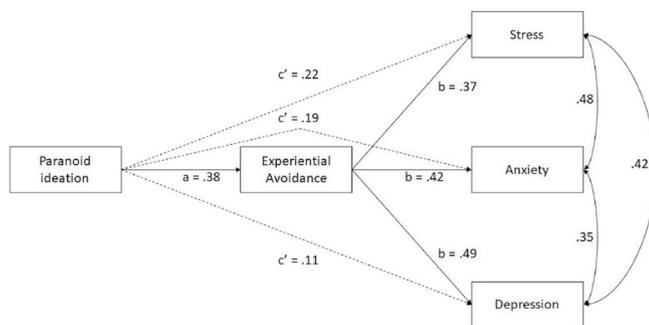
**Table 1**  
Descriptive statistics and bivariate correlations.

Variables	1	2	3	4	5	M	SD	Skewness	Kurtosis	Min	Max
1. Paranoid ideation	–	.39*	.40*	.33*	.32*	8.70	2.37	1.40	3.12	5 (5)	20 (20)
2. Experiential Avoidance		–	.51*	.44*	.54*	17.56	8.89	0.73	–0.26	7 (7)	46 (49)
3. Stress			–	.74*	.66*	5.57	4.39	0.88	0.36	0 (0)	19 (20)
4. Anxiety				–	.67*	3.41	3.80	1.60	2.44	0 (0)	20 (20)
5. Depression					–	3.34	3.98	1.87	3.31	0 (0)	19 (20)

Note: M = mean; SD = Standard Deviation; Min = Minimum; Max = Maximum (in parentheses the minimum and maximum value that the total score of the scale can reach); \* =  $p \leq .001$ .

**Table 2**  
Parameter estimates of the mediation model.

Direct effects			Path regression coefficient	Std. error	z-value	p	95% Confidence Interval	
							Lower	Upper
Paranoid ideation→	Stress		0.41	0.10	4.13	<.001	0.170	0.645
Paranoid ideation→	Anxiety		0.31	0.09	3.44	<.001	0.103	0.540
Paranoid ideation→	Depression		0.19	0.09	2.13	.033	–0.032	0.414
Indirect effects			Path regression coefficient	Std. error	z-value	p	95% Confidence Interval	
							Lower	Upper
Paranoid ideation→	Experiential Avoidance→	Stress	0.29	0.06	5.23	<.001	0.185	0.427
Paranoid ideation→	Experiential Avoidance→	Anxiety	0.22	0.05	4.79	<.001	0.128	0.345
Paranoid ideation→	Experiential Avoidance→	Depression	0.31	0.06	5.57	<.001	0.204	0.439
Total effects			Path regression coefficient	Std. error	z-value	p	95% Confidence Interval	
							Lower	Upper
Paranoid ideation→	Stress		0.70	0.10	6.92	<.001	0.472	0.918
Paranoid ideation→	Anxiety		0.53	0.09	5.94	<.001	0.336	0.760
Paranoid ideation→	Depression		0.50	0.09	5.31	<.001	0.285	0.710



**Fig. 1.** Test of direct and indirect effects (path coefficients) for experiential avoidance in the associations between paranoid ideation and the three subscales of the DASS (i.e., stress, anxiety, and depression).

**3. Results**

**3.1. Descriptive and correlational analyses**

Descriptive statistics show relatively low mean total scores for all variables. Likewise, the correlations between all study variables were positive, moderate-strong, and statistically significant ( $p < .001$ ) (Table 1).

**3.2. The mediating effect of experiential avoidance**

As shown in Table 2, significant total indirect effects were observed (as confidence intervals did not contain a zero) for stress, anxiety, and depression. Regarding the direct effects, experiential avoidance partially mediated the paranoid ideation-stress and paranoid ideation-anxiety relationships. In the case of depression, the mediation of experiential avoidance is complete. The mediation model with covariates explained about 32% of the total variation in stress, 22% of the total variation in

anxiety, and 31% of total variation in depression. The path coefficients of direct and indirect effects are depicted in Fig. 1.

**4. Discussion**

We examined the associations between paranoid ideation, experiential avoidance, and psychiatric symptoms in subjects from the general population. We found that these three phenomena are correlated. Based on prior evidence that PE seems to longitudinally predict DS (Sullivan et al., 2014), and the inconclusive evidence on the association between PI and DS (Moritz et al., 2016), we explored the mediating role of EA, with PI being the predictor and depressive, anxiety, and stress symptoms being the outcome variables. We found that EA fully mediates the association between PI and DS and partially mediates the association between PI and AS and SS. Overall, this finding supports prior research showing that PEs could play a role as predictors of psychopathology in child (Downs et al., 2013), adolescent (Lindgren et al., 2019), and young cohorts (Heinze et al., 2018), with mood and anxiety disorders being among the most relevant predicted disorders (McGrath et al., 2016).

Moreover, our findings are consistent with the work of Isaksson et al. (2020), who observed that PEs, even when after controlling for baseline psychiatric symptoms, predicted internalizing symptoms (depression and anxiety) three years later in adolescents from the general population. Our results do not run counter to Freeman and Garety’s model, which outlines a path from depression to paranoia (Freeman and Garety, 2014); rather, they show that the opposite direction could also be also feasible, as observed in both general (Moritz et al., 2016) and clinical populations (Moritz et al., 2019).

Our findings suggest that the higher the usage of avoidance to cope with PI, the higher the likelihood of depressive, anxiety, and stress symptoms. This is relevant because it shows that it is not only the presence of the symptom which makes PI a psychopathological experience per se; indeed, the way in which a person copes with PI may be linked to his/her symptoms. In this regard, strategies based on avoidance and rejection of the experience may constitute a mechanism that

helps to transform it into a stressful inner event. These results are novel, complicating direct comparisons with prior research. However, similar results were obtained by Varese et al. (2016) who, in a sample of voice-hearers, found that the appraisals of voices and experiential avoidance were predictive of voice-related distress. Moreover, Castilho et al. (2017) described that the impact of attachment anxiety on paranoia was mediated by EA in a sample of patients with a psychosis-spectrum diagnosis. Additionally, Moritz et al. (2019), in a sample of schizophrenia patients, observed a path from paranoia to depression, arguing that the former could interfere with the patients' functioning, leading to depressive symptoms through feelings of shame and entrapment and lower perceived social status.

This study has some limitations. First, because of the cross-sectional design adopted, we cannot establish causal relationships among variables. Second, we used a convenience sampling method, which means that representativeness is not fully guaranteed. Third, although the measurement scales are designed for general and subclinical populations, the variables may have presented some variability restriction in their lower range (i.e. floor effect), which could limit statistical power. Fourth, despite finding that experiential avoidance fully mediates the relationship between paranoid ideation and depression, we advise caution in the interpretation of this result since some specific circumstances of our study, such as its modest sample size and the absence of other uncontrolled variables in the model, could have played a role. In addition, although our work was based on the premise that PEs are prevalent in the general population, it has been found that hallucinations may not be exactly the same experience referred to by clinical and nonclinical populations (Cangas et al., 2011); thus, cautious interpretations must be considered at the moment to generalize these results to patients with psychosis. Moreover, we did not include other transdiagnostic variables probably operating as additional underlying mechanisms (e.g. emotion regulation, rumination, entrapment, social isolation). Finally, we did not assess contextual factors such as attachment styles (Castilho et al., 2017) and trauma-related life events strongly associated with PEs (Pan et al., 2019). Given their relevance as factors potentially explaining specific psychopathological trajectories associated with PEs, further research informed by more complex models is needed. Additionally, due to the still scant evidence on the longitudinal covariation between PE and DS, analyzing these associations and exploring underlying mechanisms is required.

In summary, we found that EA partially mediates the associations between PI and stress and anxiety symptoms and fully mediates the association between PI and DS. This suggests that the presence of PI and the usage of EA to cope with it are vulnerability factors associated with psychological distress. Thus, interventions based on mindfulness and acceptance may help nonclinical individuals to face distressing PI, reducing its association with symptomatology, especially depression, and ultimately promoting good mental health.

#### Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation (available on request).

#### Declaration of competing interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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