

SHORT REPORT

## *Self-exploration accounts for delusional-like experiences in non-clinical adults*

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### BACKGROUND

Previous research on non-clinical samples found that younger age may predispose to delusional-like experiences (DLEs). We propose to seek its explanation within the process of identity formation and personality factors (i.e., fantasy proneness and need for cognitive closure).

### PARTICIPANTS AND PROCEDURE

The study involved 201 individuals (131 women) ranging in age from 18 to 99 years ( $M = 29$ ,  $SD = 13$ ). The participants were recruited through social media sites in which we distributed a link to the online survey.

### RESULTS

The results confirmed that DLEs were predicted in individuals with a younger age, identity exploration, fantasy

proneness and decreased need for closure. Additionally, we found that identity exploration mediated the link between younger age and DLEs.

### CONCLUSIONS

This preliminary study supports the view that DLEs may accompany the “continuously emergent” self represents the status of the matured identity of our time. Further investigations are needed to replicate our findings.

### KEY WORDS

identity; delusional-like experiences; fantasy proneness; need for closure

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*In the postmodern world there is no individual essence to which one remains true or committed. One's identity is continuously emergent, re-formed, and redirected as one moves through the sea of ever-changing relationships. In the case of "Who am I?" it is a teeming world of provisional possibilities.*

K. J. Gergen, *The Saturated Self*, p. 138

## BACKGROUND

As observed in the quote opening this paper, post-modernity exerts an influence over the "healthy" organization of self-concept, namely, over its unity, coherence and solidity. The disorganizing pressures of the contemporary socio-technological environment, if real, may result in "a new constellation of feelings and sensibilities, a new pattern of self-consciousness" (Gergen, 2000, p. 73). This research explores one of the qualities of conscious experience that is hypothesized to be related to a "continuously emergent" identity, i.e., delusional-like experiences (DLEs). DLEs comprise a range of deluded states experienced by a substantial minority of the general population (Kelleher & Cannon, 2011; Peters, Joseph, & Garety, 1999). While the main quality of the non-clinical spectrum of DLEs is experiencing an unusual state of mind, delusions in psychotic patients depend more on the evaluations of such mental events, i.e., conviction in their veracity, emotional distress and preoccupation with them (Peters et al., 1999). In this paper we sought to explain susceptibility to DLEs in non-clinical adults with both developmental and dispositional predictors theoretically related to a "continuously emergent" identity.

### DEVELOPMENTAL DETERMINANTS OF A DELUSIONAL-LIKE EXPERIENCE IN NON-CLINICAL ADULTS

Previous research on non-clinical samples (Elliot, Rosenberg, & Wagner, 1984; Fagioli, Dell'Erba, Migliorini, & Stanghellini, 2015; Peters et al., 1999) found that younger age may predispose to DLEs. Although some authors have pointed to the physiological origins of this effect (Fagioli et al., 2015), we propose to seek its explanation within the process of identity formation. First, the developmental stage of identity formation, characterized by an exploration "in breadth" and "in depth" (Luyckx et al., 2008), denotes an intensified search for personal goals, values, and beliefs, and heightens the awareness of one's thoughts and feelings. Increased openness to inner experience, curiosity and self-consciousness associated with identity exploration (Luyckx et al., 2008) may motivate people to make intensified observa-

tions of their inner experience and thus may make them more receptive to DLEs (Elliot et al., 1984).

Second, DLEs may result from the process of identity formation, because at this stage there is no elaborate, stable and, thus, highly accessible self-construct which could serve as a viable source of agency. Without a strong sense of the self, unusual experiences may be more easily attributable to external agents (e.g., a teacher who steals one's thoughts).

On the basis of these observations, we hypothesized that lower age and identity exploration would predict DLEs in non-clinical adults. Moreover, we expected that increased identity exploration would mediate the link between age and DLEs.

### DISPOSITIONAL DETERMINANTS OF A DELUSIONAL-LIKE EXPERIENCE IN NON-CLINICAL ADULTS

With regard to personality-related factors, DLEs may result from the tendency to fantasize with hallucinatory intensity (Merckelbach, Horselenberg, & Muris, 2001). Fantasy proneness to some extent overlaps with dissociative experiences (Merckelbach et al., 2001), and as such it may contribute to disorientation in self-perception. Indeed, fantasizers tend to confuse the memories of their fantasies with memories of actual events (Merckelbach et al., 2001), develop false memories (Patihis & Loftus, 2016) and report hallucinatory experiences (Merckelbach & van de Ven, 2001). As a result of increased disorientation in self-perception (Evans, Reid, Preston, Palmier-Claus, & Sellwood, 2015), fantasizers can be prone to DLEs (Elliot et al., 1984). What is more, Elliot et al. (1984) found that in non-clinical adults, fantasy proneness heightened the tendency to experience a transient delusion of depersonalization. Accordingly, we hypothesized that DLEs would be predicted by increased fantasy proneness.

According to Webster and Kruglanski (1994), individuals with a high need for cognitive closure desire order and structure; when faced with ambiguity they experience emotional discomfort and an urgent desire to restore closure. They prefer predictability to future events and display an "unwillingness to have one's knowledge confronted (...) by alternative opinions or inconsistent evidence" (Webster & Kruglanski, 1994, p. 1050). On this basis, we expected that a high need for closure would motivate people either to interpret unusual experiences in terms of well-known schemata or to avoid awareness of such unfamiliar states of mind. Consequently, we hypothesized that the need for cognitive closure would be a negative predictor of DLEs.

The main aim of this study was to investigate the above-mentioned predictors of susceptibility to DLE in a non-clinical sample. More specifically, we hypothesized that DLEs would be predicted by younger age, identity exploration, fantasy proneness and

decreased need for cognitive closure. Additionally, we expected that the process of identity exploration would mediate the link between young age and DLEs.

## PARTICIPANTS AND PROCEDURE

The study involved 201 individuals (131 women) ranging in age from 18 to 99 years ( $M = 29$ ,  $SD = 13$ ). The participants were recruited through social media sites in which we distributed a link to the online survey. The volunteers were invited to participate in an anonymous research study about “the diversity of human ideas and experiences”. The survey contained demographic questions (about sex, age, education) and questionnaires measuring DLEs, identity dimensions (i.e., identity exploration and commitment), fantasy proneness, and need for cognitive closure.

## MEASURES

*Delusional-like experiences.* Participants were administered the Peters et al. Delusions Inventory (Peters et al., 1999). This instrument consists of 40 dichotomous questions (Yes/No) indicating the occurrence of DLEs which were not affected by alcohol or drugs. The measure showed good reliability in the current sample ( $\alpha = .86$ ). As the consequence of a “Yes” response to an item indicating DLE, respondents filled in the distress, preoccupation, and conviction scales. More specifically, they responded to 5-point Likert scales, from 1 (*not at all distressing/hardly ever think about it/don't believe it's true*) to 5 (*very distressing/think about it all the time/believe it is absolutely true*).

*Identity dimensions.* Identity exploration and commitment were measured with the Polish version of the Dimensions of Identity Development Scale (Brzezińska & Piotrowski, 2010; Luyckx et al., 2008).

The identity exploration index was obtained by combining two 5-item subscales of Exploration in breadth and Exploration in depth ( $\alpha = .88$ ). Exploration in breadth denotes “the degree to which adolescents search for different alternatives with respect to their goals, values, and beliefs before making commitments” (Luyckx et al., 2008, p. 59), whereas exploration in depth describes “in-depth evaluation of one’s existing commitments and choices (...) to ascertain the degree to which these commitments resemble the internal standards upheld by the individual” (Luyckx et al., 2008, p. 59). The original scale includes an additional 5-item subscale of ruminative type of exploration associated with psychological dysfunctions ( $\alpha = .86$ ). However, this variable was not associated with DLEs when controlled for identity exploration; furthermore, it was theoretically beyond the scope of this research; hence it is not discussed further here. The identity commitment index was formed by combining two 5-item subscales of Commitment making and Identification with commitment ( $\alpha = .93$ ). All items were measured on 6-point scales that ranged from 1 (*strongly disagree*) to 6 (*strongly agree*).

*Fantasy proneness.* Participants were administered the Creative Experiences Questionnaire (CEQ; Merckelbach et al., 2001), a 25-item self-report measure of fantasy proneness ( $\alpha = .85$ ). The answers ranged from 1 (*definitely not true*) to 5 (*definitely true*).

*Need for cognitive closure.* We administered the Polish version of the Need for Cognitive Closure Scale (Kossowska, 2003; Webster & Kruglanski, 1994), which consists of 32 items ( $\alpha = .84$ ). The answers ranged from 1 (*definitely disagree*) to 6 (*definitely agree*).

## RESULTS

Means, standard deviations, and correlations between variables can be found in Table 1. The results are con-

Table 1  
*Descriptive statistics and correlations*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. PDI	9.17	6.13	–							
2. PDI Distress	2.93	0.93	-.07	–						
3. PDI Preoccupation	2.79	0.87	-.15*	.56**	–					
4. PDI Belief strength	2.41	0.84	-.08	.18**	.51**	–				
5. Age	29.46	13.13	-.19**	-.01	.03	-.01	–			
6. Identity exploration	3.88	1.01	.27**	-.30**	-.33**	-.04	-.18	–		
7. Identity commitment	3.99	1.03	-.04	.09	.04	-.02	.02	-.06	–	
8. Fantasy proneness	2.62	0.61	.41**	-.11	-.17*	.07	.02	.34**	-.03	–
9. Need for closure	3.64	0.55	-.15*	-.20**	-.08	.00	.12	.14*	.23**	-.06

Note. PDI – the Peters et al. Delusions Inventory; \* $p < .05$ , \*\* $p < .01$ .

sistent with a previous study on delusional ideation in the normal population (Peters et al., 1999), where, on average, participants reported 9.70 delusional experiences ( $SD = 6.70$ ). By comparison, the average for our sample was 9.20 ( $SD = 6.10$ ), which confirms that our participants displayed the number of DLEs characteristic for the normal population.

To examine whether the developmental and dispositional determinants of a weakened sense of self would predict susceptibility to DLEs in non-clinical adults, a series of hierarchical regression analyses was performed. The analyses were performed separately for all dimensions of DLEs, i.e., (a) the number of delusional experiences (the sum of dichotomous responses); (b) distress; (c) preoccupation and (d) belief strength. In Step 1 we entered the demographic variables (gender, age, education); in Step 2 we entered the developmental (identity exploration and identity commitment) and individual factors (fantasy proneness and need for closure). Significant effects were found for three (out of four) aspects of DLEs (see Table 2). Because delusion conviction (belief strength) was not predicted by any of the variables ( $p_s = .253$ ), it was omitted in the presentation of further results.

Most importantly, the results confirmed that DLEs (dichotomous index) were predicted by younger age ( $\beta = -.15, p = .041$ ), the effect remaining marginally significant in Step 2, identity exploration ( $\beta = .15, p = .033$ ), fantasy proneness ( $\beta = .40, p < .001$ ), and decreased need for cognitive closure ( $\beta = -.11, p = .095$ ). Identity commitment was not related do DLEs. Since our predictions did not concern delusion-related distress and preoccupation, we tested these effects on an explorative basis.

Distress was positively predicted by male gender ( $\beta = .22, p = .002$ ), the effect remaining significant in Step 2, and by committing to one's identity ( $\beta = .13, p = .067$ ). Interestingly, both identity exploration and need for cognitive closure predicted decreased levels of distress ( $\beta = -.26, p = .001$  and  $\beta = -.17, p = .016$ , respectively). Finally, the only (negative) predictor of the preoccupation with one's DLEs was identity exploration ( $\beta = -.30, p < .001$ ).

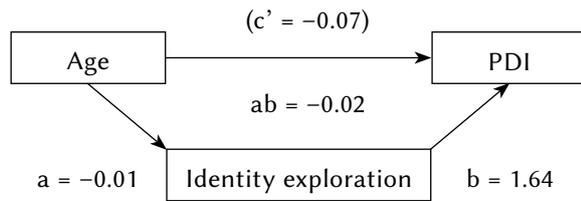
Finally, we expected that the process of identity exploration would mediate the link between younger age and DLEs. In order to test this prediction, mediation analysis was conducted involving bootstrapping with an IBM SPSS (Preacher & Hayes, 2008). A bias-corrected 95% confidence interval based on 5000 bootstrap samples for the indirect effect ( $ab = -0.02$ ) was entirely below zero  $[-0.04, -0.01]$ , indicating a significant mediation effect. The direct effect of age remained significant after controlling for identity exploration ( $c' = -0.07, p = .038$ ), which suggests that identity exploration partially mediated the relationship between age and delusional ideation (see Figure 1).

Table 2

Hierarchical regression analyses regressing delusional experience on demographic data (Step 1) and developmental and dispositional determinants of confidence in one's identity (Step 2)

Predictor	PDI			PDI Distress			PDI Preoccupation					
	Step 1		Step 2		Step 1		Step 2		Step 1		Step 2	
	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$
Gender	.90	.03	.85	.16*	.14	.22**	.14	.18*	.13	.05	.13	-.03
Age	.03	-.15*	.03	-.13 <sup>†</sup>	.01	-.05	.01	-.07	.01	.03	.01	-.01
Education	.39	-.12	.35	-.08	.06	.14 <sup>†</sup>	.06	.11	-.00	-.02	.06	-.03
Identity exploration			.42	.15*			.07	-.26**			.07	-.30***
Identity commitment			.39	.04			.06	.13 <sup>†</sup>			.06	.03
Fantasy proneness			.69	.40***			.12	.03			.11	-.07
Need for closure			.74	-.11 <sup>†</sup>			.12	-.17*			.12	-.05
Adjusted R <sup>2</sup>		.03		.24		.05		.14		.00		.08
F		3.33*		9.82***		4.17**		5.50***		0.22		3.49**

Note. PDI – the Peters et al. Delusions Inventory; <sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .



Note. Values presented are unstandardized betas. PDI = the Peters et al. Delusions Inventory.

Figure 1. The relationship between younger age and delusional-like experiences mediated by identity exploration.

## DISCUSSION

Previous studies have shown that decreased self-concept clarity and stability contributed to delusional ideation (Elliot et al., 1984; Evans et al., 2015). The results of the present study corroborate those findings, as factors theoretically related to a weakened sense of self, namely, fantasy proneness and decreased need for closure, were significant predictors of DLEs in non-clinical adults. Moreover, our findings extend research on DLEs in non-clinical adults, in that we empirically provided a possible explanation for the often-reported link between younger age and increased susceptibility to DLEs (Fagioli et al., 2015; Peters et al., 1999). We confirmed that this effect can be partially explained by processes of identity exploration. It suggests that not only structural indices of self-concept integration but also the developmental process of identity formation may be associated with DLEs. Interestingly, identity exploration was also related to decreased distress and decreased preoccupation with such experiences. Taken together, these results suggest that DLEs serving self-exploration motives may be without a clinical impact (see Peters et al., 1999). Supporting this view, Peters et al. (1999) found an inverse correlation between age and delusional ideation only in the sample of healthy adults. Psychotic participants formed their delusions independently of this rough indicator of identity development. Finally, it is worth noting that none of the developmental or dispositional factors included in this study contributed to increased clinical facets of DLEs (i.e., DLE-related distress, preoccupation or conviction of its veracity).

Certainly, our findings encourage further work on DLEs, which comprise a spectrum of developmentally significant experiences. Most importantly, the question regarding the role of DLEs, if any, in the process of self-exploration needs to be answered. It is plausible, for example, that self-exploration, “a dynamic interactive process of constructing and revising one’s identity” (Luyckx, Goossens, Soenens, & Beyers, 2006, p. 363), results in experiences that cannot be integrated in one’s overall self-concept. In such situations, dissociation from conflicted inner states

may evoke DLEs that help to maintain a coherent sense of self (Bartolotti, 2015). In a similar vein, Bartolotti (2015, p. 496) has argued that as a temporary response to an emergency or crisis, motivated delusions “can support the agent’s epistemic functionality that would otherwise be compromised by overwhelming negative emotions and low self-esteem”. If DLEs in self-exploring adults represent a defensive mechanism that results from a period of crisis (existential doubts, loneliness, lowered self-esteem), then the content of motivated delusions should be related to their specific problems. Yet in our study younger age and identity exploration predicted a wide range of different delusional ideations (see Peters et al., 1999). Further studies should address the issue of the specific content of DLEs in young adults.

Despite the fact that we employed self-exploration motives to interpret age-related DLEs, the results could also be explained by structural aspects of self-concept, i.e., its poor integration (Evans et al., 2015). Evans et al. (2015) have recently shown that structural disintegration indicated by low self-concept clarity mediated the link between childhood trauma and the development of a psychotic disorder. Admittedly, caution should be taken before drawing any conclusions on the role of DLEs in the process of self-exploration. Further studies should be conducted in order to differentiate between transient, development-related DLEs (Elliott et al., 1984) and DLEs that confer increased risk of a schizophrenia-spectrum disorder (Kelleher & Cannon, 2011).

In conclusion, this preliminary study supports the view that DLEs may accompany the “continuously emergent” self, which, according to Gergen (2000), represents the status of identity of our time. However, further investigations are needed to replicate our findings and to identify the underlying mechanism(s) of DLEs in the process of identity exploration.

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