
Article:
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Dear Professor Keshavan,

The cognitive, emotional and behavioural correlates of attachment insecurity are a growing area of clinical interest within the psychosis literature (e.g., Sitko, Bentall, Shevlin et al., 2014), due to the established links between adversity and trauma in relationships and psychosis (Varese, Smeets, Drukker et al., 2012). Researchers have examined whether and how individual differences in social-cognitive conceptualisations of attachment insecurity, i.e., attachment anxiety and avoidance (Mikulincer, Shaver, & Pereg, 2003), might underpin the development of psychosis experiences. This interest has extended to examine observable characteristics of psychosis phenomena, i.e., schizotypy, within the general population, due to a shift towards dimensional approaches to psychosis experiences, in order to better understand the psychosis continuum (Mason & Claridge, 2006). Researchers have identified links between attachment anxiety and avoidance and schizotypy in general and clinical populations (Korver-Nieberg, Berry, Meijer, & de Haan, 2014). However, the contribution of attachment disorganisation to schizotypy has been neglected.

Whilst the behavioural correlates of attachment anxiety (approach behaviours) and avoidance (avoid behaviours) together capture what can be seen in disorganisation, they do not capture the key hallmark of disorganisation: fear of the attachment figure (Paetzold, Rholes, & Kohn, 2015). Fear of the attachment figure is relevant to schizotypy, because researchers have argued that disorganisation is orthogonal to the anxious and avoidant patterns in its influence on the development of fearful psychosis experiences (Berry, Varese & Bucci, 2017) and a fearful attachment style, thought to share similarities with attachment disorganisation, mediates the relationships between abuse and schizotypy (Sheinbaum, Kwapil, & Barrantes-Vidal, 2014).

The paucity of research on attachment disorganisation could be explained by the historical absence of a dimensional measure for adult close relationships. Fortunately, such a measure was recently developed and focuses on the distinct aspect of relational fear (Paetzold et al., 2015). Therefore, for the first time, we examined attachment anxiety, avoidance and disorganisation as predictors of schizotypy.

We examined the relationships between attachment anxiety, avoidance and disorganisation, and schizotypy, amongst university students in the UK, using three measures: the Experiences in Close Relationships Scale (Brennan, Clark, & Shaver, 1998), the Attachment Disorganisation Scale (Paetzold et al., 2015), and the Oxford-Liverpool Inventory of Feelings and Experiences tapping four schizotypy dimensions (Mason & Claridge, 2006), i.e., unusual experiences (**UE**), cognitive disorganisation (**CD**), introvertive anhedonia (**IA**) and impulsive nonconformity (**IN**). Participants were 303 females and 106 males, of which 277 were undergraduates and 132 were postgraduates, and 226 were in a romantic relationship whilst 183 were single. The mean age of participants was 22 years ($SD = 6.17$).

Hierarchical multiple regression analyses were performed to examine whether attachment disorganisation explained statistically significant amounts of variance in schizotypy dimensions, whilst controlling for demographics and attachment anxiety and avoidance. Table 1 provides a summary of the data, including R^2 change values. Our findings show for the first time that attachment disorganisation in adulthood predicts schizotypy experiences.

Attachment disorganisation and anxiety significantly predicted **UE** (e.g., voice hearing). Researchers suggest that fear might contribute to voice-hearing, and that schizotypy experiences might develop as defences against distress (Tiliopoulos & Goodall, 2009). Whilst avoidant individuals seek distance, **UE** might enable proximity seeking (despite fear) for individuals with higher levels of anxiety and disorganisation - voices might represent displacement of fear associated with the attachment figure.

Attachment disorganisation and anxiety also predicted **IN** (e.g., impulsive and anti-social behaviours). **IN** suggests lower self-control so the lack of relationship with avoidance, characteristic of over-regulation, is unsurprising. Conversely, anxiety and disorganisation, might predict **IN** due to escalating displays of distress to ensure needs are met and/or attempts to protect the self from perceived or actual threat in close relationships respectively.

Attachment disorganisation and anxiety did not predict **IA**, whereas attachment avoidance did – again, indicating differences between disorganisation, anxiety, and avoidance. **IA** describes a lack of enjoyment and avoidance of intimacy, which arguably resembles the flat affective and distancing style of attachment avoidance.

Finally, attachment disorganisation, anxiety, and avoidance predicted cognitive disorganisation (e.g., poorer attention). However, we are cautious with our interpretation of attachment-related cognitive processes. Theorists have posited that attachment anxiety and avoidance yield individual differences in cognitive processes, as part of affect regulation (Mikulincer et al., 2003). However, experimental studies of student samples have yet to provide consistent support for attachment-related differences. We strongly advocate for clearer synthesis of the social-cognitive evidence of attachment-related differences in cognition.

We recognise the limitations of our method, including our sample. However, attachment and schizotypy studies have typically relied on student samples so our sample is readily comparable. Our findings indicate that further investigation of relationships between attachment disorganisation in adulthood and psychosis phenomena is warranted, particularly with links to life events (e.g., maltreatment) and other implicated mechanisms, e.g., dissociation (Berry et al., 2017).

Yours sincerely,
Dr Nate Shearman, Dr Abigail Millings, Dr Daniel Carroll and Dr Angela Rowe

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Table1

Table 1.

Summary of hierarchical regression analyses

Dependent variables	Independent Variables		*F* value	R^2	ΔR^2	B	SE B	β
Unusual experiences	Step 1	Gender	-	.038	-	0.95	.130	.036
		Age				-.005	.011	-.028
		Level of study				-.165	.147	-.067
		Relationship status				.368	.116	.158*
	Step 2	Gender	-	.188	.15	.086	.119	.033
		Age				.005	.010	.028
		Level of study				-.093	.135	-.037
		Relationship status				.231	.110	.099*
		Attachment anxiety				.342	.054	.317**
		Attachment avoidance				.162	.052	.154*
	Step 3	Gender	16.427	.223	.035	.145	.118	.055
		Age				.009	.010	.046
		Level of study				-.090	.133	-.036
		Relationship status				.173	.108	.074
		Attachment anxiety				.261	.056	.242**
		Attachment avoidance				.026	.061	.025
		Attachment disorganisation				.852	.202	.262**
Cognitive disorganisation	Step 1	Gender	-	.049	-	1.901	.681	.136*
		Age				-.036	.058	-.036
		Level of study				-1.814	.771	-.138*
		Relationship status				.397	.612	.032
	Step 2	Gender	-	.394	.345	1.794	.546	.128*
		Age				.054	.047	.055
		Level of study				-1.278	.618	-.097*
		Relationship status				-.581	.501	-.047
		Attachment anxiety				2.968	.245	.520**
		Attachment avoidance				.968	.239	.174**
	Step 3	Gender	38.338	.401	.007	1.931	.547	.138**
		Age				.062	.047	.063
		Level of study				-1.271	.616	-.097*
		Relationship status				-.717	.503	-.058
		Attachment anxiety				2.781	.259	.487**
		Attachment avoidance				.652	.281	.117*
		Attachment disorganisation				1.981	.937	.115*
Introvertive anhedonia	Step 1	Gender	-	.024	-	.011	.104	.005
		Age				.020	.009	.136*
		Level of study				-.290	.118	-.147*
		Relationship status				.136	.094	.073
	Step 2	Gender	-	.352	.328	.042	.085	.020
		Age				.022	.007	.144*
		Level of study				-.186	.096	-.094
		Relationship status				-.100	.078	-.054
		Attachment anxiety				.056	.038	.065
		Attachment avoidance				.474	.037	.565**
	Step 3	Gender	31.141	.352	0	.042	.086	.020
		Age				.022	.007	.144*
		Level of study				-.186	.097	-.094
		Relationship status				-.100	.079	-.054
		Attachment anxiety				.057	.041	.066
		Attachment avoidance				.475	.044	.566**
		Attachment disorganisation				-.007	.147	-.003
Impulsive nonconformity	Step 1	Gender	-	.051	-	-.226	.080	-.137*
		Age				-.014	.007	-.119*
		Level of study				-.139	.091	-.090
		Relationship status				-.001	.072	-.001
	Step 2	Gender	-	.129	.078	-.230	.077	-.139*
		Age				-.009	.007	-.078
		Level of study				-.107	.088	-.069
		Relationship status				-.062	.071	-.042
		Attachment anxiety				.156	.035	.232**
		Attachment avoidance				.070	.034	.106*
	Step 3	Gender	12.460	.179	.05	-.186	.076	-.112*
		Age				-.007	.007	-.057
		Level of study				-.105	.085	-.067
		Relationship status				-.106	.070	-.072
		Attachment anxiety				.096	.036	.142*
		Attachment avoidance				-.033	.039	-.049
		Attachment disorganisation				.641	.130	.316**

Notes. * = $p > .05$; ** = $p > .001$

*Conflict of Interest

Conflicts of interest: The authors declare no known conflicts of interest.

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