

Research paper

How might childhood adversity predict adult psychological distress? Applying the Identity Disruption Model to understanding depression and anxiety disorders



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ABSTRACT

Background: Experiencing adversity in childhood is associated with increased risk of a range of psychopathologies, including depression and anxiety disorders. However, there is limited understanding of psychological mechanisms that may help to explain these relationships. The Identity Disruption Model proposes that early adversity can disrupt typical identity development, which may then increase one's vulnerability to psychopathology. The present study aims to apply the Identity Disruption Model to understanding symptoms of depression, generalized anxiety disorder, obsessive-compulsive disorder (OCD), and social anxiety.

Methods: A non-clinical sample of adults from the United States ($n = 382$) completed an online survey assessing early adversity, self-concept clarity, intolerance of uncertainty, and depression, generalized anxiety, OCD, and social anxiety symptoms. Structural equation models: (1) tested whether early adversity predicts psychopathology via a disrupted sense of self, and (2) explored the role of intolerance of uncertainty in the relationship between early adversity and psychopathology.

Results: Early adversity predicted more severe symptoms of depression and anxiety via lower self-concept clarity. Furthermore, a parallel mediation model showed that self-concept clarity and intolerance of uncertainty simultaneously mediated the relationship between early adversity and psychopathology.

Limitations: The data are cross-sectional in nature and longitudinal research is needed to more conclusively test the causal pathways.

Conclusions: Disrupted identity may be one mechanism through which childhood adversity predicts depression and anxiety disorder symptoms later in life. The Identity Disruption Model provides new avenues for future research and suggests potential points of early intervention for the prevention of depression and anxiety disorders.

1. Introduction

Adverse experiences in childhood (such as childhood abuse or neglect, or simply growing up in a chaotic and unstable family environment) can have damaging downstream consequences later in life (Dugal et al., 2016). Early life adversity increases the risk of developing a range of mental disorders in adolescence and adulthood (Enoch, 2011; Kessler et al., 2010; Norman et al., 2012; Putnam, 2006). For example, retrospective studies have found that early adversity is associated with greater prevalence of anxiety disorders, mood disorders, substance use disorders, and suicide attempts later in life (Dube et al., 2005, 2001; Edwards et al., 2003; Green et al., 2010; Lähdepuro et al., 2019; Young et al., 1997). Prospective studies have provided more causal evidence of these relationships, demonstrating

that childhood adversity increases vulnerability to mood and anxiety disorders (Mills et al., 2013; Phillips et al., 2005; Raposa et al., 2014), psychosis (Trotta et al., 2015), and poor physical health (Raposa et al., 2014). Explanations for how early adversity might lead to poor mental and physical health outcomes have highlighted the role of stress and its neurobiological consequences (Shonkoff et al., 2012; Taylor et al., 2011). Psychological mechanisms could also play a role but are currently not well understood. Understanding psychological responses to early adversity could provide new points of intervention for those vulnerable to developing psychological disorders.

A model that can help explain the association between early adversity and psychopathology is the Identity Disruption Model (Vartanian et al., 2018; Vartanian and Hayward, 2018). Originally developed to explain the link between early adversity and disordered

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eating, the key proposition of the Identity Disruption Model is that early adversity disrupts normal identity development, leading to an unclear sense of one's own personal identity. Early adversity might be related to identity disruption because the cognitive and emotional reactions to adversity are difficult to integrate into a coherent self-narrative, because experiences of abuse serve to invalidate the individual's sense of self, or because individuals are deprived of experiences (such as positive interactions with caregivers) that contribute to identity development (e.g., Carlson et al., 1999). Individuals who lack a clear and stable sense of self are thought to turn to external sources to help define themselves (Campbell, 1990), and thus are more likely to internalize societal standards of attractiveness (i.e., take them on as personally meaningful). This internalization is in turn associated with body dissatisfaction and disordered eating behaviors (Vartanian et al., 2018, 2016, 2014).

Although the Identity Disruption Model was originally developed in the context of disordered eating, the core aspects of the model (early adversity leading to disrupted identity which in turn leads to psychopathology) should also apply to other psychological outcomes. There is evidence that early adversity is associated with low self-concept clarity (or lack of a clear sense of self; Streamer and Seery, 2015; Vartanian et al., 2018, 2016). Low self-concept clarity has been shown to be associated with a range of psychopathologies (Cicero, 2018), including depression (Butzer and Kuiper, 2006; Campbell et al., 1996; Treadgold, 1999), anxiety (Bigler et al., 2001; Butzer and Kuiper, 2006; Kusec et al., 2016), and schizophrenia spectrum disorders (Cicero et al., 2016). The connection between self-concept clarity and psychopathology may be due to individuals low in self-concept clarity having maladaptive coping styles, having negative mental representations of the self, and feeling uncomfortable with the lack of clear sense of self, among other potential mechanisms (e.g., Cicero, 2018). In addition to the observed associations between early adversity and self-concept clarity, and between self-concept clarity and psychopathology, a recent study found that self-concept clarity mediated the association between adverse childhood experiences and psychological distress (in the form of loneliness, depression, suicidal behavior, perceived stress, and life distress) (Wong et al., 2019). Together, these studies suggest that the Identity Disruption Model could help explain the association between early adversity and other forms of psychopathology beyond disordered eating.

An additional factor that could be relevant when considering the Identity Disruption Model in the context of more general psychopathology is intolerance of uncertainty. The Intolerance of Uncertainty model of generalized anxiety (Dugas et al., 1997) asserts that anxiety is predicted by excessive worry, which is a pathological response to an inability to deal with uncertainty. Intolerance of uncertainty has also been associated with obsessive compulsive disorder (Tolin et al., 2003), social anxiety (Counsell et al., 2017), and depression (Butzer and Kuiper, 2006), among other disorders. Because childhood adversity can be experienced as chaotic, unpredictable, and uncontrollable, these experiences might result in an intolerance of uncertainty (Soenke et al., 2010). Furthermore, recent studies have shown that self-concept clarity is correlated with an intolerance of uncertainty (Butzer and Kuiper, 2006; Kusec et al., 2016), perhaps because both reflect cognitive schemas related to uncertainty (uncertainty about the self and a general discomfort with uncertainty, respectively). Thus, it is worth considering how intolerance of uncertainty is related to the Identity Disruption Model in the context of psychological distress.

1.1. The present study

The present study aims to build on the work of Wong et al. (2019) by testing the Identity Disruption Model (Vartanian et al., 2018) as applied to symptoms of depression and anxiety. We chose to focus on symptoms of depression, generalized anxiety, obsessive compulsive disorder, and social anxiety because: (1) depressive and anxiety

disorders are the most prevalent mental disorders globally (Steel et al., 2014), (2) these four disorders have been identified as potential consequences of early adversity (Brook and Schmidt, 2008; Green et al., 2010; Lähdepuro et al., 2019; Mathews et al., 2008; Norman et al., 2012; Phillips et al., 2005; Stopa et al., 2010), and (3) they have all been linked to low self-concept clarity and/or intolerance of uncertainty. We hypothesize that childhood adversity would predict low self-concept clarity, which in turn would predict higher symptoms of depression, generalized anxiety, obsessive compulsive disorder, and social anxiety (Hypothesis 1). A more exploratory aim is to determine whether intolerance of uncertainty also plays a role in this context. Because there is no clear basis for determining an assumed causal sequence of the associations between self-concept clarity and intolerance of uncertainty, we tested these variables both as serial mediators and parallel mediators of the association between early adversity and the four psychopathology outcomes (Hypothesis 2).

2. Method

2.1. Participants

Participants were 400 residents of the United States who were recruited through Amazon's Mechanical Turk (MTurk). Participants were excluded if they failed at least one of two simple attention check questions (i.e., "Please select strongly agree for this question"; $n = 18$), leaving a final sample of 382 participants. Participants had a mean age of 35.60 years ($SD = 10.72$, range = 20–72). Just over half of the sample identified as male (51.8%, $n = 198$). The majority of the sample identified as White/Caucasian (80.6%, $n = 308$), had completed a trade/associate degree or higher (64.4%), and indicated that their household income bracket was either US\$20,000–\$40,000 or US \$40,000–\$60,000 a year (52.9%). See Table 1 for complete demographic data.

2.2. Materials and procedure

Participants signed up for a 15-minute online study entitled "Health

Table 1. Demographic
Demographic characteristics.

Variable	Mean (SD) or % (n)
Age	35.60 (10.72)
Sex	
Male	51.8% (198)
Female	48.2% (184)
Ethnicity	
White/Caucasian	80.6% (308)
Black/African American	8.6% (33)
Asian	5.2% (20)
Hispanic/Latino(a)	4.2% (16)
American Indian/Alaska Native	0.5% (2)
"Other"	0.8% (3)
Household income (USD) ^a	
< \$20,000	11.3% (43)
\$20,000–\$40,000	26.1% (99)
\$40,000–\$60,000	26.8% (102)
\$60,000–\$80,000	18.4% (70)
\$80,000–\$100,000	8.2% (31)
> \$100,000	9.2% (35)
Highest level of education	
Did not finish high school	0.5% (2)
High school graduate or equivalent	13.6% (52)
Some college but no degree	21.5% (82)
Associate degree in college (2-year)	14.9% (57)
Bachelor's degree in college (4-year)	38.7% (148)
Masters' degree	8.9% (34)
Doctoral degree (PhD)	0.5% (2)
Professional degree (JD, MD)	1.3% (5)

^a Two participants did not report their household income.

and Personality” and received US\$1.50 reimbursement for their time. Participants completed the following questionnaires in random order.

2.2.1. Early adversity

Early adversity was measured with two questionnaires:

The Risky Families Questionnaire (RFQ; Taylor et al., 2004) is an 11-item scale that assesses participants’ perceptions of having grown up in a household characterized by family stress and dysfunction, including conflict and aggression, cold and unsupportive relationships, and neglect (e.g., “How often would you say there was quarreling, arguing, or shouting between your parents?”). The instructions informed participants that the questions “ask about experiences you may have had when you were growing up (between ages 5 and 15)”. Each item was rated on a 5-point scale (0 = *Not at all*, 4 = *Very often*). Higher total scores indicate more family adversity ($\alpha = 0.81$).

The Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003) is a 25-item measure of traumatic early life experiences, including emotional abuse, physical abuse, sexual abuse, physical neglect, and emotional neglect. The instructions indicated that the questionnaire “asks about some of your experiences growing up as a child and a teenager” and the stem “When I was growing up...” appeared before each item. Each item was rated on a 5-point scale (1 = *Never true* to 5 = *Very often*). Higher total scores indicate more childhood traumatic experiences ($\alpha = 0.95$).

2.2.2. Self-concept clarity

Self-concept clarity was measured with the Self-Concept Clarity Scale (Campbell et al., 1996), which assesses the extent to which individuals have a well-defined, coherent, and stable sense of self. The scale consists of 12 items (e.g., “In general, I have a clear sense of who I am and what I am”), each of which is rated on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*). Some items were reverse-coded and higher mean scores indicate higher self-concept clarity ($\alpha = 0.95$).

2.2.3. Intolerance of uncertainty

Intolerance of uncertainty was measured with the Intolerance of Uncertainty Scale-12 (IUS-12; Carleton et al., 2007). The IUS-12 consists of 12 items that assess reactions to uncertainty, ambiguous situations, and the future (e.g., “Unforeseen events upset me greatly” and “When I am uncertain I can’t function very well”), each of which is rated on a 5-point scale (1 = *Not at all characteristic of me* to 5 = *Entirely characteristic of me*). Higher scores indicate higher intolerance of uncertainty ($\alpha = 0.93$).

2.2.4. Psychopathology outcome variables

The four forms of psychopathology that were assessed in the present study were:

Depressive symptoms were assessed with the Depression subscale of the Depression Anxiety Stress Scale (DASS-21; Lovibond and Lovibond, 1995). The DASS-21 consists of 21 items assessing the frequency of depression, anxiety, and stress symptoms over the past week on a response scale from 0 (*Did not apply to me at all*) to 4 (*Applied to me very much or most of the time*). The DASS-21 scale has good internal consistency and validity (Henry and Crawford, 2005); as such, we administered the full DASS-21 but calculated the Depression subscale only. The Depression subscale consists of 7 items (e.g., “I felt downhearted and blue” and “I felt that I had nothing to look forward to”). Higher sum scores indicated more frequent depressive symptoms over the past week ($\alpha = 0.95$).

Generalized anxiety disorder symptoms were assessed with the GAD-7 Questionnaire (Spitzer et al., 2006). The GAD-7 has been shown to have excellent internal consistency ($\alpha = 0.89$) and good validity (Löwe et al., 2008). Participants were asked to rate the extent to which they had been bothered by seven problems over the past two weeks (e.g., “Feeling nervous, anxious, or on edge” and “Not being able to stop

or control worrying”) on a 4-point response scale (0 = *Not at all*, 1 = *Several days*, 2 = *More than half the days*, 3 = *Nearly every day*). Higher sum scores indicate more frequent generalized anxiety disorder symptoms ($\alpha = 0.93$).

The Obsessive-Compulsive Inventory-Revised (OCI-R) scale (Foa et al., 2002) is an 18-item scale assessing the extent to which obsessions and compulsions have caused distress over the past month. Example items include “I get upset if objects are not arranged properly” and “I repeatedly check doors, windows, drawers, etc.” and each item is rated on a 5-point response scale (0 = *Not at all* to 4 = *Extremely*). The OCI-R has been shown to have good test-retest reliability, as well as good convergent and divergent validity (Hajcak et al., 2004). Higher sum scores reflect more obsessive compulsive symptoms over the past month ($\alpha = 0.95$).

Social anxiety was measured with the Social Phobia Inventory (SPIN; Connor et al., 2000), a 17-item scale that assesses the extent to which participants have felt bothered by a range of social anxiety feelings and behaviors experienced over the past week. Example items include “I avoid talking to people I don’t know” and “Being embarrassed or looking stupid is among my worst fears” and each item is rated on a 5-point response scale (0 = *Not at all* to 4 = *Extremely*). The SPIN has been demonstrated to have good internal consistency, test-retest reliability, and convergent and divergent validity (Connor et al., 2000). Higher sum scores indicate higher social anxiety symptoms over the past week ($\alpha = 0.96$).

2.3. Statistical analysis

We first conducted correlation analyses to assess the associations between all variables. We then conducted the first structural equation model to test Hypothesis 1: that early adversity predicts all psychopathologies via lower self-concept clarity. Scores on the Risky Families Questionnaire and the Childhood Trauma Questionnaire were specified to load onto a latent factor reflecting Early Adversity. All other variables were specified as measured variables in the model. The residuals of the four outcome variables were free to correlate with one another. In line with previous research on the Identity Disruption Model (Vartanian et al., 2018), we allowed early adversity to directly predict the depressive and anxiety disorder outcomes because self-concept clarity is unlikely to be the only mechanism by which early adversity impacts adult psychopathology. We then conducted a second set of structural equation models including intolerance of uncertainty to address Hypothesis 2. In Model 2, intolerance of uncertainty was specified to mediate the relationship between self-concept clarity and each outcome; in Model 3, self-concept clarity was specified to mediate the relationship between intolerance of uncertainty and each outcome; and in Model 4, self-concept clarity and intolerance of uncertainty were specified as parallel mediators of the relationship between early adversity and each outcome. All models were conducted in AMOS (Arbuckle, 2016) with Maximum Likelihood estimation. Good model fit is typically indicated by: a non-significant χ^2 test; an RMSEA close to 0.06 or under and an upper 90% confidence interval (HI90) close to 0.08; an SRMR close to 0.08; and a comparative fit index (CFI) and a Tucker–Lewis Index (TLI) close to 0.95 (Hu and Bentler, 1999). Indirect effects were tested using bootstrap estimation with 5000 samples and bias-corrected percentile bootstrap confidence intervals are reported at the 95% confidence level. Phantom variable models (Macho and Ledermann, 2011) were conducted to obtain estimates and confidence intervals for specific indirect effects (i.e., the indirect effects of early adversity on the outcomes separately through self-concept clarity and intolerance of uncertainty).

Table 2
Descriptive statistics and bivariate correlations among variables.

	<i>M (SD)</i>	1	2	3	4	5	6	7	8
1 Childhood trauma	53.81 (20.30)	–							
2 Risky families	13.35 (8.64)	0.85	–						
3 Self-concept clarity	4.98 (1.48)	–0.41	–0.42	–					
4 Intolerance of uncertainty	2.90 (0.94)	0.30	0.36	–0.52	–				
5 Depression	7.85 (8.88)	0.49	0.50	–0.62	0.58	–			
6 Generalized anxiety	5.04 (5.29)	0.44	0.47	–0.60	0.65	0.88	–		
7 OCD symptoms	14.05 (15.54)	0.48	0.50	–0.52	0.51	0.76	0.68	–	
8 Social anxiety	21.87 (20.23)	0.44	0.49	–0.58	0.64	0.73	0.71	0.60	–

Note: All bivariate correlations are significant at $p < .001$.

3. Results

3.1. Descriptive statistics and correlations

Table 2 reports the means, standard deviations, and bivariate correlations for all variables. The two early adversity variables (CTQ and RFQ) were strongly positive correlated, and both were negatively correlated with self-concept clarity and positively correlated with intolerance of uncertainty, and symptoms of depression, generalized anxiety, OCD, and social anxiety. Self-concept clarity was negatively associated with intolerance of uncertainty and all four psychopathology variables. Intolerance of uncertainty was positively correlated with all four depressive and anxiety disorder outcomes, and the outcomes were strongly positively correlated with each other.

3.2. Structural equation modelling

Hypothesis 1. A structural equation model was conducted to test Hypothesis 1: that early adversity predicts low self-concept clarity which in turn predicts greater depression, generalized anxiety, OCD symptoms, and social anxiety (see Fig. 1). Model 1 fit the data well, $\chi^2(4, N = 382) = 5.16, p = .271, CFI > 0.99, TLI > 0.99, RMSEA = 0.03 [LO90 = 0.00, HI90 = 0.09], SRMR = 0.006$. Fig. 1 shows the model and includes standardized regression weights for all structural paths. The squared multiple correlations revealed that 88.5% of the variance in the Risky Families Questionnaire and 81.3% of the variance in the Childhood Trauma Questionnaire was explained by the early adversity latent factor. Early adversity negatively predicted self-

concept clarity and positively predicted greater depression, generalized anxiety, OCD symptoms, and social anxiety. Self-concept clarity negatively predicted all four psychopathology outcomes. The overall model explained 47% of the variance in depression, 42% of the variance in generalized anxiety, 39% of the variance in OCD symptoms, and 41% of the variance in social anxiety. Moreover, early adversity predicted greater depression, generalized anxiety, OCD symptoms, and social anxiety indirectly through lower self-concept clarity (see Table 3).

Hypothesis 2. We conducted a series of structural equation models to explore the possibility that intolerance of uncertainty plays a role in the relationship between self-concept clarity and psychopathology. Model 2 showed that early adversity negatively predicted self-concept clarity; self-concept clarity negatively predicted intolerance of uncertainty and intolerance of uncertainty was in turn positively associated with all four outcomes. Although the paths were all as predicted, the model fit statistics suggested that the model did not fit the data well, $\chi^2(10, N = 382) = 79.18, p < .001, CFI = 0.97, TLI = 0.92, RMSEA = 0.14 [LO90 = 0.11, HI90 = 0.16], SRMR = 0.06$. Model 3 tested the reverse model in which early adversity predicted intolerance of uncertainty which in turn predicted self-concept clarity, but was again a poor fit for the data, $\chi^2(10, N = 382) = 177.70, p < .001, CFI = 0.93, TLI = 0.80, RMSEA = 0.21 [LO90 = 0.18, HI90 = 0.24], SRMR = 0.10$. Finally, Model 4 tested self-concept clarity and intolerance of uncertainty as parallel mediators of the relationship between early adversity and psychopathology. This model fit the data well: $\chi^2(5, N = 382) = 7.22, p = .205, CFI > 0.99, TLI > 0.99,$

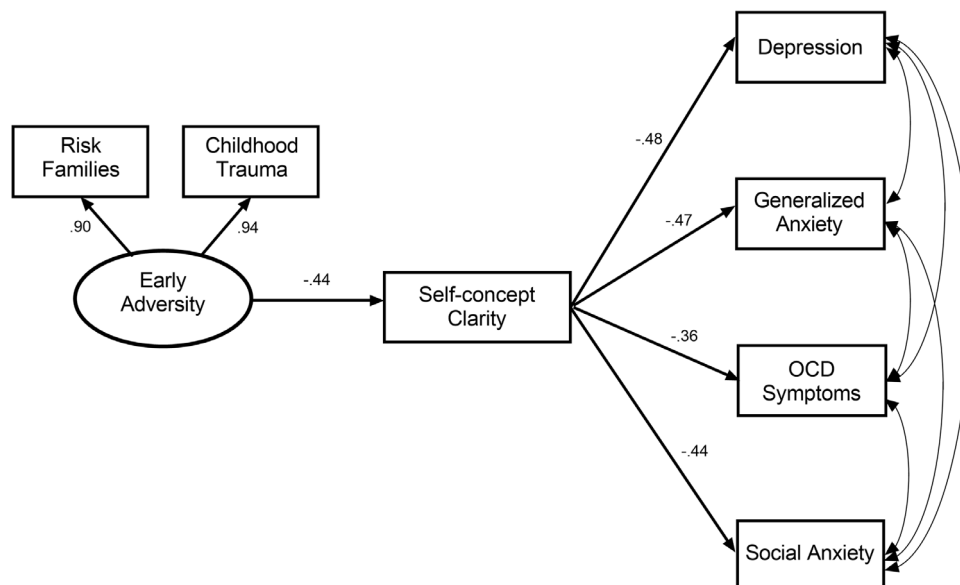


Fig. 1. Structural equation model of early adversity predicting the outcomes via lower self-concept clarity, Model 1. Standardized regression weights are reported. All paths are significant at $p < .001$. For clarity, the direct paths from early adversity to psychopathology outcomes are not shown.

Table 3
Unstandardized direct effects and indirect effects (via self-concept clarity) of early adversity predicting psychopathology, Model 1.

Outcome Variable	B	SE _{boot}	LLCI	ULCI	p
Direct effects					
Depression	0.15	0.03	0.11	0.20	< .001
Generalized Anxiety	0.08	0.02	0.05	0.12	< .001
OCD Symptoms	0.32	0.05	0.22	0.42	< .001
Social Anxiety	0.34	0.06	0.22	0.47	< .001
Indirect effects					
Depression	0.10	0.02	0.08	0.14	< .001
Generalized Anxiety	0.06	0.01	0.04	0.08	< .001
OCD Symptoms	.13	.03	.09	.20	< 0.001
Social Anxiety	.22	.04	.15	.30	< 0.001

Note: LLCI = Lower Level Confidence Interval. ULCI = Upper Level Confidence Interval. Bias-correct bootstrapped confidence intervals are reported at the 95% level.

RMSEA = 0.03 [LO90 = 0.00, HI90 = 0.09], SRMR = 0.004. The overall model explained 54% of the variance in depression, 55% of the variance in generalized anxiety, 44% of the variance in OCD symptoms, and 54% of the variance in social anxiety. The parallel mediation model is shown in Fig. 2, and the indirect effect statistics are shown in Table 4.

4. Discussion

Early adversity is a known risk factor for later psychopathology, but the mechanisms underlying this association are not well understood. The aim of the present study was to test the Identity Disruption Model (Vartanian et al., 2018; Vartanian and Hayward, 2018) as applied to anxiety disorders and depression in an attempt to help explain the link between childhood adversity and adult psychopathology. In a non-clinical sample, higher levels of reported childhood adversity predicted experiences of depression and anxiety disorder symptoms via lower self-concept clarity. These findings suggest that one of the mechanisms by which adverse experiences in childhood might predict psychological distress is via a disrupted sense of personal identity. Exposure to adversity early in life may disrupt typical identity development and result in an unclear sense of self, and this uncertainty may be a source of great distress. Previous research has shown that the Identity Disruption Model can explain the association between early adversity and body

Table 4
Unstandardized direct effects and indirect effects (separately via self-concept clarity and intolerance of uncertainty) of early adversity predicting psychopathology, Model 4.

Outcome variable	B	SE _{boot}	LLCI	ULCI	p
Direct effects					
Depression	0.13	0.02	0.08	0.18	< .001
Generalized anxiety	0.06	0.02	0.03	0.09	.001
OCD symptoms	0.28	0.05	0.19	0.38	< .001
Social anxiety	0.27	0.06	0.16	0.38	< .001
Indirect effect through SCC					
Depression	0.07	0.01	0.05	0.10	< .001
Generalized anxiety	0.04	0.01	0.02	0.05	< 0.001
OCD symptoms	0.09	0.02	0.05	0.14	< .001
Social anxiety	0.13	0.03	0.07	0.19	< .001
Indirect effect through IOU					
Depression	-0.009	0.002	-0.013	-0.006	< .001
Generalized anxiety	-0.007	0.001	-0.010	-0.005	< .001
OCD symptoms	-0.013	0.003	-0.019	-0.008	< .001
Social anxiety	-0.027	0.005	-0.037	-0.019	< .001

Note. SCC = Self-concept Clarity; IOU = Intolerance of Uncertainty; LLCI = Lower Level Confidence Interval. ULCI = Upper Level Confidence Interval. Bias-correct bootstrapped confidence intervals are reported at the 95% level.

dissatisfaction and disordered eating (Vartanian et al., 2018; Vartanian and Hayward, 2018). The results of the present study are consistent with the findings of a recent study by Wong et al. (2019) and provide evidence that the Identity Disruption Model may help to explain the development of a range of psychopathologies beyond disordered eating.

In the present study, we also explored the possibility that intolerance of uncertainty would play a role in the Identity Disruption Model as applied to depressive and anxiety disorder symptoms. There is substantial evidence that intolerance of uncertainty is associated with mood and anxiety disorders (Butzer and Kuiper, 2006; Counsell et al., 2017; Kusec et al., 2016; Tolin et al., 2003). The data from the present study suggest that intolerance of uncertainty, like self-concept clarity, can be impacted by negative early life experiences. We further found that intolerance of uncertainty (along with self-concept clarity) mediated the association between early adversity and psychopathology later in life. The parallel mediation model explained the data better than did

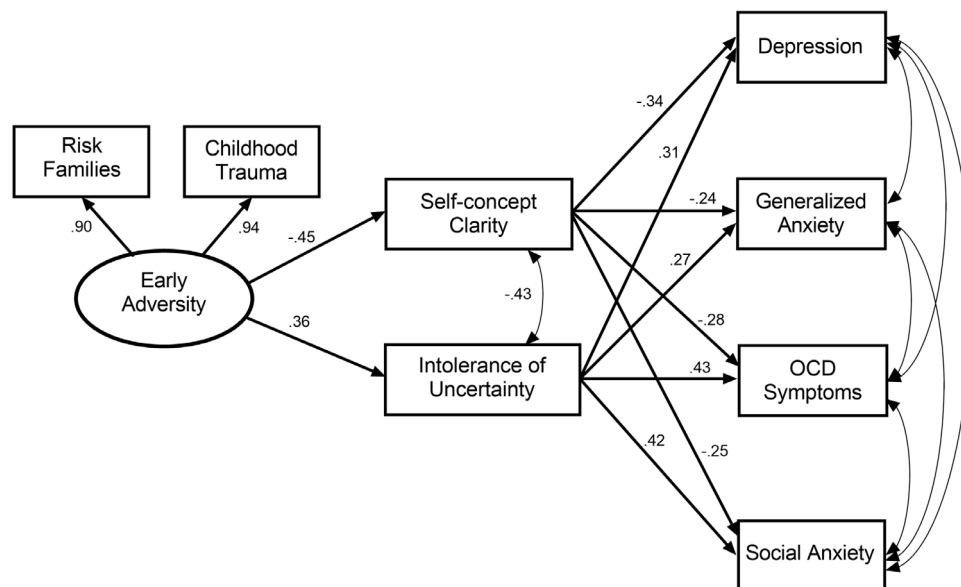


Fig. 2. Structural equation model of early adversity predicting the outcomes via both self-concept clarity and intolerance of uncertainty, Model 4. Standardized regression weights are reported. All paths are significant at $p < .001$. For clarity, the direct paths from early adversity to psychopathology outcomes are not shown.

either of the serial mediation models. These findings suggest that both self-concept clarity and intolerance of uncertainty may be impacted by early adversity, and that both might contribute to later psychopathological outcomes.

4.1. Limitations and future directions

Although we have specified a theoretical model in which adverse experiences in childhood lead to psychological distress later in life via a disrupted sense of personal identity, our ability to make causal claims is limited by the cross-sectional nature of the data. Previous research has found prospective evidence for the link between early adversity and later psychopathology (Mills et al., 2013; Phillips et al., 2005; Raposa et al., 2014) but the causal pathways from self-concept clarity and intolerance of uncertainty to psychopathology are less clear. It is possible that the paths are bi-directional; for example, lacking a clear and coherent self-concept may be distressing and lead to depression and anxiety disorder symptoms, and these feelings of distress could also lead one to question one's sense of self. Alternatively, lacking a coherent sense of self may lead to other counterproductive behaviours that further exacerbate or maintain distress, such as excessive reassurance-seeking from others, or over reliance on loved ones to cope with stressful situations. Longitudinal research is needed to examine how these relationships play out over time. Experimental studies may also help to elucidate the causal relationship between self-concept clarity and intolerance of uncertainty. Although both constructs are typically conceptualised as stable dispositional characteristics (Campbell, 1990; Carleton, 2012), some studies have attempted to temporarily shift them. For example, state self-concept clarity has been experimentally induced by asking participants to write about consistent (vs. inconsistent) self-aspects (Emery et al., 2015). On the other hand, researchers have increased intolerance of uncertainty by having participants think about a possible future negative event and then read aloud statements that highlight feelings of discomfort about not knowing what will happen (Mosca et al., 2016). It would be interesting to apply these paradigms to understanding the direction of the relationship between self-concept clarity and intolerance of uncertainty, which would help refine our understanding of how these factors contribute to psychopathology.

The present study combined with research on disordered eating, shows that the Identity Disruption Model can be applied to a range of psychopathological outcomes. Future research should explore whether this model can help to explain additional psychopathologies beyond those studied in the current paper. For instance, early adversity is associated with an increased risk of schizophrenia (Matheson et al., 2013; Varese et al., 2012), low self-concept clarity is pronounced in people with schizophrenia spectrum disorders (Cicero, 2018; Cicero et al., 2016), and self-concept clarity has been shown to mediate the association between childhood trauma and psychosis (Evans et al., 2015). In addition to considering other forms of psychopathology, it would be worthwhile for future research to build on the Identity Disruption Model by examining additional psychological constructs that could explain how and why early adversity can lead to various forms of psychopathology. Some relevant constructs to explore in this respect could include coping style, affect regulation, perfectionism, and attachment style.

Up until this point, the model has focused entirely on understanding how adverse experiences in *childhood* may contribute to disorders later in life. It is possible that adversity that occurs during other stages of life could also lead to increased risk of psychopathology via similar identity-disruption mechanisms. For instance, given the turbulent nature of adolescence, negative life experiences that occur during this period may be particularly disruptive to typical identity development. Furthermore, adversity in adulthood and adult relationships (for example, intimate partner violence) may disrupt one's sense of personal identity and this may increase the risk of developing a range of psychopathologies.

Future research should explore whether the Identity Disruption Model applies to adverse experiences that occur across the life span.

4.2. Clinical implications

The findings in this paper have potential implications for our understanding and treatment of depression and anxiety disorders. The association between low self-concept clarity and symptoms of depression and anxiety suggests that self-concept clarity may be a particularly important factor to assess when working with clients dealing with related issues, particularly for those who have experienced early life adversity. Because the Identity Disruption Model focuses on factors that may contribute to the development of psychopathology, it also suggests potential points for early intervention. Adolescence is a critical time for identity formation (Kroger et al., 2010) and there is evidence that self-concept clarity solidifies over this period (Crocetti et al., 2015). Thus, it might be particularly useful to target interventions at adolescents who are low in self-concept clarity, or ensure preventative interventions for individuals with early life adversity focus on enhancing self-concept clarity. Furthermore, interventions designed to boost self-concept clarity could be useful adjuncts to treatments for depression and anxiety disorders.

5. Conclusion

The present study showed that the Identity Disruption Model (Vartanian et al., 2018; Vartanian and Hayward, 2018) can potentially help to understand the association between early adversity and symptoms of depression and anxiety. Early adversity was associated with increased symptoms of depression, generalized anxiety, OCD, and social anxiety, and these relationships were mediated by a disrupted sense of personal identity. Intolerance of uncertainty is an additional factor that appears to mediate the relationship between early adversity and psychopathology. More research is needed to better understand the causal pathways, but the current findings suggest that the Identity Disruption Model may be applicable to a range of psychopathologies. The model provides potential points of early intervention and suggests that adolescence—a time of critical identity formation—may be an important period in which to focus prevention efforts, particularly for those who have experienced adversity in childhood and who are therefore most at risk.

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CRedit authorship contribution statement

Lydia E. Hayward: Conceptualization, Methodology, Formal analysis, Writing - original draft. **Lenny R. Vartanian:** Conceptualization, Methodology, Formal analysis, Writing - original draft. **Cassandra Kwok:** Conceptualization, Methodology. **Jill M. Newby:** Conceptualization, Methodology, Writing - original draft.

Declaration of Competing Interest

We have no conflicts of interest to declare.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.jad.2020.01.036](https://doi.org/10.1016/j.jad.2020.01.036).

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