

Implicit theories and depression in clinical and non-clinical samples: The mediating role of experiential avoidance

Gyhye Sung^{1,2} · Yoobin Park¹ · Tai Kiu Choi² · Sun W. Park¹ 

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Abstract Implicit theories refer to people's beliefs about the malleability of personal attributes. Although previous studies have found that those who believe that their attributes are fixed (i.e., entity theorists) tend to be more depressed than those who do not (i.e., incremental theorists), the underlying mechanism is yet to be fully understood. In the present study, we examined experiential avoidance as a potential mediator of this association in both clinical and non-clinical samples. Patients with depressive disorder ($N = 100$) and a non-clinical community sample of adults ($N = 100$) completed measures of implicit theories about anxiety, emotion, and personality, as well as measures of experiential avoidance and depression. The results indicated that experiential avoidance mediated the association between implicit theories in the three domains and depression in both patient and community samples. We replicated previous findings of the positive association between an entity theory and depression in understudied samples, and identified experiential avoidance as a mediator regardless of the severity of the depression.

Keywords Implicit theories · Fixed mindset · Growth mindset · Psychological flexibility · Mental health

While some people believe that their personal qualities are fixed and difficult to change, others believe that their qualities are malleable and can be developed. These beliefs about how

malleable personal attributes are, which have been referred to as implicit theories, structure the fundamental ways that people construe their experience and thus affect their subsequent thoughts and behaviors (Dweck et al. 1995; Dweck and Leggett 1988). People who do not believe in the malleability of the attributes are considered to hold an *entity theory* and those who do are considered to hold an *incremental theory*. Past research has suggested that these theories are domain-specific, such that a person who believes that intelligence is a fixed quality may believe that morality is malleable and vice versa (Dweck et al. 1995).

In recent years, considerable evidence has accumulated to indicate that an individual's implicit theories have important implications for his/her mental well-being. Of particular interest in the present research was the association between implicit theories and depression. Despite the domain-specificity of the implicit theories and their impact, depression has been related to implicit theories across different domains including anxiety, emotion, and personality (De Castella et al. 2013; Schleider et al. 2015; Schroder et al. 2015; Tamir et al. 2007). Specifically, the more one endorses entity theories, the more he/she is likely to be or to become depressed.

However, little attention has been paid to the mechanism by which implicit theories in different domains are related to depression. In one study (Tamir et al. 2007), it was found that emotion regulation self-efficacy mediated the association between implicit theories of emotion and depressive symptoms. Specifically, students who viewed emotions as fixed before entering college tended to negatively evaluate their ability to regulate their emotions, which in turn led them to become more depressed at the end of the freshmen year. In a similar vein, De Castella et al. (2013) found a mediating role of a specific emotion regulation strategy (cognitive reappraisal) in the association between the entity theory of emotion and depression. However, these studies are limited in that the

✉ Sun W. Park
sunwpark@korea.ac.kr

¹ Department of Psychology, Korea University, 145 Anam-ro, Seongbuk-gu, Seoul 02841, South Korea

² Department of Psychiatry, CHA Bundang Medical Center, CHA University, Seongnam, South Korea

proposed mediator pertained to an implicit theory in a specific domain (e.g., emotion). Given that depression is related to implicit theories in several domains as well as to a global implicit theory factor (Schroder et al. 2016), it seems important to identify a common mediator that accounts for the association between implicit theories and depression.

One potential mechanism underlying the association between implicit theories and depression is experiential avoidance which refers to the reluctance to be in contact with negatively evaluated private experiences and deliberate attempts to alter or avoid them (Hayes et al. 1999, 1996). Previous studies have demonstrated a link between experiential avoidance and depression (Tull et al. 2004), such that some treatment approaches for depression involve discouraging avoidance of unwanted thoughts (Hayes et al. 2006). Indeed, although it may appear effective in the short term, experiential avoidance becomes destructive when it interferes with making necessary changes in the pursuit of valuable life goals.

Despite a lack of research that directly associated implicit theories with experiential avoidance, it seems reasonable to expect a close association between the two concepts. If people believe that their attributes cannot change (i.e., endorse entity theories), they are likely to become unwilling to face, and try to escape from, undesirable thoughts and emotions (i.e., high experiential avoidance). Support for this idea comes from previous studies that suggested that entity theorists have the tendency to engage in defensive behaviors, such as avoiding the problem or distorting their beliefs, at the expense of opportunities to grow or succeed (Dweck and Elliott-Moskwa 2010). For example, upon failing their first test in a new course, students holding an entity theory were more likely to report that they would study less or never take a class in that area again (Blackwell et al. 2007). In a similar vein, it has been found that people who endorse entity beliefs regarding relationships (e.g., “Potential relationship partners are either destined to get along or they are not”) are more likely to use avoidance coping strategies (e.g., disengaging oneself from the problem) when dealing with stressful relationship events (Knee 1998).

Furthermore, more direct evidence for the association between implicit theories and experiential avoidance was found in a study in which participants’ feelings and behaviors were examined during or after a negative event. In Kappes and Schikowski (2013), those who endorsed an entity theory of emotion were more likely to be distracted while watching an upsetting movie and to feel uncomfortable afterwards. Experimentally inducing entity (vs. incremental) beliefs about emotion also reduced the participants’ tendency to engage in cognitive reappraisal (i.e., reframing a negative situation in a more positive light; Gross 1998) during a stressful speech task

(Kneeland et al. 2016), suggesting that endorsing an entity theory led them to avoid confronting the negative states.

Based on the preceding discussion, the present research sought to examine experiential avoidance as a potential mediator between implicit theories and depression. Given the primary reliance on student samples in the existing research (Howell 2017), we employed two previously understudied samples: community adults who cover a wide age range, and patients with depressive disorders who show a severe level of depressive symptoms. This also allowed us to test the replicability of the previous findings on implicit theories and depression (Schroder et al. 2015) in different samples. Our specific hypotheses were as follows:

Hypothesis 1. In both patient and community samples, endorsement of entity theories in three domains (anxiety, emotion, and personality) will be positively related to depression.

Hypothesis 2. In both patient and community samples, the positive association between entity theories in three domains and depression will be mediated by experiential avoidance.

Method

Participants and Procedure

One hundred depressed patients (41 men, 49 women) were recruited from the outpatient clinic of a university hospital in South Korea. The inclusion criteria for patients were (1) having a primary diagnosis of depressive disorder according to the Structured Clinical Interview for DSM-IV Axis I Disorders criteria (First et al. 1997) and (2) the absence of comorbid bipolar disorders or schizophrenia and other psychotic disorders.

Of the 100 patients in the final sample, 82 were diagnosed with major depressive disorder, 14 with dysthymic disorder, and four with depressive disorder not otherwise specified. Sixty-seven patients had two comorbid diagnoses, and 26 had more than three. The most common comorbid disorder was anxiety disorder, with 55 patients having the diagnosis. Table 1 provides information of the patients’ age, separated by

Table 1 Participants’ age by gender in patient and community samples

	Men	Women	Total
Patients	38.90 (13.81)	37.02 (12.66)	37.79 (13.11)
Community adults	40.50 (12.56)	38.44 (12.54)	39.47 (12.53)

Numbers given are means and standard deviations (in parentheses)

gender. As a whole, there were eight patients aged 20 years or younger, 25 aged 20–29 years, 21 aged 30–39 years, 22 aged 40–49 years, and 24 aged 50 years or above. Participants completed a battery of questionnaires in the hospital.

The community sample consisted of 100 adults (50 men, 50 women) living in Korea who were recruited by a professional online survey company. Respondents registered to the company were invited to complete the survey through emails. Those who met the age criteria and wanted to participate gained access to the full questionnaire and received monetary reward for their participation afterwards. Table 1 provides information of the respondents' age, separated by gender. The sample consisted of 28 adults aged 20–29 years, 18 aged 30–39 years, 24 aged 40–49 years, and 30 aged 50 years or above.

Measures

Implicit Theories Implicit theories in three domains were assessed using existing measures (see the Appendix for all of the items). The items for implicit theories of emotion were developed by Tamir et al. (2007) and included four statements (e.g., “No matter how hard they try, people can't really change the emotions they have”). The internal reliability of the measure was .64 in the present research, which is comparable to .75 previously reported (Tamir et al. 2007).

The items for implicit theories of anxiety were taken from Schroder et al. (2015) and consisted of four statements (e.g., “You have a certain amount of anxiety and you really cannot do much to change it”). High internal reliability was obtained in the present research ($\alpha = .91$), which is comparable to .97 reported by the developers (Schroder et al. 2015).

The items for implicit theories of personality were taken from Dweck et al. (1995) and included three statements (e.g., “The kind of person someone is is something very basic about them, and it can't be changed very much”). The internal reliability of the measure was .89 in the present research, which is comparable to that reported by the developers, which ranged from .90 to .96 (Dweck et al. 1995). Each item was rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate more endorsement of entity theories.

Experiential Avoidance The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al. 2011; see the Appendix for all of the items) was used as a measure of experiential avoidance. The AAQ-II assesses the degree to which one makes negative evaluations of private events and is unwilling to accept them. It was rated using a 7-point scale, with a higher score indicating greater experiential avoidance. In the present research, high internal reliability was obtained for the seven items

($\alpha = .91$),¹ which is comparable to that reported in Bond et al. (2011; ranging from $\alpha = .78$ to .88). More detailed psychometric evaluation of this measure can also be found in Bond et al. (2011).

Depression The Beck Depression Inventory-II (BDI-II; Beck et al. 1996) consists of 21 items that assess the severity of depression. The presence of depressive symptoms over the past two weeks was measured on a 4-point scale, with a higher score indicating more depressive symptomatology. This measure demonstrated high internal reliability of .93 in the present research, which is comparable to that reported in the manual (Beck et al. 1996; ranging from .92 to .93).

Results

Preliminary Analyses

The descriptive statistics and zero-order correlations between all variables are presented in Table 2. Depressed patients scored higher in depression, $t(198) = -9.60$, $p < .001$, Cohen's $d = 1.36$, and experiential avoidance, $t(198) = -6.60$, $p < .001$, Cohen's $d = 0.93$, than the community adults. Patients were also more likely to endorse an entity theory of anxiety, $t(198) = -2.86$, $p = .005$, Cohen's $d = 0.40$. No significant difference between the groups was found for implicit theories of emotion or personality.

Furthermore, consistent with previous findings (Schroder et al. 2016), implicit theories in the three domains were significantly related to depression. There were also positive relations between the implicit theories and experiential avoidance, and between experiential avoidance and depression, in both samples.

Main Analyses

To examine whether the implicit theories were related to depression via experiential avoidance, we used the PROCESS macro in SPSS (Model 4; Hayes 2013). The bias-corrected 95% confidence interval was calculated using 5000 bootstrapping samples. We entered the implicit theories, one from one domain at a time, as the predictor variable, experiential avoidance as the mediator, and

¹ We note that participants responded to the 10-item version of the AAQ-II measure, but we computed their experiential avoidance score excluding the three reverse-coded items, as doing so has been found to make the measure psychometrically stronger (Bond et al. 2011). However, the internal reliability of the 10-item version was comparably high in the present research ($\alpha = .89$), and all of the results we report here did not significantly change when we computed participants' experiential avoidance score using all 10 items.

Table 2 Descriptive statistics and correlations between variables

Variable	1	2	3	4	5	<i>M (SD)</i>
1. IT of anxiety	–	.46**	.58**	.58**	.44**	16.23 (5.63)
2. IT of emotion	.16	–	.53**	.52**	.42**	12.54 (4.95)
3. IT of personality	.46**	.17	–	.46**	.41**	11.38 (4.40)
4. Experiential avoidance	.53**	.19	.41**	–	.56**	28.97 (10.19)
5. Depression	.58**	.21*	.32**	.70**	–	28.50 (12.26)
<i>M (SD)</i>	13.92 (5.81)	12.08 (3.85)	11.05 (3.72)	20.62 (7.51)	13.33 (9.98)	

Results for the patients are presented above the diagonal and results for the community sample of adults are presented below the diagonal
IT, implicit theories

* $p \leq .05$, ** $p \leq .01$

depression as the criterion variable. The results of these analyses are presented in Table 3. In both samples, each of the implicit theories had a significant indirect effect on depression via experiential avoidance, indicated by a 95% confidence interval excluding zero. The results remained the same when sex and age were included as covariates.²

Discussion

The present research examined the mediational role of experiential avoidance in the association between implicit theories and depression. We hypothesized that because entity theorists do not believe that their personal characteristics are changeable, they are likely to be reluctant to experience negatively evaluated private events and be inflexible in handling them, which in turn may lead to depression. Indeed, we found that implicit theories in three different domains (i.e., emotion, anxiety, and personality) had a significant indirect effect on depression via experiential avoidance. Moreover, all of the indirect effects were significant in both clinical and non-clinical samples, despite their differences in the severity of depression.

A major contribution of the present work is that we identified a general mechanism by which one's implicit theories are related to depression. Specifically, previous attempts to find a mediator between implicit theories have

been domain-specific (e.g., emotion regulation self-efficacy mediates the link between implicit theories of emotion and depression; Tamir et al. 2007). On the contrary, we proposed experiential avoidance as a common mediator, and indeed found that it plays a robust mediating role between implicit theories in three different domains and depression.

This research also makes an important contribution to the existing literature on implicit theories and depression by employing two previously understudied samples, community adults and depressed patients. The generalizability of the previous findings has been questioned (Howell 2017) because of their reliance on samples of undergraduates or adolescents going through a transitional period in life (Tamir et al. 2007; Yeager et al. 2014). By confirming the association between implicit theories and depression in the two samples, the present research suggests that viewing emotions, anxiety, and personality as fixed and unmalleable is detrimental to mental health regardless of the developmental stage or severity of depression. More importantly, by providing support for the mediational model in both samples, we increase the generalizability of our findings and lend strong support to the clinical implications that they may have.

Indeed, the potential utility of understanding implicit theories in clinical settings has been suggested in previous intervention studies involving induction of incremental theories (Blackwell et al. 2007; Yeager et al. 2014, 2013). In particular, promotion of incremental beliefs has been found to be effective in reducing the incidence of clinical depression (Miu and Yeager 2015). In view of our findings, it is possible that a change in an implicit theory could have influenced people's mental health through a change in the strategies for dealing with negative emotions (i.e., reduced experiential avoidance).

Understanding this mechanism can offer benefits for conducting clinical therapies and acceptance and mindfulness-based treatments, such as Acceptance and

² Our proposed model was based on previous studies that have theoretically suggested (Dweck and Leggett 1988) and found experimental support for (Blackwell et al. 2007; Burnette 2010; Kneeland et al. 2016) the idea that implicit theories *cause* differences in response patterns. That is, it is likely that implicit theories influence the extent to which they use avoidant strategies to escape from unwanted experiences, rather than the other way around. Supporting our proposed model, when we conducted mediational analyses with experiential avoidance as the predictor and implicit theories across different domains as the mediators, we found that only two of the six possible indirect effects emerged as significant (in contrast to the all six indirect effects emerging as significant in our model as shown in Table 3).

Table 3 Total, direct, and indirect effects of implicit theories on depression through experiential avoidance

	Predictor variable	Total effect	Direct effect	Indirect effect
Patients	IT of anxiety	0.97** (0.20)	0.40 (0.22)	0.57 [0.31, 0.89]
	IT of emotion	1.05** (0.23)	0.46 (0.24)	0.59 [0.34, 0.92]
	IT of personality	1.13** (0.26)	0.54* (0.26)	0.60 [0.32, 1.01]
Community adults	IT of anxiety	0.99** (0.14)	0.48** (0.14)	0.50 [0.29, 0.81]
	IT of emotion	0.54* (0.26)	0.20 (0.19)	0.34 [0.02, 0.81]
	IT of personality	0.85** (0.26)	0.09 (0.21)	0.76 [0.38, 1.29]

Unstandardized coefficients are reported. Numbers in parentheses are standard errors; numbers in brackets are 95% confidence intervals. Indirect effects are significant at .05 level if the confidence intervals do not include zero

IT, implicit theories

* $p \leq .05$, ** $p \leq .01$

Commitment Therapy (ACT; Hayes et al. 1999), in particular. Considering that the essential aim of ACT is to discourage experiential avoidance and to increase psychological flexibility (Hayes et al. 2006), understanding patients' implicit theories and fostering incremental beliefs may be useful in the treatment process. For example, it is possible that incorporating sessions that cultivate incremental theories into ACT could have a synergistic effect on treating depression. Previous findings that a baseline implicit theory can moderate the effect of the intervention (Burns and Isbell 2007; Miu and Yeager 2015) also suggest that understanding patients' implicit theories prior to treatment may provide useful information for clinicians.

The potential clinical implications of our findings can be further explored in future research into how implicit theories can affect depressed patients' attitudes toward the therapy prior to and during the treatment. Previous research has shown that those who hold an entity theory were less likely to choose individual therapy over medication in hypothetical situations (Schroder et al. 2015). Possibly, entity theorists are more inclined to avoid receiving individual therapy or to discontinue their sessions because of their high avoidance of confronting negative emotional states. How implicit theories and experiential avoidance can play a role in treatment-related processes, and thus in treatment outcomes, warrants further research attention.

We also note that a number of limitations of the present research should be addressed in the future. Firstly, as the cross-sectional design of this study precludes causal interpretation, it is important to use longitudinal data in order to better understand the association between implicit theories, experiential avoidance, and depression. Given the difficulty in concluding the temporal precedence of these psychological constructs, this may involve conducting longitudinal studies tracking participants from childhood to adulthood (Spinhoven et al. 2016). Alternatively, it is

also possible that depression precedes and causes both experiential avoidance and the tendency to endorse entity theories, and thus merits further exploration.

Secondly, although we focused on testing the mediational role of experiential avoidance, it is necessary to examine it along with other potential mediators (Tamir et al. 2007) in order to determine whether, and to what extent, it accounts for unique variance in the association between implicit theories and depression. Lastly, we did not ask our non-clinical participants for their medical history, which may raise concerns about their mental health condition. Although our assumption that the two groups represent people with different levels of depression seems sound given the substantial difference in their BDI-II scores, future research would benefit from obtaining detailed information about the non-clinical participants' past or current psychiatric conditions.

In conclusion, the present research provides compelling evidence that experiential avoidance accounts for entity theorists' tendency to be depressed. As research into the association between implicit theories and depression has only just begun, we encourage further exploration of the underlying mechanism.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Appendix

Implicit theory measures

Emotion (Tamir et al. 2007)

- 1 Everyone can learn to control their emotions.
- 2 If they want to, people can change the emotions that they have.
- 3 No matter how hard they try, people can't really change the emotions that they have.
- 4 The truth is, people have very little control over their emotions.

Anxiety (Schroder et al. 2015)

- 1 You have a certain amount of anxiety and you really cannot do much to change it.
- 2 Your anxiety is something about you that you cannot change very much.
- 3 To be honest, you cannot really change how anxious you are.
- 4 No matter how hard you try, you can't really change the level of anxiety that you have.

Personality (Dweck et al. 1995)

- 1 The kind of person someone is is something very basic about them and it can't be changed very much.
- 2 People can do things differently, but the important parts of who they are can't really be changed.
- 3 Everyone is a certain kind of person and there is not much that can be done to really change that.

The Acceptance and Action Questionnaire-II (Bond et al. 2011)

- 1 My painful experiences and memories make it difficult for me to live a life that I would value.
- 2 I'm afraid of my feelings.
- 3 I worry about not being able to control my worries and feelings.
- 4 My painful memories prevent me from having a fulfilling life.
- 5 Emotions cause problems in my life.
- 6 It seems like most people are handling their lives better than I am.
- 7 Worries get in the way of my success.

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