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Does suicidal ideation influence memory? A study of the role of violent daydreaming in the relationship between suicidal ideation and everyday memory

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Abstract

Individuals at risk for suicide experience periods of emotional, enduring, and vivid thoughts about their death by suicide and frequently report violent daydreams about death. Daydreaming is associated with forgetfulness and memory impairments. However, no studies have examined whether suicidal ideation is associated with deficits in everyday memory capabilities and whether violent daydreaming may influence these relationships. This study tested these hypotheses in a sample of 512 young adults. Self-report measures of subjective everyday memory capabilities, violent daydreaming, and suicidal ideation were administered. Results indicated that suicidal ideation and violent daydreaming were each significantly associated with greater impairments in everyday memory retrieval and everyday memory encoding (i.e., attentional tracking).

Furthermore, violent daydreaming accounted for the relationship between suicidal ideation and impairments in everyday memory retrieval and memory encoding. Notably, findings remained after controlling for gender and depressive symptoms, a robust predictor of memory impairments. Implications and limitations are discussed.

Keywords

violent daydreaming; suicidal ideation; memory; memory retrieval; memory encoding; attentional tracking

Daydreaming is frequent phenomenon: a default mode of the mind (Klinger, 1971; Mason et al., 2007) that may be defined as “nonworking” thought that is either spontaneous or fanciful (Klinger, 2009, p. 226). Daydreaming is strongly related to rumination, which are repetitive thoughts about internal negative emotions and symptoms of distress (Marchetti, Putte, & Koster, 2014; Nolen-Hoeksema, 2000; Nolen-Hoeksema et al., 2008). Mounting evidence, both anecdotal and empirical, suggests that individuals at risk for suicide may experience specific periods of enduring, vivid, and emotional thoughts, or daydreams, about their death by suicide (Selby, Anestis, & Joiner, 2007). In contrast to non-violent daydreams, violent daydreams are spontaneous fantasies and daydreams about violent acts, such as death, suicide and revenge (Selby, Anestis, & Joiner, 2007). Though active ideation similarly

violent in that it focuses on the actions of hurting oneself; however, it is not necessarily a spontaneous fantasy, or daydream (Chu et al., 2015; Silverman et al., 2007).

Evidence suggests that the act of daydreaming is associated with impairments in memory, including increased forgetfulness (Delaney, Sahakyan, Kelley, & Zimmerman, 2010). However, no studies, to our knowledge, have examined whether individuals with symptoms of suicidal ideation exhibit memory deficits and whether violent daydreaming may account for these deficits. Memory deficits among individuals with symptoms of suicide-related symptoms may impact suicide risk assessment approaches, treatment, and planning (e.g., Wenzel & Beck, 2008). Additionally, memory impairments may negatively impact interpersonal problem-solving ability and stress management (Williams et al., 2006), which may contribute to further increases in suicide risk. Therefore, a greater understanding of the relationship between suicidal ideation and cognitive functioning is vital.

Although the relationship between suicidal ideation and memory has been relatively understudied, there is some research indicating a relationship between suicidal symptoms and memory impairments. Specifically, studies have shown that individuals with a history of suicide attempts, compared to controls, tend to retrieve overgeneralized autobiographical memories that are vague, lacking in detail, and nonspecific (Kaviani et al., 2011; Schacter, Addis, & Buckner, 2007; Williams & Broadbent, 1986; Williams et al. 1996; 2000). Studies have shown that this effect is above and beyond the effects of depressive symptoms (Pollock & Williams, 2001). Williams and colleagues (2000) argued that overgeneral memories were likely a result of underlying impairments in memory retrieval. Studies have also indicated that individuals diagnosed with mood disorders and borderline personality disorder, many of whom exhibit suicide-related symptoms, tend to report forgetfulness and greater subjective difficulties with their everyday memory, including greater impairments in memory retrieval and encoding (Bassett & Folstein, 1993; Beblo et al., 2014; Bruce & Arnett, 2010). Overall, these studies seem to suggest a relationship between suicidal symptoms and underlying deficits in memory retrieval and encoding. However, to the authors' knowledge, no studies have directly examined whether impairments in everyday memory retrieval and/or encoding are associated with symptoms of suicidal ideation, and whether any third variables may explain this potential relationship.

Daydreaming has been linked to deficits in memory abilities. Research has shown that daydreaming is associated with increased forgetfulness (Delaney, Sahakyan, Kelley, & Zimmerman, 2010), which may result from difficulties with memory retrieval and encoding (Arnsten, 2005). Accordingly, daydreaming has also been linked to decreased attention (Smallwood, McSpadden, & Schooler, 2008), which is important for memory encoding, and the storage and subsequent retrieval of a memory (Arnsten, 2005). Given these findings, daydreaming may be one potential phenomenon that accounts for the relationship between suicidal ideation and memory deficits.

Mounting evidence suggests that individuals with a history of suicidal ideation and behavior frequently report violent daydreams about death (Crane et al., 2011; Hales et al., 2011; Holmes et al., 2007; Selby et al., 2007). Though violent daydreaming may be frightening to many, Selby and colleagues (2007) reported evidence that individuals at risk for suicide may

experience such strong negative emotions about their lives that engaging in daydreams or fantasies about suicide may serve as a means for emotion dysregulation (Selby, Anestis, & Joiner, 2007). Indeed, both Holmes and colleagues (2007) and Crane and colleagues (2011) found that at the time of greatest distress, individuals with a history of suicide attempts and/or depression reported frequent vivid suicide-related mental imagery, ranging in content from what might happen to other people if one died to planning/preparing for a suicide attempt. Furthermore, Selby and colleagues (2007) demonstrated that depression and the presence of violent daydreaming (i.e., presence of vivid fantasies of violence acts) interacted to predict higher levels of suicidal ideation. These findings suggest that individuals who are experiencing suicidal ideation may also experience enduring violent daydreams.

Given the independent associations between daydreaming and memory deficits and between suicidal ideation and both violent daydreaming and memory impairments, it is possible that violent daydreaming may play a role in the relationship between suicidal ideation and deficits in everyday memory retrieval and encoding. However, no studies, to our knowledge, have investigated whether violent daydreaming may explain the relationship between suicidal ideation and everyday memory deficits. This study aimed to: (a) replicate the findings that suicidal ideation is associated with violent daydreaming; (b) examine whether suicidal ideation is specifically associated with everyday memory retrieval and/or encoding, above and beyond the effects of depression; and (c) test whether the potential relationship between suicidal ideation and everyday memory deficits may be explained by violent daydreaming. Given the high rates of suicidal ideation and behaviors among young adults, particularly those in college (American College Health Association, 2014), we examined our research questions in a college student sample.

Method

Participants

Participants ($N = 512$) were recruited from the general psychology subject pool at a large southeastern university. The sample was predominantly female (64.3%). The ethnicity and race distribution was as follows: 24.9% identified as being of Hispanic, Latino, or Spanish origin, 81.8% identified as White/Caucasian, 8.5% as African American/Black, 2.8% as Asian, 0.2% as American Indian/Alaska Native, and 2.8% identified as Other; 4.1% did not report their ethnicity/race. Participant age ranged from 18 to 29 years ($M = 18.94$; $SD = 1.66$). The majority of individuals reported no history of mental health diagnoses (89.0%), 3.7% reported a history of a mood disorder, 2.8% reported an anxiety disorder, 0.4% reported an eating disorder, and 4.1% reported other diagnoses.

Participants varied based on suicide attempt history with 89.5% endorsing no history of suicide attempts, 2.6% reporting one previous suicide attempt, and 1.5% endorsing multiple previous suicide attempts; 6.4% declined to report their suicide attempt history. With regards to violent daydreaming about oneself, 7.3% reported a lifetime history of physically hurting or injuring themselves. Among participants experiencing violent daydream about suicide, 62.7% reported having a daydream about hurting themselves in the last 2 months. In terms of frequency of violent daydreams about hurting themselves in the past two months, 4.5% reported several times daily, 4.5% reported daily, 13.6% reported several times weekly,

11.4% reported weekly, 15.9% reported multiple times per week, 6.8% reported approximately two times in their life, and 15.9% reported once in the previous two months; 26.1% were unaware of the frequency.

Procedures & Measures

Procedures—Following the provision of informed consent, participants completed an online battery of questionnaires assessing demographic information as well as information pertaining to everyday memory, suicidal ideation, violent daydreaming, and depressive symptoms. Participants reporting any suicide-related symptoms were further evaluated using a standardized suicide risk assessment protocol and if appropriate, the recommended actions were taken (e.g., provision of emergency numbers, arrangement for continued monitoring, means safety planning; Chu et al., 2015; Joiner et al., 1999). At the conclusion of the study, all participants, regardless of suicide symptoms, were provided with community mental health resources. This study was reviewed and approved by the university's Institutional Review Board.

Measures

Everyday Memory Questionnaire-Revised (EMQ; Royle & Lincoln, 2008): The EMQ is an 11-item measure designed to assess subjective everyday memory functioning, memory retrieval, and attentional functioning (i.e., memory encoding, a component of working memory). Participants are asked to rate items pertaining to everyday memory capabilities over the previous one-month period on a 5-point Likert scale. Total scores may range from 0 to 52 with higher scores indicative of greater subjective everyday memory impairments. Research supports the EMQ as having high internal reliability and good discriminant validity in both clinical and non-clinical populations (Royle & Lincoln, 2008). In the current study, the 7-item EMQ retrieval (EMQ-R) and 4-item EMQ attentional tracking (EMQ-AT) subscales were used as the outcome variables in analyses; these subscales were found to have adequate internal consistency (Cronbach's $\alpha = .86, .76$, respectively). The attentional tracking subscale was used as an index of memory encoding impairments (Royle & Lincoln, 2008).

Anger Rumination Scale (ARS; Sukhodolsky, Golub, & Cromwell, 2001): The ARS is comprised of 19 items assessing anger-related cognition. The ARS is comprised of four subscales: Anger Afterthoughts, Thoughts of Revenge, Anger Memories, and Understanding of Causes. Items are rated on a 4-point Likert scale ranging from 1 (almost never) to 4 (almost always). The Thoughts of Revenge subscale is comprised of 4 items. Total scores on this subscale may range from 4 to 16 with higher scores associated with increased violent daydreaming. The ARS has been shown to have adequate internal consistency and good convergent and discriminant validity (Sukhodolsky et al., 2001). In the present study, the ARS was found to have excellent internal consistency and the Thoughts of Revenge subscale was found to have good internal consistency (Cronbach's $\alpha = .94$ and $.83$, respectively). For the current study, the ARS subscale, Thoughts of Revenge, was used as an index of violent daydreaming and served as a mediator in analyses.

Schedule of Imagined Violence (SIV; Grisso, Davis, Vesselinov, Appelbaum, & Monahan, 2000): The SIV is an 8-item measure originally designed to measure the presence, frequency, severity, and recency of daydreams about violence towards others (i.e., hurting or injuring). Of note, the ratings do not contribute to a total score and each question is examined separately. In this study, the items were revised to assess for the presence, frequency, severity, and recency of daydreams about violence towards oneself. In item 1, participants asked to indicate the presence or absence of “daydreams about physically hurting or injuring myself.” Item 1 was used as a proxy for violent daydreaming about suicide. Internal consistency was adequate in this study (Cronbach's $\alpha = .61$).

Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991): To assess suicidal ideation, the BSS was used. The BSS is a 21-item self-report measure that assesses suicidal ideation and suicidal intent in the previous week. Items are rated on a 3-point scale ranging from 0 to 2. Total scores may range from 0 to 42 with higher scores associated with increased suicidal symptoms. Research supports the convergent validity and internal reliability of the BSS (Holden & DeLisle, 2005). The BSS was found to have good internal consistency in the current study (Cronbach's $\alpha = .84$) and served as a predictor variable in analyses.

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996): The BDI-II is a 21-item measure which assesses depressive symptoms, both in terms of presence and severity, over the previous two weeks. Items are rated on a 4-point scale. Total scores may range from 0 to 63, with higher scores associated with increased severity of depressive symptoms. Previous research has established the BDI-II as an internally reliable measure with good convergent and discriminant validity (Steer & Clark, 1997). In the present study, the BDI-II was found to have good internal consistency (Cronbach's $\alpha = .90$). The BDI-II was entered as a covariate into analyses.

Statistical Analyses

All analyses were conducted using SPSS Statistics 22 (IBM Corp, 2013). Pairwise deletion was used to handle missing data, which were minimal (< 3%). The mediating role of violent daydreaming in the relationships between suicidal ideation and a) memory retrieval and b) memory encoding were examined using the PROCESS macro for SPSS consistent with procedures outlined by Hayes (2013). The indirect effect was tested using a bootstrap estimation approach with 5,000 bootstrap samples. Age, gender, and depressive symptoms were correlated with the dependent variables and included as covariates in the main analyses where significant correlations emerged. A post-hoc power analysis for the present study was conducted using G*Power (Faul et al., 2007) and indicated sufficient power (.98) to detect small effect sizes ($f = .04$).

Results

Preliminary Analyses

Means, standard deviations, ranges, and bivariate correlations of all study variables are presented in Table 1. Suicidal ideation, depressive symptoms, memory retrieval, and memory encoding were all significantly positively correlated with violent daydreaming

about others and negatively correlated with violent daydreaming about oneself (coded 1 = yes, 2 = no). Of note, violent daydreaming about others (ARS Thoughts of Revenge subscale score) was significantly and strongly correlated with violent daydreaming about oneself (SIV), which supports the utility of the ARS in the present findings in understanding violent daydreaming. Depressive symptom was significantly related to memory retrieval and not encoding, gender was significantly related to memory encoding and not memory retrieval, and age was not significantly related to either dependent variable. Thus, depressive symptom was entered as a covariate in analyses predicting memory retrieval, and gender was entered as covariates for analyses predicting memory encoding.

One variable, BSS total score ($S = 2.44$), exhibited significant positive skew. To address the skew, square root transformations were used. This decreased the skew from 2.44 to 1.88. Univariate outliers (median \pm 2 interquartile ranges) were identified for BDI total score and ARS subscale score. Outliers were addressed by bringing the score in question to the next highest value within two interquartile ranges. No bivariate outliers were identified. Of note, analyses were conducted with the exclusion of the outliers and the pattern of findings remained the same.

Suicidal Ideation and Memory Retrieval

Figure 1 presents the path coefficients from the bootstrapped regression and mediation analyses for the effects of suicidal ideation (BSS total score) on memory retrieval (EMQ-R subscale score) through violent daydreaming (ARS Thoughts of Revenge subscale score), above and beyond the effects of depressive symptoms. For analyses examining the relationship between suicidal ideation and memory retrieval, controlling for violent daydreaming, the total model explained 6.7% of the variance in memory retrieval impairments ($F[1, 481] = 34.16, p < .001$). Suicidal ideation significantly predicted violent daydreaming ($\beta = .56, SE = .10, p < .001$), and violent daydreaming significantly predicted memory retrieval impairments ($\beta = .54, SE = .14, p = .001$). The direct effect of suicidal ideation on memory retrieval impairments was non-significant when violent daydreaming was included ($\beta = .16, SE = .63, p = .80$). The indirect effect of suicidal ideation on impairments in memory retrieval through violent daydreaming was estimated to lie between .1258 and .5986. As the 95% confidence interval did not include zero, we identified violent daydreaming as a significant mediator ($R^2 = .03, \kappa^2 = .14$).

Suicidal Ideation and Memory encoding

Figure 2 presents the path coefficients from the bootstrapped regression and mediation analyses for the effects of suicidal ideation (BSS total score) on memory encoding (EMQ-AT subscale score) through violent daydreaming (ARS Thoughts of Revenge subscale score), above and beyond the effects of gender. For analyses examining the relationship between suicidal ideation and memory encoding, controlling for violent daydreaming, the total model explained 6.0% of the variance in memory encoding abilities ($F[1, 497] = 31.84, p < .001$). Suicidal ideation significantly predicted violent daydreaming ($\beta = .52, SE = .09, p < .001$), and violent daydreaming significantly predicted memory encoding impairments ($\beta = .37, SE = .08, p < .001$). The direct effect of suicidal ideation on memory encoding impairments was non-significant when violent daydreaming was included ($\beta = .17, SE = .50, p$

= .73). The indirect effect of suicidal ideation on memory encoding abilities through violent daydreaming was estimated to lie between .0833 and .3640. As the 95% confidence interval did not include zero, violent daydreaming was determined to be a significant mediator ($R^2 = .02$, $\kappa^2 = .10$).¹

Discussion

Mounting evidence suggests that daydreaming is associated with symptoms of suicidal ideation among those who are depressed (Selby et al., 2007) and forgetfulness (Delaney et al., 2010). This study was the first to examine how violent daydreaming and suicidal ideation may be related to everyday memory capability, specifically memory retrieval and encoding. Our findings indicated that suicidal ideation was associated with daydreaming about violent acts, which corroborates findings from previous research (e.g., Selby et al., 2007). Additionally, our findings suggest that suicidal ideation and violent daydreaming may also be associated with other negative outcomes, including deficits in memory function. Specifically, violent daydreaming among individuals experiencing suicidal ideation may be associated with more difficulties with memory retrieval and encoding. Violent daydreaming explained, in part, the relationship between suicidal ideation and impairments in daily memory retrieval and encoding. Notably, findings held despite the inclusion of robust covariates, including gender and depressive symptoms.

Our findings suggest that in a young adult, nonclinical sample, individuals who engage in suicidal ideation may experience greater daily memory impairments and this association may be accounted for, in part, by more frequent daydreams about violence. This work adds to research finding that individuals with a history of suicidal ideation and behavior may experience impairments in their autobiographical memory (Williams et al., 2006). Given our findings that violent daydreaming may impact the retrieval of memories, it is possible that violent daydreaming may be one factor that accounts for previous findings regarding autobiographical memory specificity. Consistent with this hypothesis, the indirect effect of suicidal ideation on memory retrieval was stronger than the effect of ideation on memory encoding in this study. However, replication of the present study findings using more robust measures of memory functioning and research examining memory specificity in relation to violent daydreaming is needed to test this hypothesis.

While this study provides insight regarding suicidal thinking, several limitations should be considered. First, given the lack of research on daydreaming and suicide, a general measure of daydreaming about violence and revenge was used, which precludes specific conclusions about daydreaming about death and suicide. Therefore, more research examining the construct of violent daydreaming is needed to form conclusions about violent daydreaming about suicide and not just violence more generally. Relatedly, this study did not assess for non-violent daydreaming, which would be valuable for distinguishing the roles of daydreaming and violence in memory impairments in future studies. Future studies

¹Reverse mediation analyses indicated that suicidal ideation was not a significant mediator of the relationship between violent daydreaming and deficits in memory retrieval (LLCI = -.1673, ULCI = .0167) and memory encoding (LLCI = -.0226, ULCI = .0819). This supports the specificity of the roles of the independent variable (suicidal ideation) and the mediator (violent daydreaming) in our main analyses.

including other third variables, such as the interpersonal theory of suicide variables (Joiner, 2005), would also be useful for understanding suicidal ideation and memory. Further, this study relied on self-report measures and lacked the inclusion of neuropsychological assessments of memory encoding and memory retrieval. The inclusion of objective measures would bolster our ability to draw conclusions about the impact of suicidal ideation on memory. Additionally, the effect sizes in this study were somewhat low (i.e., <10% of the variance in memory impairments accounted for by suicidal ideation and violent daydreaming). Although the effect sizes were small to moderate, it is notable that group differences emerged above and beyond covariates that account for significant variance in suicidal ideation and memory ability. Given the low rates of mental health diagnoses and relatively low base rate of elevated suicide risk, this sample was comprised of relatively high functioning young adults in college; caution is warranted when generalizing beyond this sample. Studies employing larger samples drawn from clinical populations with greater symptom variability would be informative regarding the validity of violent daydreaming among inpatients exhibiting suicide-related symptoms. Further, this study was cross-sectional in nature, which limits the ability to make causal inferences. Therefore, longitudinal approaches would be useful for determining whether suicidal ideation may be a risk factor for memory impairments.

To our knowledge, this study was the first to examine the relationship between everyday memory ability and symptoms of suicidal ideation. Given these limitations, these findings require replication in diverse and clinical samples. Violent daydreaming has been documented anecdotally among clinical populations (e.g., Shneidman, 1996). Thus, more research on the construct of violent daydreaming and the development of measures of violent daydreaming would be beneficial. In addition to studies addressing the limitations of this study, future research examining the impact of individual differences on the relationship between suicidal ideation and deficits in memory retrieval and encoding would be useful. In particular, memory encoding is one component of working memory and previous research has suggested a relationship between working memory and individual differences in their tendency to mind wander (i.e., daydream). Specifically, individuals categorized as having high working memory capacities (i.e., high spans) tend to focus better on an ongoing task that requires attention and those with low working memory capacities tend to show greater mind-wandering (i.e., low spans; Kane & McVay, 2012). Therefore, it could be possible that natural low spans are at greater risk for violent daydreaming given that they are more prone to mind-wandering. This may suggest that individuals with a greater tendency towards mind-wandering may exhibit greater memory deficits and increased suicide risk. Research that further explores whether individual differences in proneness to mind-wandering among individuals with a history of suicide-related behaviors and violent daydreaming may be an informative target for future research.

This study's findings, should they be replicated by future research using samples with greater symptom variability, may impact the assessment and treatment of individuals with thoughts of suicide. Clinicians should assess whether an individual is engaging in violent daydreaming and the frequency of daydreams as, assuming all other risk indicators are equal, patients engaging in frequent daydreams about suicide may exhibit greater memory deficits. Memory impairments may be a useful indicator of preoccupation with plans for

suicide, which could suggest symptoms of suicidal ideation and/or violent daydreaming. Additionally, violent daydreaming may be a useful treatment target. For example, mindfulness-based cognitive therapy (Williams et al., 2000; 2007), which incorporate mindfulness, would increase focus on the present and decrease violent daydreaming. Some patients engage in violent daydreaming to regulate mood (Selby, Anestis, & Joiner, 2007). In this case, clinicians may suggest alternative strategies for coping and consider treatments targeting emotion dysregulation, such as dialectical behavior therapy (Evershed et al., 2003; Linehan, 1993). During the provision of appropriate care for an at-risk patient, clinicians should be mindful of potential impairments in memory as these may impact uptake and the method of delivering appropriate interventions.

Overall, this study provides evidence for a relationship between suicidal ideation, violent daydreaming, and everyday memory impairments. Specifically, findings indicate that individuals exhibiting symptoms of suicidal ideation may also experience deficits in daily memory retrieval and memory encoding and these deficits may be, in part, accounted for by violent daydreaming. Given that this study was the first to examine memory deficits and suicidal ideation, replication of these findings is a vital next step for improving our understanding of the associated cognitive deficits with the goal of contributing to improved methods of treating and preventing suicide.

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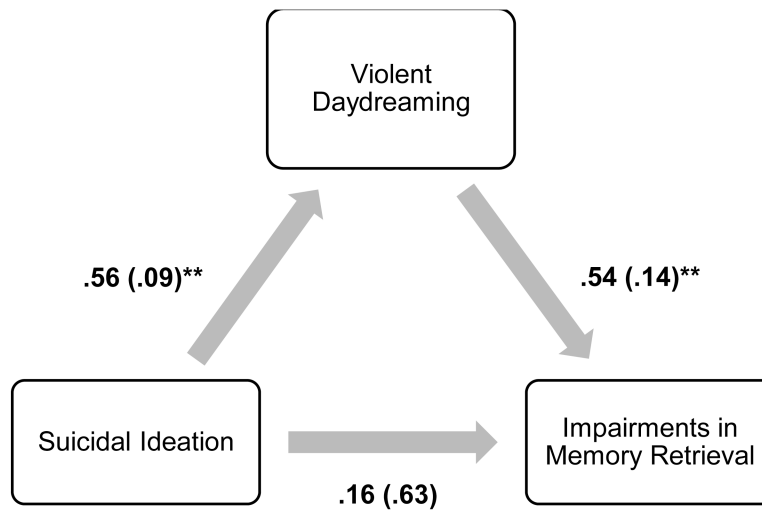


Figure 1.
 * $p < .05$; ** $p < .001$. Suicidal ideation = Beck Scale for Suicidal Ideation total score.
 Violent daydreaming = Anger Rumination Scale - Thoughts of Revenge subscale.
 Impairments in memory retrieval = Everyday Memory Questionnaire-Revised – Memory Retrieval subscale. Violent daydreaming mediating the relationship between suicidal ideation and memory retrieval impairments. Standardized path coefficients are presented with standard errors in parentheses. The indirect effect of suicidal ideation on impairments in memory retrieval through violent daydreaming was significant and estimated to lie between .1258 and .5986.

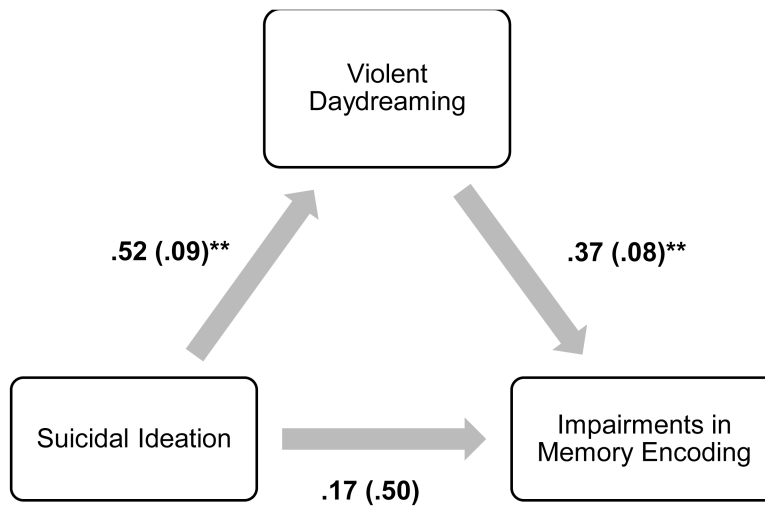


Figure 2.

* $p < .01$; ** $p < .001$. Suicidal ideation = Beck Scale for Suicidal Ideation total score.

Violent daydreaming = Anger Rumination Scale - Thoughts of Revenge subscale.

Impairments in memory encoding = Everyday Memory Questionnaire-Revised – Attentional Tracking subscale.

Violent daydreaming mediating the relationship between suicidal ideation and memory encoding impairments. Standardized path coefficients are presented with standard errors in parentheses. The indirect effect of suicidal ideation on memory encoding abilities through violent daydreaming was significant and estimated to lie between .0833 and .3640.

Table 1

Means, Standard Deviations, Minimums, Maximums, and Bivariate Correlations of all Variables.

Variable	1	2	3	4	5	6	7	8
1. Age	--							
2. Gender	.07	--						
3. BDI Depressive Symptoms	.09*	-.12*	--					
4. BSS Suicidal Ideation	.01	.03	.46**	--				
5. ARS Violent Daydreaming	.01	-.04	.43**	.25**	--			
6. SIV Violent Daydreaming	-.09*	.06	-.39**	-.50**	-.82**	--		
7. EMQ-R Memory Retrieval	-.01	-.05	.32**	.11*	.30**	-.11*	--	
8. EMQ-R Memory Encoding	-.03	-.16**	.03	.10*	.22**	-.11*	.75**	--
<i>Mean / % Yes</i>	18.94	1.33	9.78	.37	5.59	7.3%	10.17	4.69
<i>Standard Deviation</i>	1.66	.47	9.00	1.97	2.03	-	6.05	3.61
<i>Minimum</i>	18	1	1	0	4	-	0	0
<i>Maximum</i>	29	2	43	16	16	-	28	16

Note:

* p < .05,

** p < .001;

Gender coded 1 = female, 2 = male. SIV coded 1 = yes, 2 = no. N ranged from 499 to 512 due to missing data.

BDI = Beck Depression Inventory-II. BSS = Beck Scale for Suicidal Ideation. ARS = Anger Rumination Scale -- Thoughts of Revenge subscale. SIV = Schedule of Imagined Violence (revised by authors to reference violence towards oneself). EMQ-R = Everyday Memory Questionnaire-Revised.