



How does gratitude affect the relationship between positive humor styles and suicide-related outcomes?



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ABSTRACT

Gratitude and positive humor styles may be important protective factors against suicide ideation that are rarely investigated. This study investigated whether positive humor styles influence the experience of suicide ideation and the identification of reasons for living through levels of gratitude. Participants ($N = 166$) were undergraduate students oversampled for recent suicidal ideation. They completed self-report measures of affiliative and self-enhancing humor, tendency to experience thoughts and feelings of gratitude, reasons for living, and suicide ideation in the previous two weeks. A multiple-mediator model indicated that affiliative, but not self-enhancing humor indirectly reduced risk for suicidal ideation through gratitude. Clinical implications are discussed.

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1. Introduction

Suicide is the second leading cause of death among young adults and suicide is the tenth leading cause of death for all age groups in the United States (Drapeau, McIntosh, & American Association of Suicidology, 2015). Traditionally, studies have investigated risk factors for suicide-related behaviors (i.e., suicide ideation, suicide attempts, and death by suicide), however, prominent scholars have called for more research investigating potential protective factors of suicide. In 2006, Wingate and Colleagues noted that the prevention of suicide would be furthered by the integration of new research findings from the field of positive psychology into the understanding and treatment of suicidal behavior (Wingate et al., 2006). Similarly, O'Connor and Nock (2014) asserted that a key future direction in psychological research pertaining to suicide is the increased identification and understanding of protective factors of suicide.

In line with the call for more literature on protective factors related to suicide, research has investigated the impact of humor usage on suicide. Recent work has identified that the way an individual uses humor may influence his or her level of suicide risk. Studies have linked humor to indicators of suicide risk and resilience, such as perceived social support and symptoms of psychopathology closely related to suicide. In a sample of psychiatric inpatients, higher levels of a sense of humor

have been correlated with lower levels of depression and anxiety symptoms as well as higher positive self-concept in those diagnosed with a depressive disorder (Kuiper, Martin, Olinger, Kazarian, & Jette, 1998). More specifically, research has identified two positive humor styles (affiliative and self-enhancing humor) that have been shown to relate to many indicators of suicide resilience, such as increased self-esteem, experience of positive emotions, optimism, and social support. Similarly, these humor styles have been linked to decreased feelings of loneliness and symptoms of depression and anxiety (Cecen, 2007; Hampes, 2005; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003).

An *affiliative humor style* is characterized as using humor in efforts to enhance social relationships, reduce interpersonal tensions, and increase group cohesion (Martin et al., 2003). *Self-enhancing humor* is a self-accepting and non-hostile humor style that is used in efforts to decrease stress and distress by making jokes or thinking of funny elements about difficult circumstances. Research has indicated that both humor styles may be protective against important predictors of suicide, such as symptoms of depression, anxiety, and social disconnection (Martin et al., 2003).

Research linking positive humor styles and mental health symptoms has recently been extended to examine relationships between humor styles and more proximal predictors of suicide, such as suicide ideation, and theoretically driven constructs of empirical models of suicidal behavior. Tucker et al. (2013) demonstrated that affiliative humor was negatively correlated to suicide ideation in college students; whereas, self-enhancing humor was unrelated to levels of suicide ideation. Although only affiliative humor was related to suicide ideation, both

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humor styles were negatively related to thwarted belongingness and perceived burdensomeness, the interpersonal predictors of suicide ideation outlined in the Interpersonal Theory of Suicide (Joiner, 2005). Affiliative humor even buffered the impact that these risk factors had on levels of recent suicide ideation. This research suggests that humor may play an important protective role against suicide ideation and may be an important personal strength that can be enhanced through therapeutic intervention.

Positive humor styles are not the only recently identified potential protective factors against suicide. Research has also demonstrated a strong protective relationship between feelings of gratefulness and suicide-related outcomes. Gratitude is considered to be a personality trait associated with noticing and appreciating the positive in life including benefits and gifts that can be credited to the kindness of other individuals (Kleiman, Adams, Kashdan, & Riskind, 2013; Wood, Froh, & Geraghty, 2010). Gratitude has been linked to increased interpersonal wellness, an important element of suicide prevention (Joiner, 2005). Specifically, increased proneness to feelings of gratitude have been positively associated with increased social support, healthy interpersonal goals, and interpersonal connection (Emmons & McCullough, 2003; Jordan, Masters, Hooker, Ruiz, & Smith, 2014; Lambert, Clark, Durtschi, Fincham, & Graham, 2010). Research has also linked gratitude to less social conflict, loneliness, and self-esteem concerns (Emmons & McCullough, 2003; Jordan et al., 2014). Gratitude may not only influence the experience of interpersonal risk and resiliency factors of suicide, it may influence mental health symptoms associated with suicide such as symptoms of depression and Post-Traumatic Stress Disorder (PTSD). Research has indicated that increased gratitude prospectively predicts less symptoms of depression in longitudinal studies (Wood, Maltby, Gillett, Linley, & Joseph, 2008). Vietnam war veterans diagnosed with PTSD demonstrate lower levels of gratitude than those not diagnosed with the disorder (Kashdan, Uswatte, & Julian, 2006). Additionally, this daily diary study demonstrated that increased gratitude was related to increased positive affect and self-esteem above and beyond PTSD symptoms.

Despite literature indicating the interpersonal and emotional benefits of gratitude, it is an underused resiliency factor in suicide prevention (Fredrickson & Joiner, 2002; Kleiman et al., 2013). Kleiman et al. (2013) demonstrated that increased levels of gratitude were prospectively related to increased meaning in life and decreased suicide ideation in a four week follow-up of college students. Similarly, the increased propensity to feel grateful has been linked to decreased suicide ideation and historical number of suicide attempts in Chinese adolescents (Li, Zhang, Li, Li, & Ye, 2012). The extant literature suggests that increased gratitude not only influences positive interpersonal and emotional wellness broadly (e.g., Wood et al., 2010), gratitude may affect levels of suicide ideation both directly and through its effect on important risk and resiliency factors of suicide (Kleiman et al., 2013; Li et al., 2012). More research is needed in regards to how proneness to gratitude relates to suicide ideation as only two studies have directly investigated this relationship.

One potentially fruitful area of this study is in determining how the use of gratitude is influenced by positive humor use and how this affects suicide ideation. Affiliative humor style has been linked to important interpersonal constructs such as lower levels of loneliness and higher levels of extraversion, intimacy and stronger interpersonal bonds (Hampes, 2005; Cecen, 2007; Martin et al., 2003). It may be that the use of affiliative humor impacts the amount of gratitude an individual experiences, as this humor use may increase interpersonal bonds and closeness. Thus, affiliative humor may decrease suicide ideation through increased feelings of gratefulness. Furthermore, self-enhancing humor is linked to positive emotionality, and is theorized to be a constructive coping strategy (Martin et al., 2003). Individuals who naturally use this humor style likely experience less distress when faced with a stressor. It stands to reason that because this humor style reduces perceived negativity of distressful circumstances, individuals who use this

humor style are more apt to find things in life to feel grateful for, even as they experience distressful circumstances. Thus, self-enhancing humor may be related to decreased suicide ideation through higher levels of gratitude. Despite humor and gratitude both being important character strengths that relate to general well-being (Kuiper, 2012), no research to date has empirically investigated the relationship between positive humor styles and proneness for feelings of gratitude.

1.1. Hypotheses

The current study investigated how the positive humor styles of affiliative and self-enhancing humor may encourage gratitude, protect individuals from suicide ideation, and increase a person's reasons for living. It was hypothesized that there would be a positive relationship between gratitude and both adaptive humor styles (affiliative and self-enhancing). Building upon these simple relationships, it was also hypothesized that affiliative humor would be indirectly related to both decreased suicide ideation and increased reasons for living through increased gratitude. A similar indirect effect was hypothesized for self-enhancing humor. Specifically, self-enhancing humor would be indirectly related to decreased suicide ideation and increased reasons for living through increased levels of gratitude.

2. Method

2.1. Participants

Participants in this study were 166 students (72.29% female, 27.71% male) from a large state university. Participants ranged in age from 18 to 29, with a mean age of 19.76 years ($SD = 1.74$). The majority of participants (79.9%) self-identified as Caucasian, 3.0% as African-American, 7.5% as Native American, 1.8% as Biracial, 3.6% as Asian-American, and 4.2% as Hispanic. Twenty-two participants (13.25%) participants reported some level of suicidal ideation in the past two weeks.

Oversampling techniques were used to recruit study participants. All participants completed a prescreen questionnaire at the beginning of the semester. Those who identified some level of suicide ideation in the previous two weeks prior to completing the prescreen study questionnaire were recruited via email requests to participate in current study. Specifically, all students who endorsed recent suicide ideation (in the previous two weeks) were solicited for participation, while a much smaller percentage of students who did not endorse recent suicide ideation were contacted (5%). This study complied with the Institutional Review Board from the university.

2.2. Measures

Participants completed the following measures online.

2.2.1. Demographics questionnaire

Demographic information was obtained from participants including age, gender, and ethnicity.

2.2.2. Hopelessness Depression Symptom Questionnaire-Suicidality Subscale

The Hopelessness Depression Symptom Questionnaire-Suicidality Subscale (HDSQ-SS; Metalsky & Joiner, 1997) is a 4-item self-report measure of suicide ideation experienced in the previous two weeks. Responses are made on a 0 to 3 scale, with response values differing for each item. Higher scores on the HDSQ-SS indicate higher levels of suicide ideation in the past two weeks. The HDSQ-SS is a commonly used measure in suicide research and has been shown to demonstrate excellent internal consistency with college student populations (Cukrowicz et al., 2011; Joiner & Rudd, 1996; Tucker et al., 2013). The HDSQ-SS demonstrated excellent internal consistency in this sample ($\alpha = 0.90$).

2.2.3. College Student Reasons for Living Inventory

The College Student Reasons for Living Inventory (CSRLI; Westefeld, Cardin, & Deaton, 1992) is a 46-item measure of reasons for not dying by suicide. Participants are asked to rate the extent to which each reason for not dying by suicide is important to them whether or not they have ever considered suicide. Items are rated on a 1 (*not at all important as a reason for not killing myself, or, does not apply to me*) to 6 (*extremely important as a reason for not killing myself*) Likert-type scale. Higher total scores on the CSRLI indicate higher levels of reasons for not dying by suicide. Previous research within college populations have demonstrated good to excellent internal consistency for the measure (Westefeld et al., 1991; Westefeld, Scheel, & Maples, 1998). The CSRLI demonstrated excellent internal consistency in this sample ($\alpha = 0.95$).

2.2.4. Humor Styles Questionnaire

The Humor Styles Questionnaire (HSQ; Martin et al., 2003) contains 32 items that assess affiliative, self-enhancing, aggressive, and self-defeating humor styles. Only the positive humor (affiliative and self-enhancing) subscales of the HSQ were used in the current study. For both subscales, participants are asked to rate the extent to which a statement about humor use applies to them, using a 7-point Likert scale, ranging from 1 (*totally disagree*) to 7 (*totally agree*). In its original validation study, the affiliative and self-enhancing subscales demonstrated good reliability in an undergraduate sample (Martin et al., 2003). The affiliative and self-enhancing subscales of the HSQ demonstrated good internal consistency in the current study ($\alpha = 0.83, 0.82$, respectively).

2.2.5. Gratitude Questionnaire – Six Item Form

The Gratitude Questionnaire – Six Item Form (GQ-6; McCullough, Emmons, & Tsang, 2002) is a six-item measure of the likelihood of experiencing gratitude in daily life. Participants are asked to respond to items using a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores on the GQ-6 indicate higher proneness to experience feelings of gratitude. The GQ-6 has demonstrated good internal consistency in multiple samples, including community and undergraduate participants (Kleiman et al., 2013; McCullough et al., 2002). The GQ-6 demonstrated good reliability in the current sample ($\alpha = 0.84$).

2.3. Analytical strategy

Standardized values (*z* scores) of all study variables were computed to identify univariate outliers. No univariate outliers were detected (all absolute values of *z* scores were less than or equal to 3.0). In order to understand simple relationships between study variables, zero-order correlation analyses were conducted. To test the potential indirect effect of positive humor styles on suicide ideation and reasons for living through gratitude, we tested a multiple mediator model using Mplus 7.0 (Muthén & Muthén, 2014). In this model, suicidal ideation and reasons for living were entered as dependent variables, affiliative and self-enhancing humor were entered as independent variables, and gratitude was entered as the mediator variable. Despite oversampling for suicidal ideation, suicidal ideation is a low-base rate occurrence and thus there was a preponderance of zero scores on this variable (Skew = 2.75). In order to avoid violating the assumptions of regression (i.e., homoscedasticity), we specified a zero-inflated Poisson distribution, which does not have such an assumption¹. Linear regression was used to estimate all other paths in the model.

We estimated mediated effects with the a 95% confidence interval of the indirect effect *i*, as it is the most widely recommended method for indirect method inference (Hayes, 2013). Significant indirect effects had confidence intervals that did not include zero. As a measure of effect size, Kappa-squared coefficients (k^2) are reported as discussed in

¹ We also tested other log-link models (i.e., negative binomial and zero-inflated negative binomial) and the interpretation was the same as the zero-inflated Poisson model.

Preacher and Kelley (2011). k^2 coefficients range from 0 to 1 and represent the percentage of the maximum value that an indirect effect accounted for (i.e., an indirect effect with $k^2 = 0.137$ can be interpreted as the indirect effect being 13.7% of the maximum value it could have been). Preacher and Kelly suggest that k^2 is interpreted just like other measures of effect size (i.e., 0.01, 0.09, and 0.25 represent small, medium, and large effect size cutoffs, respectively).

3. Results

Means, standard deviations, and correlation coefficients of the study are presented in Table 1. Both affiliative and self-enhancing humor were positively correlated to reasons for living and gratitude. Both humor styles were unrelated to suicide ideation. Gratitude and reasons for living were negatively correlated to suicide ideation and positively associated with each other.

Fig. 1 shows the results of our main multiple-mediator analysis. Our analyses indicated that greater levels of affiliative humor was indirectly related with decreased levels of suicide ideation (point estimate = -0.053 , 95% CI: -0.080 to -0.030 , $k^2 = 0.183$) and increased levels of reasons for living (point estimate = 0.897 , 95% CI: 0.300 to 1.495 , $k^2 = 0.137$). Our analyses also indicated that self-enhancing humor was not indirectly related with either suicide ideation (point estimate = -0.012 , 95% CI: -0.028 to 0.003 , $k^2 = 0.052$) or levels of reasons for living (point estimate = 0.207 , 95% CI: -0.074 to 0.443 , $k^2 = 0.038$).

4. Discussion

The current study investigated the relationship between the positive humor styles of affiliative and self-enhancing humor, feelings of gratitude, and suicide ideation and reasons for living. It was hypothesized that both of the humor styles would be positively associated with gratitude and negatively related to suicide ideation through increased gratitude. It was also hypothesized that the humor styles would be related to increased reasons for living through increased gratitude. This was the first study to investigate a potential mechanism (i.e., levels of gratitude) as to why humor styles may protect individuals from suicide. This is important as previous research has linked humor styles to suicide resilience (Tucker et al., 2013).

In univariate analyses in the current study, affiliative humor was positively related to levels of gratitude and reasons for living, but was unrelated to suicide ideation. These results supported previous findings that identified affiliative humor as a strong protective factor against predictors of suicide ideation (e.g., symptoms of depression, thwarted belongingness, and perceived burdensomeness), however, unlike the results of Tucker et al. (2013) no correlation was found between affiliative humor style and suicide ideation. This variance could be attributed to the smaller sample size of the current study, as Tucker et

Table 1

Means, standard deviations, and correlation coefficients of study variables.

Variable	1	2	3	4	5
1. Affiliative humor	–				
2. Self-enhancing humor	0.47**	–			
3. Gratitude	0.56**	0.36**	–		
4. Reasons for living	0.25*	0.31**	0.39**	–	
5. Suicide ideation	–0.12	–0.15	–0.37**	–0.31**	–
<i>M</i>	44.99	37.85	34.86	204.94	0.50
<i>SD</i>	8.38	9.09	6.54	49.49	1.29

Note: Affiliative Humor = Humor Styles Questionnaire - Affiliative Subscale, Self-Enhancing Humor = Humor Styles Questionnaire - Self-Enhancing Subscale, Gratitude = Gratitude Questionnaire - Six Item Form total, Reasons for Living = College Student Reasons for Living Inventory total, Suicide Ideation = Hopelessness Depression Symptom Questionnaire - Suicidality Subscale total.

* $p < 0.01$.

** $p < 0.001$.

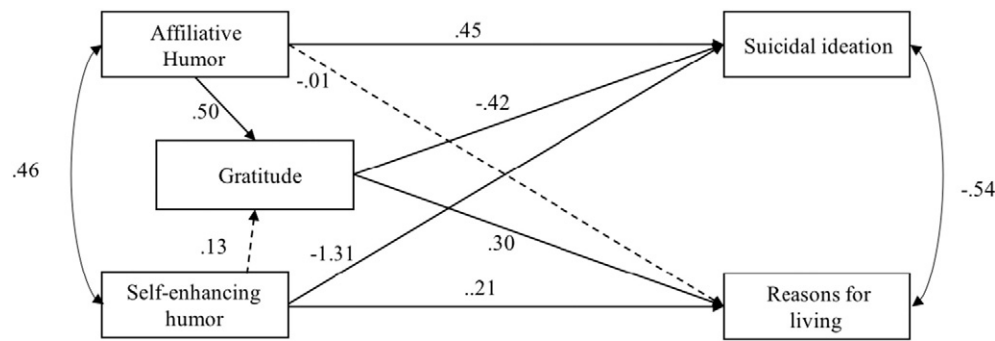


Fig. 1. Multiple mediator model showing positive humor styles effect on suicidal ideation and reasons for living through gratitude. Note. Standardized weights shown, all solid lines significant at $p < 0.05$ and dotted lines are non-significant (i.e., $p > 0.05$).

al. (2013) found a small correlation between affiliative humor style and suicide ideation in a much bigger sample (over 300 participants). Additionally, suicide ideation was far more prevalent in the current study in comparison to Tucker et al. (2013). Further research into contextual and participant-specific factors that may mediate/moderate the potential relationship between positive humor styles and suicide ideation will be important to the understanding of how humor styles may influence suicide risk.

Like affiliative humor, self-enhancing humor was positively correlated to levels of gratitude as hypothesized. Self-enhancing humor allows an individual to diffuse a stressful situation through the use of humor (Martin et al., 2003). Due to the use of this humor style as a coping strategy, an individual is likely to have higher gratitude when engaging in self-enhancing humor. Self-enhancing humor was also positively correlated to reasons for living, but was unrelated to suicide ideation. These findings are also congruent with previous research in which self-enhancing humor was correlated with psychological correlates of suicide ideation but not suicide ideation itself (Tucker et al., 2013). Past research and the current findings collectively suggest that the use of self-enhancing humor alone may not protect against suicide ideation, but may distally protect individuals from suicide ideation through self-enhancing humor's relationship with more proximal predictors of suicide such as gratitude or symptoms of depression and social alienation (Martin et al., 2003).

Building upon the simple relationships between study variables, indirect effect analyses indicated that affiliative humor had an indirect effect on decreased suicide and increased reasons for living through increased levels of gratitude. These results are congruent with research that has suggested that affiliative humor is beneficial for psychological well-being, and a strong protective factor against suicide (Martin et al., 2003; Tucker et al., 2013). These indirect effect results indicate that the use of affiliative humor may encourage increased feelings of gratitude which allows for people to easily identify reasons for living and may decrease the risk for suicide ideation. It may be that the use of affiliative humor strengthens interpersonal connections and social bonds in one's life leaving an individual more likely to experience meaningful social interactions that enhance feelings of gratitude. These feelings then in turn decrease the likelihood of experiencing suicide ideation as an individual experiences more reasons for living and meaning in life.

Self-enhancing humor did not demonstrate an indirect effect on either suicide ideation or reasons for living through levels of gratitude as predicted. In multivariate analyses, self-enhancing humor was unrelated to gratitude. This result is likely due to the significant amount of variance shared between self-enhancing humor and affiliative humor. This finding suggests that self-enhancing humor is not related to increased levels of gratitude when its covariation with affiliative humor is controlled but is moderately associated with gratitude when affiliative humor is not considered. Taken together, results of the multivariate analysis continues to provide evidence that affiliative humor may have a stronger protective relationship against suicide risk in

comparison to self-enhancing humor. Tucker et al. (2013) found stronger negative correlation between affiliative humor and thwarted belongingness, perceived burdensomeness, and suicide ideation as compared to the relationship between self-enhancing humor and these elements of suicide risk. The result that only affiliative humor only had an indirect effect on suicide ideation/reasons for living through increased gratitude is also in line with the broad evidence for the interpersonal nature of suicide risk (Joiner, 2005) as affiliative humor contains only interpersonal elements (joking with others to create/strengthen social bonds) but self-enhancing humor includes more intrapersonal humor use (being amused by absurdities of life).

Although the current study provides information regarding important relationships between protective factors of suicide, results should be interpreted with specific limitations regarding study sample and methodology. The current sample was ethnically homogenous. As more than three-quarters of the participants identified as Caucasian, the ability to generalize study results to ethnic minority populations is limited. This is important as levels of suicide ideation, an outcome variable in the current study, may vary as a function of ethnicity (Balis & Postolache, 2008).

In addition, the use of self-report measures may be problematic. Future research would likely benefit from using observational measures of humor use or the creation of behavioral tasks that capture levels of gratitude to better understand how humor and gratitude protect people from suicide ideation and/or enhance reasons for living. Study results also cannot infer potential causal relationships between study variables due to the cross-sectional research design used to conduct this research. Future investigations should utilize prospective research designs and Ecological Momentary Assessment (EMA) to better understand how study variables influence each other over time. This proposed research design would be congruent with the assertion made by Davidson, Anestis, and Gutierrez (2016) that EMA research designs are underused in relationship to suicide risk and resilience.

Despite these limitations, the results of this study have meaningful clinical implications. The current study indicates that the use of positive humor styles (specifically affiliative humor) and feelings of gratitude may serve as important protective factors against suicide ideation. The development of interventions for suicide may benefit from focusing on the enhancement of gratitude in clients experiencing suicidal thinking or those who are at-risk for suicide. Huffman and colleagues (2014) demonstrated that enhancing gratitude through a small activity (i.e., recalling someone's act of kindness and writing a letter to this individual conveying gratitude for this act of kindness) may be an effective means of enhancing optimism and decreasing hopelessness in suicidal inpatients. The current study's results provide further rationale for the use of therapeutic interventions targeting gratitude as a means of decreasing suicide risk, potentially through the increased use of positive humor styles.

The current study also suggests that the assessment and targeting of interpersonal styles that may influence levels of gratitude and suicide

ideation/reasons for living may also be important. Specifically, enhancing the use of positive humor styles, particularly affiliative humor, in at-risk clients may be a beneficial target for intervention as these humor styles may help increase feelings of gratitude and potentially reasons for living. Increasing the use of these humor styles may be done through contemporary therapeutic methods. Behavioral tracking of humor use (i.e., when and what kind of humor is used, with whom humor is used with, and antecedents/consequences of this humor use) may yield important clinical information about how a client's humor use influences his or her gratitude and thoughts of suicide. Similarly, the use of these humor styles may be role-played in session in efforts to teach clients when these styles of humor are beneficial and appropriate. In tandem with skills that directly enhance gratitude such as the authoring of grateful letters, the tracking and role-play of positive humor style may provide multiple means of enhancing gratitude in clients struggling with thoughts of suicide or at-risk for suicide.

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