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Gratitude and Suicide Risk among College Students: Substantiating the Protective Benefits of Being Thankful

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Abstract

Objective: Gratitude, or thankfulness for positive aspects of life, is related to psychosocial well-being and decreased psychopathology, and may reduce suicide risk. We explored four potential hypotheses purported to explain the beneficial outcomes of gratitude (schematic, positive affect, broaden-and-build, and coping), hypothesizing that hopelessness (schematic), depression (positive affect), social support (broaden-and-build), and substance use (coping) would mediate the gratitude-suicide linkage.

Participants: 913 undergraduate students from a mid-size, southeastern U.S. university.

Methods: Respondents completed online self-report questionnaires including the Suicidal Behaviors Questionnaire-Revised, Gratitude Questionnaire, Beck Hopelessness Scale, Beck Depression Inventory, Duke Social Support Index, Alcohol Use Disorders Identification Test, and Drug Abuse Screening Test.

Results: Supporting theory and hypotheses, gratitude was related to less suicide risk via beneficial associations with hopelessness, depression, social support, and substance misuse.

Conclusions: The linkage between gratitude and suicide risk appears to be predicated on the beneficial association of gratitude to negative mood and interpersonal functioning.

Keywords: gratitude, suicidal behavior, hopelessness, depression, social support, substance abuse

Gratitude and Suicide Risk among College Students: Substantiating the Protective Benefits of Being Thankful

Introduction

Suicide is a widespread mental health concern, with suicide rates continuing to rise across most age groups.[1] In the United States, suicide is the 10th leading cause of death and the 2nd leading cause of death in young adults aged 15 to 24 years old[2], with about 1,400 college student deaths by suicide every year.[3]

In our study, we focus on suicidal ideation and attempts, which occur with greater frequency and may be amenable to targeted interventions.[4] The success of such interventions is predicated, in part, on the identification of risk (e.g., depression, hopelessness, interpersonal dysfunction, and substance abuse) and protective factors (e.g., gratitude) and an understanding of how such factors might interact to predict suicide risk.

One such protective factor, gratitude, may have particular utility for suicide prevention, given a growing body of evidence suggesting its beneficial relation with a diverse array of physical and mental health behaviors and outcomes (i.e., less depression and perceived stress, more positive health behaviors) among college students, adolescents, veterans, and community samples.[5-8]

In our study, we define gratitude as a "worldview toward noticing and appreciating the positive in life."[9(p443)] This conceptualization of gratitude as a life orientation, at both the dispositional and state levels, includes engaging in positive social comparisons and behaviors to express gratitude, and appreciating other people.[10] Alternatively, gratitude can be conceptualized as a moral emotion, similar to empathy or guilt,[11] or as an affective trait, whereby individuals

demonstrate "a generalized tendency to recognize and respond with grateful emotion to the roles of other people's benevolence in the positive experiences and outcomes that one obtains." [12(p112)]

Broadly, gratitude is related to less psychopathology, including decreased depression[13] and reduced symptoms of PTSD in veterans[14], as well as increased self-esteem, meaning in life, and life satisfaction in adolescents and college students.[15-17] Gratitude is also related to enhanced interpersonal functioning, including greater perceived social support and positive relationships in adolescents and young adults.[5,9,13] Finally, gratitude may have utility for suicide prevention, with preliminary evidence suggesting that gratitude is negatively related to suicidal behavior.[15,17] Findings are mixed, however, as Krysinska and colleagues found that gratitude was not significantly related to prior suicide ideation or attempts in college students, over and above the effects of depression and stress.[18]

Theoretical underpinnings of gratitude

Four hypotheses have been proposed to explain the utility of gratitude as a protective factor, including the schematic hypothesis (i.e., gratitude acts on cognitive processing), positive affect hypothesis (i.e., gratitude impacts mood), broaden-and-build hypothesis (i.e., gratitude facilitates expansiveness of emotion and experience), and coping hypothesis (i.e., gratitude facilitates adaptive coping).[10] However, these hypotheses have not been fully explored in a single study and sample, or in relation to suicidal outcomes.

Schematic hypothesis

According to the schematic hypothesis, individuals who are higher in gratitude may have a belief system whereby they interpret help-giving situations differently than those with lesser gratitude, including seeing help as more valuable and altruistic;[13] individuals with lower levels of trait gratitude, however, may hold biased and even negative attributions about their experiences,

suggesting that, in part, gratitude involves cognitive processing. Given this, in the current study, we examined the impact of gratitude on the risk factor of hopelessness, which is a biased and negative attribution about the future. Defined as "a system of negative beliefs and expectancies concerning oneself and one's future,"[19] hopelessness is related to feelings of helplessness and suicidal behavior.[20,21] It may be that attending to the positive aspects of one's life alters cognitions related to future expectancies by reducing negative thoughts (i.e., hopelessness) and replacing them with positive and adaptive thoughts, ultimately decreasing suicide risk by ameliorating negative cognitions.

Positive affect hypothesis

The positive affect hypothesis purports that gratitude is related to well-being via its impact on positive emotions; indeed, gratitude may actually produce positive emotions which, in turn, lead to increased well-being and life satisfaction.[10] Given the predilection of gratitude to promote positive emotion, and its association with reduced depression in chronically ill populations[22], we propose that it will also have a similar beneficial association with negative emotions in our collegiate sample. We examined the linkage between gratitude and depressive symptoms, which are representative of a general sense of negative affectivity.[23] Support for the role of depression as a mediator of the link between gratitude and suicidal behavior, would lend credence to the positive affect hypothesis of gratitude, especially given the well-established depression-suicide linkage.[24,25]

Broaden-and-build hypothesis

According to the broaden-and-build hypothesis, positive emotions - including those generated by gratitude - may contribute to engagement in adaptive cognitive and behavioral actions (e.g., strengthening social ties, planning, engagement in enjoyable experiences) that may

be useful to apply in future stressful situations.[10,26] One aspect of the broaden-and-build framework that is relevant for suicide is the potential for positive emotions, including those promoted by gratitude, to enhance social connections and the quality of relationships[13,27], factors which are well-known contributors to suicide risk.[28] In fact, social support has previously served as a mediator of the relation between gratitude and life satisfaction[27], suggesting it may serve a similar role in our current study, where we examine its status as a mediator of the gratitude-suicide linkage.

Adaptive coping hypothesis

Finally, the fourth hypothesized explanation for the beneficial impact of gratitude is as a facilitator of adaptive coping. In a study conducted by Wood and colleagues[29], gratitude was positively related to adaptive coping strategies including use of social support and active coping (e.g., planning, positive reframing) whereas, on the other hand, gratitude was negatively related to coping strategies typically conceptualized as maladaptive, including behavioral disengagement, denial, and substance use. Although misuse of alcohol and drugs are often employed as maladaptive forms of coping[30,31], and preliminary studies suggest that gratitude is related to less substance abuse, no previous research has examined the mediating role of substance misuse in the relation between gratitude and a clinical outcome, in this case suicidal behavior. This line of study is pertinent, however, given the robust link between substance use and suicidal behavior[32], and their prevalence in college students.

Aim and hypotheses

We examined hopelessness (schematic hypothesis), depression (affective hypothesis), social support (broaden-and-build hypothesis), and drug and alcohol use (coping hypothesis) as potential mediators of the salutary association between gratitude and suicidal behavior. We

hypothesized that gratitude would be related to suicidal behavior via the aforementioned theorized pathways, such that greater levels of gratitude would be positively related to perceived social support and negatively related to hopelessness, depression, and drug and alcohol use and, in turn, to less suicide risk.

Methods

Participants and Procedure

In this Institutional Review Board (IRB) approved study, undergraduate students completed an online battery of self-report questionnaires. All students living in campus housing (N = 2,782) were extended an email invitation to participate in a study sponsored by the Department of Housing and Residence Life. All participants provided electronic informed consent, and campus, local, and national mental health resources were provided upon conclusion. Participants were compensated five dollars for completion of the study. As a part of our research initiative, after survey completion, all members of the Department of Housing and Residence Life completed suicide prevention gatekeeper training and suicide prevention materials were distributed to central areas of all university-affiliated apartments and dormitories.

Our sample consisted of 913 undergraduate students from a mid-size, Southeastern University, equating to a 33% participation rate, with an average age of 20.19 years old (*SD* = 3.81). Our sample was primarily female (*n*= 646; 71.6%), and were predominantly White (*n* = 695; 76.1%), followed by Black (*n* = 100; 11.0%), Asian (*n* = 74; 8.1%), Hispanic/Latino (*n* = 11; 1.2%), American Indian (*n* = 5; .5%), Pacific Islander (*n* = 2; .2%), and students identifying as “other” (*n* = 14; 1.5%). Student participants, overall, were first year undergraduates (*n* = 367; 40.2%), full-time (*n* = 877; 96.1%), and domestic (*n* = 831; 91.0%), who lived on-campus (*n* =

883; 96.7%). No students met cut-off criterion for clinical significance on measures of psychopathology, including substance misuse, depressive symptoms or suicide risk.

Measures

Demographic characteristics including age, sex, race/ethnicity, living situation, and academic level, were assessed, in addition to primary study variables.

Suicidal Behaviors

The Suicidal Behaviors Questionnaire- Revised (SBQ-R)[33] is a four-item self-report questionnaire used to assess the presence of symptoms of suicidal behavior and their severity, including lifetime suicidal behavior ("Have you ever thought about or attempted to kill yourself?"), suicidal behavior in the past year ("How often have you thought about killing yourself in the past year?"), communication of intent ("Have you ever told someone that you were going to commit suicide, or that you might do it?"), and likelihood of future suicide attempt ("How likely is it that you will attempt suicide someday?"). Each question is scored on a variable Likert scale, ranging from 5 to 7 response levels. Responses are summed for a total score, ranging from 3 (no suicidal behavior or ideation) to 18, with higher scores indicating greater suicide risk. In the current study, the mean score was 5.38 (Standard Deviation [SD] = 2.29). The SBQ-R has high internal consistency among college students ($\alpha = .97$),[33] and was good in the current study ($\alpha = .82$).

Gratitude

The Gratitude Questionnaire-Six Item Form (GQ-6)[34] is a self-report questionnaire measuring individual differences in gratitude.[34] Participants are prompted to respond to statements (e.g., "I have so much in life to be thankful for") on a 7-point Likert scale from 1 ("strongly disagree") to 7 ("strongly agree"). Responses are summed for a total score, ranging

between 6 and 42, with higher scores representing greater levels of gratitude (current study mean score = 5.54; SD=1.25). Among a college sample, the internal consistency of the GQ-6 was good (α = .82)[34], as it was in our current study (α = .83).

Hopelessness

The Beck Hopelessness Scale (BHS)[35] is a 20-item self-report inventory, measuring negative expectancies about one's future. Participants are required to respond to true-false statements (e.g., "I might as well give up because there is nothing I can do about making things better for myself"). Greater summed scores indicate higher levels of hopelessness and, in the current study, the mean score was 3.30 (SD=3.77). In previous collegiate studies, the BHS has yielded excellent internal consistency (α = .91)[35] and was good in our sample (α = .86).

Depressive Symptoms

The Beck Depression Inventory-2 (BDI-2)[36] is a 21-item self-report questionnaire which assesses depressive symptoms.[36] Each item is scored on a four-point Likert scale from 0 to 3. For example, a participant is prompted to rate their loss of pleasure on a scale of 0 ("I get as much pleasure as I ever did from the things I enjoy") to 3 ("I can't get any pleasure from the things I used to enjoy"). Responses are scored through summation, with higher scores representing greater depression severity (current study mean score = 9.95; SD = 9.41). The BDI-2 has excellent reliability in college samples (α = .93)[37] and was good in our sample (α = .88).

Social Support

The Abbreviated Duke Social Support Index (DSSI)[39] is an 11-item survey, with subscales assessing social interaction and subjective support (e.g., "When you are talking with your family and friends, do you feel you are being listened to most of the time, some of the time, or hardly ever?"). Responses are scored through summation, with higher scores representing

greater perceived social interaction (mean score = 9.24; SD = 1.71) and support (mean score = 17.34; SD = 3.81). The abbreviated DSSI had good internal consistency among a community sample (α = .80), and, in our study, was low for the social interaction subscale (α = .61)[40] and good for the subjective support subscale (α = .83).

Alcohol Use

The Alcohol Use Disorders Identification Test (AUDIT)[41] is a 10-item measure of the frequency and quantity of alcohol use, and problems or consequences associated with excessive alcohol use. Participants respond to each item on a scale from 0 to 4, and responses are summed, with higher scores indicating harmful alcohol use (current study mean score = 3.22; SD = 4.63). The AUDIT had excellent internal consistency among a college sample (α = .94)[42] and was good in our sample (α = .84).

Drug Use

The Drug Abuse Screening Test (DAST-10)[43] is used to identify the likelihood of a substance use disorder. Respondents were directed to answer 10 "Yes/ No" questions about themselves (e.g., "Have you used drugs other than those required for medical reasons?"), regarding the past 12 months. Items are summed to form a total score, and higher scores indicate greater substance misuse (current study mean score = .65; SD = 1.39). Among a clinical sample, the internal consistency of the DAST was excellent (α = .92)[44] and was acceptable in our study (α = .72).

Results

Bivariate correlations among study variables

Bivariate analyses were conducted to assess the association between, and independence of, study variables. Supporting hypotheses (all *p*-values < .001), alcohol use (*r* = .24), drug use (*r*

= .29), hopelessness (r = .42), and depressive symptoms (r = .51), were positively related to suicidal behavior, whereas gratitude (r = -.29), social interaction (r = -.25), and subjective social support (r = -.40) were negatively related to suicidal behavior. Gratitude was significantly positively related to social interaction (r = .42) and subjective social support (r = .55), and significantly negatively related to alcohol use (r = -.17), drug use (r = -.24), hopelessness (r = -.47), and depressive symptoms (r = -.41). See Table 1.

Mediation Analyses

Simple mediation analyses, consistent with Hayes[45], were used to examine six separate models of the potential mediating roles of hopelessness, depression, social support (i.e., perceived quality of support; social interactions), and substance use (i.e., drug and alcohol misuse), on the relation between gratitude and suicidal behavior. A comprehensive model, with all mediators, was also examined. Age, sex and race/ethnicity were covaried in all analyses.

Greater gratitude was significantly related to less hopelessness (a = -1.49, SE = .13, p < .001), and to decreased suicidal behavior (c = -.60, SE = .09, p < .001). Additionally, hopelessness was significantly positively associated with suicidal behavior (b = .23, SE = .03, p < .001). The direct effect of gratitude on suicidal behavior decreased in significance after accounting for hopelessness (c' = -.25, SE = .10, p < .01), indicating mediation. In order to determine the presence of a true significant indirect effect, the biased confidence intervals must not contain a true zero, as was the case in our model (BCa 95% CIs [-.44, -.06]). Individuals who reported greater gratitude reported less hopelessness and, in turn, decreased suicidal behavior. See Table 2; see Figure 1.

Similarly, greater gratitude was significantly related to fewer depressive symptoms (a = -3.20, SE = .34, p <.001), and to decreased suicidal behavior (c = -.60, SE = .09, p <.001).

Additionally, symptoms of depression were significantly positively associated with suicidal behavior (b = .12, SE = .01, p <.001). The direct effect of gratitude on suicidal behavior decreased in significance after accounting for depressive symptoms (c' = -.21, SE = .09, p = .02), indicating mediation (BCa 95% CIs [-.38, -.04]. Individuals who reported greater gratitude reported fewer depressive symptoms and, in turn, decreased suicidal behavior. See Table 2; see Figure 1.

Greater gratitude was significantly related to greater subjective support (a = 1.65, SE = .13, p <.001) and social interaction (a = .56, .06, p <.001), as well as to decreased suicidal behavior across both models (subjective support: c = -.60, .10, p < .001; social interaction: c = -.60, SE = .09, p <.001). Additionally, subjective support (b = -.24, SE = .03, p < .001) and social interaction (b = -.29, SE = .07, p <.001) were negatively associated with suicidal behavior. The direct effect of gratitude on suicidal behavior decreased in significance after accounting for subjective support (c' = -.20, SE =.10, p = .04) and social interaction (c' = -.44, SE = .01, p <.001), indicating mediation. Across both models, the indirect effect was significant (subjective support: BCa 95% CIs [-.40, -.01]; social interaction [-.63, -.25]). Individuals who reported greater gratitude reported greater subjective support from, and greater social interaction with, their social support network and, in turn, decreased suicidal behavior. See Table 2; see Figure 2.

Greater gratitude was negatively related to drug use (a = -.25, SE = .06) and alcohol use (a = -.67, SE = .17), as well as to suicidal behavior, across both models (drug use: c = -.60, SE = .09; alcohol use: c = -.60, SE = .09). Additionally, drug use (b = .36, SE = .08) and alcohol use (b = .11, SE = .02) were positively associated with suicidal behavior. The direct effect of gratitude on suicidal behavior decreased in significance after accounting for drug use (c' = .51, SE = .09) and alcohol use (c'=.52, SE = .09), indicating mediation. Across both models, the indirect effect

was significant (drug use: BCa 95% CIs [-.68, -.33]; alcohol use: [-.70, -.35]). Individuals who reported greater gratitude reported less alcohol and drug use and, in turn, decreased suicidal behavior (all *p*-values < .01). See Table 2; see Figure 3.

In our final model, we examined all mediators simultaneously. Gratitude was significantly related to all mediators in hypothesized directions; however, only depression (*a* = -3.20, SE = .34, *p* <.001; *b* = .08, SE = .01, *p* <.001; BCa 95% CIs [-.41, -.15]) and perceived social support (*a* = 1.65, SE = .13, *p* <.001; *b* = -.10, SE = .04, *p* <.01; BCa 95% CIs [-.33, -.04]) emerged as significant mediators (*c* = -.59, SE = .08, *p* <.001; *c'* = .002, SE = .09, *p* = .97). Hopelessness exerted an indirect-only effect (*a* = -1.49, SE = .13, *p* <.001; *b* = .07, SE = .03, *p* <.05).

Discussion

We examined four potential hypotheses to explain the beneficial impact of gratitude: schematic, positive affect, broaden-and-build, and coping, predicting that hopelessness (schematic), depression (positive affect), social support (broaden-and-build), and substance use (coping) would mediate the linkage between gratitude and suicide risk. All hypotheses were supported.

Schematic hypothesis

Regarding the schematic hypothesis, it may be that gratitude, and enhanced awareness of the positive aspects of one's life, contributes to reduced risk for suicide via a decrease in negative cognitions. Our findings suggest that persons with low levels of trait gratitude may hold biased and negative attributions about their experiences, suggesting that, in part, gratitude involves cognitive processing. Given that negative cognitions, such as hopelessness, have been extensively documented as exacerbating suicide risk[20,21], we posit that gratitude, or the

purposeful focusing on positive life experiences, works to counteract maladaptive thoughts and emotions that might otherwise contribute to engagement in suicidal behavior.

Positive affect hypothesis

Similarly, in both an independent and comprehensive model, depression mediated the relation between gratitude and suicidal behavior, with higher levels of gratitude linked to fewer symptoms of depression and, in turn, to less suicidal behavior. In previous research, gratitude promotes positive emotionality and, in our study, had an inverse association with negative emotion, supporting the positive affect hypothesis. Depression is a well-established contributor to suicide risk[24,25], and our findings suggest that gratitude may be associated with lower suicide risk via its beneficial impact on depression.

Broaden-and-build hypothesis

Regarding the broaden-and-build hypothesis, in independent models, we found that perceived social support and social interactions were significant mediators of the gratitude-suicide linkage. The significant mediating effect of perceived support persisted in our comprehensive model. To begin, those with a grateful disposition may be more likely to seek out positive social experiences, thereby strengthening the extent and quality of their social network.[27] More importantly, however, a primary mechanism of action for the link between gratitude and suicide risk appears to be an awareness of, and redirecting of attention to, the existing, meaningful relationships in one's life, thereby enhancing the extent to which a person feels supported by their social network. Our findings suggest that gratitude may initiate or enhance perceptions of support, perhaps by offering a reminder of the actions of others for which one is thankful.

Adaptive coping hypothesis

Finally, past research indicates the positive relation between adaptive coping strategies and gratitude, and the negative relation between maladaptive coping strategies and gratitude.[13] We extend this research by exploring the impact of gratitude on the utilization of substance use as a maladaptive coping strategy. Persons who are grateful for daily life experiences, with consequent beneficial relation to cognitive, emotional and social functioning, may also have less need to self-soothe in a maladaptive manner, such as through the misuse of drugs and alcohol. Ultimately, risk for suicide may be decreased among more grateful individuals because they are less likely to engage in substance use, a known contributor to suicidality.[32]

Limitations and future research

Our findings must be interpreted in the context of design and sample limitations. The cross-sectional design of our study precludes examination of causality and, thus, future prospective and longitudinal research is necessary to substantiate our findings. Our use of a predominantly White, female sample may limit generalizability of findings. In future research, diverse samples should be utilized, to determine if risk and protective factors for suicide operate similarly across populations. Our use of secondary data is less than ideal; for instance, we utilized substance misuse as a proxy for maladaptive coping, per Wood and colleagues[10], although both substance abuse and maladaptive coping are complex phenomena that require direct assessment. Finally, we utilized self-report measures, which may be subject to bias, warranting the use of objective measures (e.g., medical records; ecological moment surveying) to improve validity.

Conclusion

We found support for the schematic, positive affect, broaden-and-build, and coping models of gratitude, in relation to suicidal behavior. Reduction of negative mood and promotion

of adaptive interpersonal functioning appear to be primary pathways linking gratitude to suicide risk. Yet, future prospective, longitudinal research with diverse samples and objective measurement techniques, is necessary to substantiate our findings.

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