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The Impact of Gratitude on Mindfulness in College Students: A Mixed Methods Analysis

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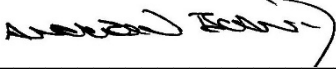
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Abstract

Gratitude involves appreciating what is valuable and meaningful to oneself, and mindfulness entails being aware of what arises psychologically from non-judgmentally attending to the present moment. Researchers have demonstrated that both processes promote well-being. This study explored how gratitude may impact mindfulness in a sample of emerging-adult-aged college students. Participants were randomly assigned to a group who engaged in daily gratitude journaling for a week or to a control group who journaled daily for a week about an arbitrary topic. The Mindful Attention Awareness Scale (MAAS) was used to measure mindfulness in both groups following the journaling exercises. A Mann-Whitney U analysis was conducted to analyze the MAAS scores between groups, and summative content analysis was employed to examine themes in the gratitude journals. Results of the Mann-Whitney U suggested that self-reported mindfulness among participants who completed the gratitude exercise did not differ from those in the control group in a statistically significant manner. Qualitatively, major themes of the gratitude journals included relationships, food, pets, and free time—reflecting potential preoccupation with Maslow’s (1987) physiological and belongingness needs. Factors that may have contributed to a non-significant result are explored, and suggestions for future study are provided.

The Impact of Gratitude on Mindfulness in College Students: A Mixed Methods Analysis

Researchers have demonstrated that gratitude and mindfulness, while being separate constructs, appear to yield comparable benefits (Schultz, 2019). Gratitude has been found to promote well-being, positive affect, and health behaviors, and both gratitude and mindfulness tend to be associated with increased life satisfaction and also are linked to reduced anxiety, stress, and depression (O’Leary & Dockray, 2015). Mindfulness facilitates well-being through self-regulated activity and fulfillment of the basic psychological needs for autonomy, competence, and relatedness (Hodgins and Knee, 2002). These three needs constitute the core of Deci and Ryan’s self-determination theory, which is a contemporary variant of humanistic psychology (DeRobertis & Bland, 2018). It is important to investigate how these constructs impact each other because of their inherent ability to nurture a healthier self (Rahal, 2018). This study explored the role gratitude may play in promoting mindfulness.

Definitions

Gratitude

Sansone and Sansone (2010) defined gratitude as the appreciation of what is valuable and meaningful to oneself. In Latin, *gratus* means “thankful,” and the word *gratitude* stems from “good will” in Middle French (Harper, 2020). Whereas most people tend to regard gratitude as principally involving thankfulness for interpersonal experiences (Emmons & McCullough, 2003; Kashdan et al., 2009), Schultz (2019) expanded the definition to also include appreciation for one’s own assets, cherishing of beauty in everyday objects, or a general sense of thankfulness for the simple experience of living. Further, gratitude offers the possibility of breaking out of fixed emotional, cognitive, and/or behavioral patterns and, in turn, helps individuals experience life more fully and thereby work towards a greater sense of psychological fulfillment (Chowdhury,

2020). As discussed further in the Outcomes section below, gratitude promotes living fully in the present moment, enjoying life as a process, appreciating the simple pleasures in life, and demonstrating enhanced cognition and perception of reality—all of which have been identified as attributes of psychological health (Maslow, 1971/1993, 1987, 1999).

Mindfulness

According to Kabat-Zinn (2015), mindfulness refers to the awareness that arises psychologically from non-judgmentally attending to the present moment and from approaching life with openness. Characteristics of mindfulness also include flexible regulation of attention and an objective receptivity to experience (Brown et al., 2007). Taken together, these are conducive to the enhancement of both internal and external experiencing (Kabat-Zinn, 2015). Schultz (2019) stated that as people examine phenomena mindfully, they find themselves more capable of self-analyzing difficult thoughts and feelings without a considerable degree of emotional disruption coloring their view of the situations.

Comparably, Rogers (1961) described a *fully functioning person* as one who is open to experience, who expresses feelings non-defensively, who acts autonomously, who approaches life creatively, and therefore who lives with a greater sense of fulfillment. These qualities described by Rogers as well as Maslow (see above) have been empirically correlated with mindfulness (Beitel et al., 2014).

Outcomes

Gratitude

Using randomized controlled trials, Emmons and Stern (2013) found that gratitude is more conducive to promoting mental health and satisfaction with life than any personality trait—more so than hope, optimism, or compassion. They also noted that grateful people experience

higher levels of emotions such as joy, enthusiasm, love, and happiness, and they show increased resilience (defined as one's ability to "struggle well," Walsh, 2016, p. 5) in the face of adversity.

As a process, gratitude provides fullness to life. It creates an opportunity to thoroughly appreciate goodness, instead of take goodness for granted (Smith et al., 2020). In a way, gratitude operates similarly to cognitive defusion, which is a process central to acceptance and commitment therapy (ACT), that entails exposing thoughts simply as thoughts rather than as binding realities or as set patterns of living (Blackledge, 2007). Spending time reflecting on what one is grateful for allows individuals to disrupt their "regularly scheduled programming" and focus on the here and now. Seligman et al. (2005) suggested that spending just a few minutes per day practicing gratitude can avoid ruts in thinking that undermine mental health. Both gratitude and cognitive defusion can help individuals deidentify from their fixed encoding strategies and instead approach the world with open-mindedness—which leads to more open expectancies, as well (à la Mischel, 1993, as cited in Olson et al., 2020).

Gratitude requires complex levels of perspective taking (Foody et al., 2013). "When experiencing gratitude, a person is sensitive to the emotion, thoughts, and actions that underlie the positive contributions of others... which reflect a shift away from self-interests to mirroring and understanding another person" (Dewall et al., 2012, p. 2). Therefore, understanding and assuming the perspective of another person promotes a sense of gratitude for that person's actions (Lopez et al., 2019).

Furthermore, functional magnetic resonance imaging (fMRI) research suggests that when people feel grateful, their brains show activity in regions of the medial prefrontal cortex that are associated with socialization, experiencing pleasure, emotion regulation, and stress relief.

Feeling grateful brings about a more relaxed body state and can generate health benefits, as well (Smith et al., 2020). Taken together, these promote the outcomes of gratitude, as outlined above.

Mindfulness

Brown and Ryan (2003) identified *open* or *receptive* awareness and attention as a core characteristic of mindfulness, which is comprised of many facets. Some of these include:

- Attention: One's mental presence in a given moment;
- Curiosity: The desire to know things (see also Kashdan et al., 2011);
- Openness: One's ability to approach situations without use of value judgements (see also Polizzi et al., 2018);
- Acceptance: Consenting that something is the way it is (see also Carson & Langer, 2006);
- Self-awareness: One's ability to acknowledge one's own character, feelings, motives, and desires; and
- Nonjudging: Approaching situations in ways that do not reflect one's own biases (see also Mark & Eleanor, 2007).

Specifically, mindfulness is viewed as directly fostering well-being by promoting individuals' full engagement and intentionality, which in turn provides additional richness to everyday experience (Howell et al., 2008).

Gratitude Exercises

Gratitude journaling can bring a new frame of reference to various life situations. The process of gratitude journaling involves individuals regularly identifying specific aspects of their life experiences for which they are thankful (Flinchbaugh et al., 2012). Sometimes this involves asking individuals to keep a diary in which they write three events, people, objects, etc. for

which they are grateful, to be completed each night directly before bed (Wood et al., 2010).

Writing is a powerful tool for individuals to organize what they feel into contextual pieces, which leads to a heightened emotional attunement and understanding of the emotions. Moreover, the act of writing translates individuals' thoughts into words, and writing has been shown to have advantages over merely thinking the thoughts in that it helps to organize and facilitate integration of thoughts, and it helps individuals accept their own experiences and approach them in context (Emmons & Stern, 2013).

Emmons and McCullough (2003) asked participants write down up to 5 things in their life that they were grateful or thankful for in the past week, for 10 weeks. In addition to these lists, 30 affect terms were provided for participants to rate the extent to which they experienced each emotion during the past week on a scale from 1 (*not at all*) to 5 (*extremely*). Significant positive correlations were found between expressions of gratitude and happiness, joy, and favorable life appraisals. The authors further concluded that expressing gratitude helped participants feel better about their lives as a whole and promoted optimism in their expectations for the upcoming week.

Further, the process of gratitude journaling may help individuals recognize and clarify what is most important to them in their lives by virtue of their active engagement in meaning-making (Flinchbaugh et al., 2012). Meaning-making involves the ongoing active construction of a personal narrative or story in order to objectively evaluate and make sense of events as situated within one's life as a whole, to take action accordingly, and thus facilitate well-being (Wong, 2017). Gratitude exercises facilitate the creation of meaning by placing everyday experiences within a framework of gratefulness. This lends itself to individuals becoming better able to

accept current events in their lives, and they learn to appreciate and grow from those experiences, helping them better recognize and value life as a process (Watts & Chopra, 2011).

The Path from Gratitude to Mindfulness

Chen et al. (2016) found that mindfulness facilitated effects of gratitude on life satisfaction and concluded that integrating gratitude and mindfulness in studies is important because it may open significant new avenues for the enhancement of well-being and provide new mechanisms for optimal self-regulation. That said, Emmons and Stern (2013) suggested that gratitude can be thought of as a mindfulness practice that leads to increased self-awareness as individuals focus on the “available benefits” (p. 852) in their lives that they may not have given much thought to before. Engaging in such a practice allows individuals to approach new experiences openly and nonjudgmentally, without preconceived thoughts about how they should experience their day to day lives (Brown & Ryan, 2003). While practicing gratitude, individuals simultaneously focus on what is happening in their lives in the present moment, helping them become more aware of the situations they can and cannot control. Gratitude thus allows people to see the world less through value judgements and more through a lens of acceptance.

In addition, self-acceptance involves positive attitudes and feelings towards oneself that arise from an accurate perception of one’s own actions, motivation, and feelings. Gratitude may even help people already high in mindfulness to be more accepting of themselves and acknowledge their development over time, which can lead to recognition of their positive and negative personal characteristics without attempting to change them or protest them (Voci et al., 2019).

In a study by Froh (2007), students in a gratitude condition participated in an exercise where they recorded up to five instances of whatever they were grateful for since the previous

day. Students in a hassles condition were given similar directions, except with a focus on irritants. The researcher noted that reflecting on fortunate events in life can engage students and may also help them become more mindful. Expression of gratitude led the students to concentrate on thoughts they just had not given time to before. One student from a wealthy family wrote, "I realized how good I really have it. Some kids have nothing. I just never thought about it before." Therefore, Froh concluded that teaching gratitude can increase a student's receptivity to what they can learn from their teachers, parents, and friends. Because the current study also utilized students, this previous finding exhibits the potential for gratitude to promote their development of the acceptance and openness facets of mindfulness.

COVID-19

The current COVID-19 pandemic that requires social distancing inhibits the development of many emotions that are usually developed interpersonally. Researchers believe that savoring positive emotions during COVID-19 can be extremely beneficial (Yamaguchi et al., 2020). Gratitude can be especially useful during this time where people may be experiencing stress because it helps to recognize and appreciate the resources present in one's life. Furthermore, going through an experience like the COVID-19 pandemic provides opportunities for people to construct meaning in their lives (Bland, 2020). Meaning-making occurs when experiences that push individuals out of their comfort zone provide contrast with their typical ways of living, encouraging them to reassess and reconstruct their perspective-taking and valuing systems (Van de Goor et al., 2020). The findings from Bargdill et al.'s (2019) phenomenological study described the process of creating meaning from a difficult experience:

First, an experience emerges unexpectedly that disturbs people's sense of everydayness and familiar predictability. Second, the experience directs attention to life's fragility and

to the extent to which they take things for granted. Third, the experience enables them to become more conscious of and to integrate their sense of identity, to develop a stronger sense of life purpose, and to appreciate the minutiae in everyday life. Fourth, the experience strengthens relationships and motivates their achievement of significant life goals. Fifth, the experience has layers of meaning that lead to feelings of gratitude despite the mixture of negative and positive emotions. (as cited in Bland, 2020, p. 716)

Based on this information, the COVID-19 pandemic provided opportunities for the students who served as participants in this study to let go of their preconceived notions and/or value judgements and instead live life as more authentic versions of themselves, which can promote a sense of gratitude.

Purpose of This Study

This study contributes to the existing literature on gratitude and mindfulness by analyzing the role a gratitude exercise may have on mindfulness in a sample of college students. First, it heeds Smith et al.'s (2020) identification of a "deep and serious need" (p. 29) to continue studying gratitude and exploring its capacities for enhancing well-being. Second, it serves as a follow-up to Froh's (2007) aforementioned finding that gratitude helps students become more mindful. Third, Hayes et al. (1999) suggested that mindfulness and acceptance are mechanisms that allow people to effectively live in the present moment, to recognize personally-important values, and to live in accordance with these values—all developmental tasks of emerging adulthood (Baxter Magolda & Taylor, 2016). Individuals who use self-authorship—the capacity to make internally-based decisions rather than uncritically follow external influences—are better able to think more critically, to make wise moral and ethical decisions, and to build mature relationships. Thus, Baxter Magolda and Taylor (2016) have called for the development of

creative means of promoting emerging adults' development of self-authorship in order to set the stage for them to successfully navigate adult life.

Hypothesis 1 (MAAS Scores):

- a. Students in the gratitude journaling group will have higher scores on the Mindful Attention Awareness Scale—which focuses on the attention and awareness aspects of mindfulness—compared to the control group (arbitrary prompt).

Method

Participants

Participants were recruited through a digital flyer that was emailed to professors (see Appendix A) and students (see Appendix B) across Millersville University and posted to various Millersville University affiliated Facebook groups. Data were collected over 8 weeks between July and September 2020. The initial sample consisted of $N = 133$ participants. A total of 77 cases were removed because (a) the informed consent agreement was clicked but data was not provided ($n = 47$), (b) participants missed more than one day of the journaling exercise ($n = 26$), and (c) participants' ($n = 4$) age exceeded the age range for emerging adulthood (18 to 25 years; Arnett, 2000). The final sample consisted of $N = 56$ participants, with 25 participants in the control group and 31 participants in the experimental group.

Each student was randomly assigned to one of two groups: gratitude journaling (experimental group) or arbitrary journaling (control group). Students were randomized based on the submission times of the first survey (consent form), alternating between the control and experimental group. Odd-numbered participants were placed in the arbitrary journaling group and even-numbered participants were placed in the gratitude journaling group.

Gender

The majority of participants ($n = 46$, 82%) were female. In addition, there were 9 males (16%), and 1 person (2%) who identified as something other than cisgender.

Age

Participants were between 17 and 24 years old, with over half ($n = 31$, 55%) between 18 and 19 years old.

Race/Ethnicity

The majority of the participants were White ($n = 50$, 89%), plus 2 (4%) multiracial, 2 (4%) Asian, and 1 (2%) African American.

Year in College

The sample consisted of students across all years of college including 21 students (38%) in their first year, 12 ($n = 12$, 21%) in their second year, 9 students (16%) in their third year, 7 students (13%) in their fourth year, and 7 students (13%) in their fifth year or above.

Major in College

College majors varied across the sample. Almost half of the students ($n = 24$, 43%) were psychology majors, about a fifth ($n = 10$, 18%) were education majors, 7 students (13%) had majors involving mathematics, 5 students ($n = 5$, 9%) majored in one of the hard sciences like biology or chemistry, 4 students (7%) were social work majors, 2 students (4%) majored in a topic having to do with technology, 2 students (4%) majored in English, 1 student (2%) was a sports medicine major, and 1 student (2%) majored in environmental hazards.

Meditation

About two thirds ($n = 34$, 61%) said they never or rarely meditated, 5 students (9%) said they meditated about once a month, 4 students (7%) said once every two weeks, 5 students (9%) said once a week, and 8 students (14%) said multiple times a week.

Journaling

Over half of the students ($n = 32$, 57%) said they never or rarely journaled, 7 students (13%) said they journaled when necessary, 3 students (5%) said they journaled about once a month, 2 students (4%) said every two weeks, 1 student (2%) said once a week, and a fifth ($n = 11$, 20%) said multiple times a week.

Materials/Measures

This study involved daily journaling through Qualtrics, which enabled the daily prompts to be sent with time limits during the period of data collection. This ensured that each prompt was completed each day (versus all at once towards the end of the study, or vice versa). Harleyey et al. (2003) suggested that expressive writing studies can be conducted with participants journaling either by hand or on a computer; they found no significant difference in results between the two modalities. For the experimental group, 7 prompts were created on a separate survey link for each day of the study. The prompt was: “Please discuss 3 things you encountered today that you are thankful or grateful for.” For the control group, 7 prompts were also created on a separate survey link for each day of the study. The question asked: “Please pick an animal and describe it as best as you can. You may find it helpful to answer these questions: What sound does it make? How does it spend most of its time? What does it look like? Where can you find it?” Control group participants were instructed to choose a different animal each day.

Mindful Attention Awareness Scale

The Mindful Attention Awareness Scale (MAAS) (Brown & Ryan, 2003; see Appendix C) is a 15-item self-report scale that was used to measure mindfulness—particularly, enhanced attention to and awareness of current experiencing or present reality—in each participant. A high score on this scale indicates a high degree of mindfulness which means being very aware of the

present moment in a nonjudgmental way. Respondents were asked to rate how often they have experiences of being distracted (on autopilot), preoccupied, and not paying attention to the present moment on a 6-point scale (1 = *almost always* to 6 = *almost never*). Items on the MAAS include:

- “I could be experiencing some emotion and not be conscious of it until sometime later.”
- “I tend not to notice feelings of physical tension or discomfort until they really grab my attention.”
- “I rush through activities without being really attentive to them.”

The MAAS includes items phrased in the negative to reduce face validity and to reflect the absence of mindfulness (Labbe, 2011). Black et al. (2011) found that the MAAS has good internal consistency as well as test–retest and parallel forms reliability. Further, Brown and Ryan (2003) suggested that the MAAS is a reliable and valid instrument for use in both college student and general adult populations—which made it appropriate for the sample in this study.

Procedure

After obtaining IRB approval, the first step was to provide all participants with the TinyURL link to a Qualtrics survey with the informed consent form (see Appendix D). The informed consent form included a forced response question, which required participants to respond before moving on in the study. After they consented to participation in this study, and I had their email, I sent the participant an introductory email (see Appendix E) with a new Qualtrics survey link that asked them to complete a demographic questionnaire (see Appendix F). After this information was received, the daily journaling process began. Emails were sent out each day to the participants with their prompt (see Appendix G).

Responses to the prompts were due at 11:30PM every night of data collection. Participants should have completed 7 journal entries by the completion of this part of the study. After the week of journaling was complete, they received their final Qualtrics survey which included the MAAS posttest and a debriefing screen (see Appendix H). In cases where students were offered extra credit for participating in this study, they were informed to screenshot the debriefing screen and send that image to their instructor as confirmation of their full participation.

Data Analysis

This study utilized a mixed methods analysis consisting of a Mann-Whitney U analysis and summative content analysis.

Mann-Whitney U Analysis

The Mann-Whitney U test is the nonparametric version of the independent samples t-test. A nonparametric analysis was appropriate because it could not be assumed that the MAAS scores would be normally distributed. Assumptions for using this statistical analysis include that the data comes from random samples of the population, the data are from independent groups, and the measure used is at least ordinal. The Mann-Whitney U test determined whether there was a difference in MAAS scores between the gratitude journaling group and the arbitrary journaling group.

Summative Content Analysis

Summative content analysis (Hsieh & Shannon, 2005) was used to identify themes and report how often they occurred in the gratitude journaling responses by employing frequency counts. This involved tallying how often these themes occurred in the gratitude journaling responses on Days 1, 4, and 7 of the study (the beginning, midpoint, and last day of journaling).

This analysis was performed with the intent of understanding and contextualizing the results from the Mann-Whitney U analysis.

Results

Mann-Whitney U Analysis

Total scores on the MAAS are generated by averaging the responses from all 15 of its items (Brown & Ryan, 2003). See Table 1 (Appendix I). It is worth noting that there was more positive skew in the control group (skew = 0.831) compared to the gratitude group (skew = 0.019). The median MAAS score was 3.60 for the gratitude journaling group compared to 3.56 for the control group. A Mann-Whitney U test showed that the difference ($U = 383, p = 0.941$) in MAAS scores for the gratitude journaling group compared to those for the control group was not statistically significant. An effect size of $r = 0.01$, which is a recommended method for effect size for a Mann-Whitney U analysis (Karadimitriou & Marshall, n.d.), suggested that the difference between the gratitude journaling group and the control group was miniscule, according to Cohen's guidelines. This suggests that, in this sample, the gratitude exercise may not have had an immediate demonstrable impact on mindfulness.

Journal Content

Relationships

On the first day of the study, all participants in the experimental group ($n = 31, 100%$) journaled about being grateful for something related to their interpersonal relationships. About one third ($n = 10, 32%$) wrote about their friends, almost a quarter ($n = 7, 23%$) talked about their significant other, about one fourth ($n = 8, 26%$) journaled about specific family members like parents or siblings, and about a fifth ($n = 6, 19%$) discussed spending time with their family.

On Day 4 of the study (the midway point), almost two thirds of the participants ($n = 20$, 65%) journaled about their relationships. Nearly one fifth of the participants ($n = 6$, 19%) wrote about their friends, just about one fourth ($n = 7$, 23%) talked about their significant other, one sixth ($n = 5$, 16%) journaled about specific family members, and 2 participants (6%) discussed spending time with their family.

On Day 7 of the study (the final day), all of the participants ($n = 31$, 100%) wrote about something related to their relationships just like the first day. Nearly half ($n = 14$, 45%) discussed their friends to some degree, 1 person (3%) talked about their significant other, over one third ($n = 11$, 35%) discussed specific family members, and a sixth ($n = 5$, 16%) journaled about spending time with their family,

Food

On the first day of journaling, about one fifth ($n = 6$, 19%) of the participants wrote about being grateful for food. This ranged from talking about a specific meal they were thankful for to simply being grateful for the ability to make something to eat. This remained about the same on Day 4 ($n = 6$, 19%) and on Day 7 ($n = 7$, 23%).

Pets

On Day 1 of the study, one sixth of the participants ($n = 5$, 16%) journaled about being thankful for a pet—specifically, a dog. On Day 4, the same number of participants ($n = 5$, 16%) journaled about a pet, and on the seventh day, 2 participants ($n = 2$, 6%) journaled about a pet.

Free Time

On the first day of the study, about an eighth of participants ($n = 4$, 13%) expressed appreciation for having a day off from work or school, a light homework day, or simply having ample time to do something they enjoy. On Day 4 of journaling, the same number of participants

($n = 4$, 13%) talked about being thankful for free time. On the last day of the study, the number increased by one participant ($n = 5$, 16%).

Discussion

The quantitative results of this study suggest that the gratitude exercise did not yield a statistically significant difference in mindfulness scores as measured by the MAAS between participants who engaged in gratitude journaling versus those who journaled about an arbitrary topic. In the former group, the participants' journal content did align with Schultz's (2019) definition of gratitude (summarized in the introduction above), which includes appreciation for one's relational assets. For example, this was observed when participants discussed their gratitude towards a family member, their significant other, their pet, etc. However, whereas Schultz further specified that gratitude can involve the cherishing of beauty in everyday objects or a general sense of thankfulness for the simple experience of living, that kind of appreciation was not discussed in the journals. Apart from the discussion of free time, the participants tended to focus principally on tangible entities.

Also, it is important to note that the gratitude journal content reflected potential preoccupation with (see Winston et al., 2017) the more basic levels of Maslow's (1971/1993, 1987, 1999) holistic-dynamic theory of needs—especially those involving physiological needs (food) and belongingness (relationships and pets). Generally, a higher level of mindfulness is more likely to be found in people whose basic needs have been met more consistently (Beitel et al., 2014; Xiao et al., 2017). That said, with regard to the three basic psychological needs in Deci and Ryan's self-determination theory (discussed in the introduction above), while the gratitude journal content in this study reflected relatedness needs, it did not touch on issues involving autonomy or competence. Moreover, it seems that while the gratitude exercise in this study may

not have enhanced the attention and awareness aspects of mindfulness measured by the MAAS, future studies should examine whether it might replicate previous outcomes (summarized in the introduction above) involving the acceptance and openness facets of mindfulness.

Furthermore, this study involved gratitude journaling on a daily basis, which may have been too often. Researchers have found that once a week may be the ideal frequency for an effective gratitude journaling intervention (Emmons & McCullough, 2003). In contrast, Lyubomirsky et al. (2005) found that gratitude journaling more often (3 times per week) did not bring about the same improvements, perhaps because the activity may have felt stale and overdone. Therefore, more research is necessary to conclude whether it was the gratitude exercise that was unable to promote mindfulness in this study or whether the frequency of the gratitude exercise may have been a confounding factor.

Additionally, culture may have played a role in the outcome. Researchers have suggested that gratitude exercises interact with people's cultural backgrounds (Biswas-Diener & Lyubchik, 2013). The sample in this study was predominantly female; this is not surprising given that many women in mainstream U.S. culture may perceive gratitude as more advantageous in their lives due to their heightened priority for creating and sustaining intimate relationships (Timmers et al., 1998; as cited in Kashdan et al., 2009) that reflects an exaggerated need for love in a hyper-capitalistic society (Fromm, 1956). In contrast, men in the U.S. tend to be less willing to express softer, other-focused emotions such as gratitude as a result of cultural conditioning (Kashdan et al., 2009); this may partially explain their small representation in the sample.

Limitations and Suggestions for Future Research

The first limitation of this study involves the sample having been taken from a non-distressed population. Many previous gratitude studies examined its effectiveness as

interventions among people who were psychotherapy clients (Seligman et al., 2005, 2006), or they compared the effects of a gratitude exercise condition to a hassles condition where participants listed irritants they had encountered (Emmons & McCullough, 2003).

In addition to frequency of journaling (as discussed above), a second limitation was the duration over which journaling occurred. Previous gratitude studies utilized longer timeframes; for example, participants in Emmons and McCullough's (2003) research completed weekly journals for 10 weeks. This length of time was not feasible for the present research. Moreover, the effects of virtues on human well-being take the shape of an inverted U, suggesting that there is a point in which pleasant effects of a gratitude exercise could begin to turn negative (Grant & Schwartz, 2011). Concerning the duration of the journaling exercise, future researchers may opt to test this proposition by including multiple treatment groups that vary in number of journal responses submitted to see where the point is that a gratitude exercise loses its effectiveness. In essence, the duration of the journaling may have left the participants in a position to contribute grateful thoughts to things they were not feeling grateful for, simply to hand in the survey by the end of the night (Foody, 2013). Foody also states that there is a risk that gratitude exercises could convey to individuals how they *should* feel. Moreover, perhaps the activity itself did not suit this sample of college students. Sin et al. (2011) reported that perceived fit is an important predictor of outcome, implying that participants who approached the gratitude activity with the belief that it would be helpful for them generally actually found it helpful. Further, gratitude exercises appear to provide more substantial benefits if they are chosen rather than advised because one singular gratitude activity may not be optimal for everyone (Lyubomirsky et al., 2011; Sin & Lyubomirsky, 2009).

Also, over half of the participants were 18 or 19 years old. A larger, more diverse sample may have yielded different results. In this case, age may have been a limitation because mindfulness and self-awareness may be less developed in people at that developmental level (Knudsen, 2018). Also, one can assume that these 18- and 19-year-olds were in their first semester of college. With this in mind, it is important to recognize that data collection took place at the beginning of the semester, when these students were still acclimating to college. The impact of COVID-19 made college adjustment even more unique with the lack of in-person courses and proper socialization. Thus, a follow-up study is recommended to see whether the impact of the gratitude exercise would change if the data collection is done at a different point in the semester as well as with a different sample when participants are more acclimated to their social environments and less likely to reflect deficient belongingness needs in the face of a transition. It also is important to consider the impact of incentive use on the data. Some instructors offered extra credit for participation in the study, which may have served as a secondary motive and therefore may have clouded the data.

In addition, this study involved a nomothetic approach, which used mean mindfulness scores from groups of participants to provide generalizable findings. It may have been premature to use a nomothetic approach because more perspective was needed to adequately understand specific mechanisms by which gratitude may impact mindfulness. Therefore, future researchers should use an idiographic approach, which uses single-subject design, to first better understand these process principles and dynamics in order to set the stage for the possibility of *eventually* arriving at generalizability. Further, the lack of baseline data made it impossible to determine whether there was a demonstrable effect from the beginning to the end of data collection. Future

research should utilize a pretest-posttest design to see if mindfulness increases or decreases in each individual case and then connect that with journal content.

Conclusion

This research was intended to investigate whether participating in a gratitude journaling exercise could enhance mindfulness in college students compared to students who journaled about an arbitrary topic. Through summative content analysis, this study contributed to the gratitude literature by assessing what emerging-adult-aged college students wrote about during a daily gratitude journaling exercise, which provided context for understanding the Mann-Whitney U results in this study. Further, this study was among the first to directly assess the content of gratitude journals. While statistically significant results were not found, many considerations and recommendations for future studies have been identified. Future researchers should explore this topic using an idiographic approach to work toward a deeper understanding of how reflecting on what one is grateful for may yield measurable changes in mindfulness. Moreover, the ideal frequency and duration of an effective gratitude exercise should be a topic of interest for future studies, and these studies should also include a larger and more diverse sample.

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Appendix A

Participant Recruitment Message

Dear _____,

My name is Brooke Shimer and I am a psychology major in the University Honors College as well as the Psychology Departmental Honors Program. I am hoping that you might be able to assist with recruiting participants for my undergraduate research project that has been approved by the Millersville University Institutional Review Board.

I am working on a study that involves students journaling daily to explore its possible impact on mindfulness. Would you consider distributing the recruitment flyer below to your students? If you would also consider having me speak in your class, please let me know at your earliest convenience. Thank you and have a great day.

Sincerely,

Brooke Shimer



Appendix B

**RESEARCH PARTICIPANTS NEEDED!**

I am seeking Millersville students to take part in a research study.

You will be asked to journal daily for one week. You will be given a prompt each day that you will write about. For your convenience, everything will be online.

INTERESTED IN PARTICIPATING?

Please go to this link before *insert date* to participate:

<https://tinyurl.com/ybvk854h>



Do you know others who may be interested?
Please forward this message far and wide!

Your responses will be kept confidential.

Have Questions? Please contact bashimer@millersville.edu

This study has been approved by the MU Institutional Review Board (IRB).

Appendix C

Mindful Attention Awareness Scale (Brown & Ryan, 2003)

Instructions: Below is a collection of statements about your everyday experience. Using the scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

- Almost Always (1)
 Very Frequently (2)
 Somewhat Frequently (3)
 Somewhat Infrequently (4)
 Very Infrequently (5)
 Almost Never (6)

1. I could be experiencing some emotion and not be conscious of it until sometime later.
2. I break or spill things because of carelessness, not paying attention, or thinking of something else.
3. I find it difficult to stay focused on what's happening in the present.
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.
6. I forget a person's name almost as soon as I've been told it for the first time.
7. It seems I am "running on automatic," without much awareness of what I'm doing.
8. I rush through activities without being really attentive to them.
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.
10. I do jobs or tasks automatically, without being aware of what I'm doing.
11. I find myself listening to someone with one ear, doing something else at the same time.
12. I drive places on 'automatic pilot' and then wonder why I went there.
13. I find myself preoccupied with the future or the past.
14. I find myself doing things without paying attention.
15. I snack without being aware that I'm eating.

Appendix D

Informed Consent Form

Study Title: The Impact of Gratitude on Mindfulness in College Students
 Student Researcher: Brooke Shimer

Overview

This research has been approved by the Institutional Review Board at Millersville University. I am a student in the Psychology Departmental Honors Program. I invite you to take part in my research study. You must be currently enrolled at Millersville University to participate in this study.

This study will explore how gratitude impacts mindfulness in college students. You will be asked to complete a confidential journal about your everyday experiences for one week. The journal entries should take no longer than 5-15 minutes to complete.

What are the possible risks and benefits?

This is considered a minimal risk study and should pose no more discomfort than that encountered in a classroom setting. Participation in this study will involve no cost to you. You will not be paid for participating.

What are my rights as a research participant?

Participation in this study is voluntary. You do not have to write anything that makes you feel uncomfortable. If you encounter distress as a result of participating, counseling services are available for free in Lyle Hall to MU students.

Who can I contact if I have questions or concerns about this research study?

If you have questions or concerns, you may contact Dr. René Muñoz by phone at 717.871.4457 or by email at mu-irb@millersville.edu. You may also contact me at bashimer@millersville.edu before, during, or after your participation. To contact my mentor, you may email Dr. Andrew Bland at Andrew.Bland@millersville.edu.

Consent

I have read this form, the research study has been explained to me, and I understand what I have read. If I have additional questions, I have been told whom to contact. I agree to participate in the research study described above.

I have read and agree with the above statements (1)

I will need your Millersville email address to send you the daily prompts during the 7-day period. The email will be used for sending out this information and nothing more. If you are okay with this form of communication, please type your email below so I can reach out to you concerning your further participation.

Appendix E

Participant Information Email

Hello,

This is Brooke Shimer, the psychology student completing the journaling research that you have signed up to participate in. I appreciate your volunteering to take part in this study. Below is a link to the remainder of the preliminary questions. On ***insert date*** I will begin to send you links to your daily prompt, so please keep an eye on your student email. Make sure to complete the prompt each day by 11:30 PM.

Click this link to continue on in the study: *insert link to demographics questionnaire*

Sincerely,

Brooke Shimer

Appendix F

Demographics Questionnaire

How do you identify?

- Male (1)
- Female (2)
- Something else (3)
- Prefer not to say (4)

What is your age?

How do you identify racially/ethnically?

- White (1)
 - Black or African American (2)
 - American Indian or Alaska Native (3)
 - Asian (4)
 - Native Hawaiian or Pacific Islander (5)
 - Arab American (6)
 - From multiple races (7)
 - Some other race (please specify) (8)
-

What is your year in college?

- First (1)
- Second (2)
- Third (3)
- Fourth (4)
- Fifth or above (5)

What is your major?

How often do you meditate as a voluntary practice?

How often do you journal as a voluntary practice?

Appendix G

Daily Survey Distribution Email

Hi!

This is Brooke Shimer. Thank you again for your continued participation in my study. Below is the link for your prompt today. Please remember to complete it by 11:30 PM. Thank you and have a great day.

Prompt: *insert link*

Sincerely,

Brooke Shimer

Appendix H

Debriefing Message

Thank you for participating in this study, which is designed to better understand how a gratitude intervention may impact mindfulness in college students. If you were in the group that wrote about 3 things you were thankful or grateful for that day, you were assigned to the gratitude condition. If you wrote about a different animal each day, you were assigned to the control condition. To maintain the validity of this study, please refrain from sharing this information with others.

Gratitude can be defined as the appreciation of what is valuable and meaningful to a person; it is a general state of thankfulness and/or appreciation (Sansone & Sansone, 2010). Mindfulness is the awareness that arises from non-judgmentally paying attention to the present moment and, in turn, leading to a fullness of human experience (Kabat-Zinn, 2015). Both of these constructs have been shown to increase well-being.

In the event that you have experienced distress on account of your participation in this study, you are encouraged to seek individual counseling. The Counseling Center in Lyle Hall offers free counseling services to MU students.

Appendix I**Table 1***MAAS Total Scores of Students in Gratitude and Control Groups*

MAAS total score	Gratitude	Control
0 – 0.99	0	0
1.00 - 1.99	1	0
2.00 - 2.99	8	6
3.00 - 3.99	13	13
4.00 - 4.99	9	5
5.00 - 5.99	0	1