

Effects of Gratitude Practice on Relationship Satisfaction and the Role of Perceived Superiority

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Abstract—This repeated-measures experiment explored the effects of six weeks of gratitude practice on college students ($N = 67$) on relationship satisfaction and perceived superiority. Replicating previous research on gratitude practice, it was hypothesized that after consistent gratitude practice, participants in the experimental group ($n = 32$) would feel increased levels of relationship satisfaction compared to the control group ($n = 35$). Of particular interest was whether the level of perceived superiority would moderate the effect of gratitude practice on relationship satisfaction. The gratitude group evidenced significantly higher appreciation and marginally higher relationship satisfaction at post-test than the control group (both groups being equal at pre-test). Significant enhancements in gratitude, satisfaction, and feeling both appreciative and appreciated were found in the gratitude group, as well as significant enhancements in gratitude, satisfaction, and feeling appreciated in the control group. Appreciation for one's partner was the only measure that improved in the gratitude group and not the control group from pre-test to post-test. Perceived superiority did not change significantly from pre-test to post-test in either group, supporting the prevalence and stability of this bias within people's overall perceptions of their relationships.

Keywords—Gratitude, relationship satisfaction, perceived superiority, partner appreciation.

I. INTRODUCTION

PRIOR research on romantic relationships has often focused on what makes these relationships go awry [1]. However, there is arguably as much benefit to research positive aspects of a relationship that may lead to increased relationship satisfaction and relationship maintenance behaviours. In cultivating relationship satisfaction, previous research by Watkins et al. [2] has identified gratitude as a useful trait and practice (cf. [1]). Gratitude is defined as a positive emotion, felt when one recognizes that another has given them something of value, and is associated with increased empathy and pro-social behaviour [3].

Expressing gratitude through single acts of pro-social behaviour can consolidate over time to build and strengthen social interactions and close friendships, as well as increase perceptions of being loved and cared for by others [4]. When people are thanked for giving time and energy to benefit others, their own sense of self-worth will increase and lead to further provision of help in the future [5]. Furthermore, Bartlett and DeSteno [6] argue that gratitude is an emotional state that encourages helping others and is not a result of reciprocity norms; people who experienced gratitude were equally as likely

to help a stranger, as they were to help a close friend. Previous research by Emmons and Stern [7] suggests that many people view the experience of feeling generosity and love from others as some of the best moments in life, and these positive emotions extend beyond the bounds of geography or culture.

Having a grateful response to circumstances of life can positively impact one's peace of mind, physical health, and interpersonal relationships [8]. The enduring positive effects extend beyond the moment of experiencing gratitude itself; the ability to frequently notice and appreciate the positive aspects of one's life can significantly increase overall wellbeing and social functioning [9]. Gratitude can be cultivated in various ways, but one of the most common forms of formal practice is gratitude journaling or writing gratitude lists. This approach has been implemented in various intervention studies and involves making lists of several things one is grateful for on a regular basis [10]. Seligman et al. [11] found that participants who engage in this technique of gratitude journaling reported it to be pleasurable and self-reinforcing, with many having the intention of continuing the practice even after the intervention was completed. Those who keep a gratitude journal, recording events and situations they are thankful for, are more likely to offer more emotional support to others or help with a personal problem [8]. Additionally, Emmons and McCullough [8] found that those who wrote consistently in a gratitude journal reported increased likelihood of making progress toward important goals, such as enhancing interpersonal relationships (cf. [1]).

Gratitude is shown to have a positive correlation with relationship satisfaction in committed relationships [12]. Not only does it foster relationship maintenance behaviours, but gratitude may function in encouraging the formation of new relationships as well [13]. It is suggested that expression of gratitude towards one's partner is linked to increased perceptions of the strength of that relationship [14]. The find-remind-and-bind theory, developed by Algoe [15], proposes that gratitude serves as a strengthening tool in a relationship with a responsive interaction partner. As partners both feel the positive impact of gratitude, the mutually responsive behaviours fuel an upward spiral of relationship satisfaction. Therefore, if gratitude promotes happiness by enhancing one's social relationships, it can then be argued that it should support overall happiness and life satisfaction [1], which could be an immensely positive implication of such research.

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II. LITERATURE REVIEW

The presence of gratitude has been viewed as an important factor in successful relationships. Previous research has suggested that those who experience gratitude in their relationships feel more satisfied with their romantic partners, and in turn engage in more relationship maintenance behaviours [16]. Algoe et al. [17] found that gratitude expressed frequently in everyday interactions between couples predicted a significant increase in feelings of connectedness and satisfaction the following day for both individuals in the relationship, potentially functioning as a positive 'booster shot' for the partnership. It has also been suggested that gratitude can promote faithfulness and strong feelings of appreciation [18].

Gratitude can also serve a dual function for relationship maintenance in romantic relationships [19]. When studying individuals in long-term committed relationships, Kubacka et al. [19] found that feelings of gratitude in partners were enhanced when the helping behaviour was seen as a sign of responsiveness to their significant other's needs. Therefore, Kubacka and associates propose a model wherein gratitude between romantic partners is generated from relationship maintenance behaviours and the perception of this responsiveness from the other partner, which both fuel reciprocal behaviours and create an upward spiral of relationship satisfaction [19].

Perceived Superiority

A variable that could be important in gratitude and relationship satisfaction research is perceived superiority, which is a tendency to view one's own relationship as superior or better in comparison to the relationships of others [20]. There are biased cognitive processes concerning positive events in one's own relationship, while recalling information pertaining to the relationships of others is generally more negative in nature [21]. However, Buunk [21] also found that those with fulfilled relationships estimated the prevalence of other happy relationships as being higher in comparison to those experiencing lower levels of satisfaction with their partner.

The perceived superiority bias could potentially be involved in the connection between gratitude and relationship satisfaction. For example, gratitude practices might enhance the extent to which individuals perceive themselves as being in a happier relationship than others, and they may experience increased relationship satisfaction as a result. Buunk [21] also found that perceived superiority varied in motive for men and women. It was found that relationship satisfaction for men is more closely linked to the perception of superiority compared to others; if their relationship is lacking fulfilment, they rationalize this shortcoming by assuming that other relationships must have problems too. On the contrary, women who experienced relationship satisfaction seemed to assume that others are in a similar happy state [21]. Men tended to use perceived superiority as a means of contrast to the relationships of others, while women used it to assimilate to others. If perceived superiority is involved in the connection between gratitude and relationship satisfaction, then this gender difference in perceived superiority could lead to gender

differences in the effects of gratitude practice on relationship satisfaction as well.

Research suggests that the excessively positive beliefs individuals hold about themselves can be mirrored in romantic relationships, where couples engage in overly positive evaluations of their significant others, experience an exaggerated belief in control of the relationship's outcome, and an unrealistic optimism concerning the future of the relationship [22], [23]. Furthermore, Rusbult and colleagues [22] suggest that the perceived superiority bias serves a healthy functional purpose and found that the presence of perceived superiority early on in a relationship predicts later relationship stability and maintenance. If perceived superiority bias can be enhanced, then perhaps relationship quality can be enhanced through this pathway.

III. THE CURRENT STUDY

Watkins et al. [2] noted that gratitude is seen as a positive pro-social trait that can invoke further relationship maintenance behaviours and increased relationship satisfaction (cf. [1]). Gratitude has been connected to enhanced well-being and relationship satisfaction (e.g., [23]). The purpose of this study was to assess the effects of a 6-week gratitude practice intervention on relationship satisfaction (as compared to control). This study used a 'no gratitude practice' control group as well as a 'gratitude practice' experimental group with pre- and post-test measures to examine differences over time (before and after six weeks of practice). Six weeks was decided as a reasonable time commitment for college students, as well as allowing enough time for the gratitude intervention to have an effect, as shown in previous research [24]. Another aim was to investigate the role of perceived superiority in the relationship between gratitude and relationship satisfaction. Individuals with higher levels of perceived superiority experience increased relationship satisfaction [22], [21]. It is possible this bias can be enhanced through gratitude practices.

The present study extends on existing research by addressing how gratitude practice and perceived superiority may be related in enhancing relationship satisfaction. The focus was specifically on romantic relationships (at least 3 months long), with a goal to explore whether gratitude practice increases relationship satisfaction. In addition, the role of perceived superiority was explored, to see if it increased as a result of gratitude practice, and therefore may play a moderating role in the enhancement of relationship appreciation and satisfaction.

Hypotheses

We had the following predictions based on existing research:

- H1. Those who participate in six weeks of gratitude practice (experimental group, but not the control group) will show increased levels of appreciation and relationship satisfaction from pre-test to post-test.
- H2. Those who participate in six weeks of gratitude practice will show increased levels of perceived superiority from pre-test to post-test (as compared to the control group).
- H3. Perceived superiority may moderate the effect of gratitude practice on relationship satisfaction.

IV. METHODS

Participants

Participants for this study ($N = 67$) were recruited using a convenience sample of mostly first- and second-year undergraduate students taking a psychology class on campus at Red Deer Polytechnic. Inclusion criteria required that participants were currently in steady relationships and had been for at least the past three months; however, only one person from the relationship was required to participate. Duration of relationships ranged from 3 months to 12 years, with 60% of relationships ranging from three months to one year, 34% from two to four years, and 6% at longer than five years. Of the relationships, 91.8% of students were dating, 1.5% were engaged, 4.5% were married, and 2.2% were non-specified. Participants ranged from 18-46 years ($M = 20.82$; $SD = 4.45$) and 82% were female. Students were randomly placed into the control group ($n = 35$) or the gratitude group ($n = 32$) based on which session they were able to attend during the week (Wednesday or Thursday). They were then instructed to return to the same session for post-test to assure the groups remained separate. Participants who were participating in any other studies invoking positive emotions (e.g., mindfulness practice) during the time of this study were excluded to minimize confounding variables. Participants in both the gratitude practice group and the control group completed the same pre-test and post-test measures and their data were then matched. However, there was some subject attrition, and data for those who completed only the pre or post-test session were not included. The gratitude group had a mean age of 20 ($SD = 1.93$) and the control group had a mean age of 22 ($SD = 5.79$).

Design

The research design for this study was a 2 between subjects (Gratitude vs. Control) x 2 within subjects (Pre vs. Post) repeated measures ANOVA. The main independent variable was the gratitude practice intervention: those in the gratitude condition versus those in the control group. The two dependent variables were reported relationship satisfaction, degree of appreciation felt for one's partner and feeling appreciated by one's partner, and levels of perceived superiority before and after the six-week intervention period.

Two one-way ANOVAs were conducted to examine differences between participants in the gratitude group versus the control group at both the pre and post-test measures. Paired samples t-tests were employed to measure differences within participants from pre to post-test in each group. Furthermore, linear regression analyses were conducted in the gratitude practice intervention group to explore the degree to which post-test levels of perceived superiority predict relationship satisfaction, appreciation felt from the participant's partner and appreciation for the participant's partner. It is possible that practicing gratitude will strengthen perceived superiority, in turn increasing relationship satisfaction and the amount of appreciation in the relationship.

Procedure

The study was advertised in various intro-level psychology

courses at Red Deer Polytechnic to recruit students for both the gratitude and control groups. It was made clear to students that they were required to be in a steady relationship of at least three months in order to be eligible to participate. Initially, the purpose of the study was announced as investigating "Appreciation in Relationships: How Appreciation of One's Partner Is Related to Relationship Experiences". This was to ensure that students would not be too knowledgeable of the researchers' true objectives and predictions before participating. They were also instructed to attend one of the two scheduled sessions for pre-test (Wednesday vs. Thursday) and to attend the corresponding session after six weeks; participants were told that this was to keep their data organized, but these separate sessions actually generated the experimental and control groups. The mild deception was employed to maintain the integrity of the results through minimizing potential responses biases, such as demand characteristics and social desirability. Pre-test sessions occurred near the middle of the semester (early-February) for both the gratitude practice group and control group and post-testing took place six weeks later (mid-March).

At pre-test both groups signed informed consent and completed a Gratitude measure (GQ-6), a Marital Satisfaction Scale (ENRICH), the Appreciation in Relationships (AIR) scale, and a perceived superiority measure, which took approximately 15-20 minutes. Participants in the experimental group were given a separate piece of paper with detailed instructions of the assigned task to write in a gratitude journal daily for six weeks. They were asked to write 3 things they are grateful for specifically about their partner or relationship each day and were to share at least one of their gratitude items with their relationship partners daily. Participants practiced gratitude for a total of six weeks, at which point they were asked to return to fill out the aforementioned self-report questionnaires again. The control group did not receive any sort of gratitude intervention and were simply asked to return after six weeks. Because mild deception was used in this study, participants were given a post-debriefing consent form to confirm continued consent after learning about the true purposes of the study. Participants received up to two bonus points towards their courses as remuneration. The Red Deer Polytechnic Research Ethics Board (REB) approved this study.

Measurement Tools

Gratitude

The Gratitude Questionnaire-6 (GQ-6; [25]) was used to measure trait gratitude. Examples items include: "Long amounts of time can go by before I feel grateful to something or someone" and "I have so much in life to be thankful for". Items were scored on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The GQ-6 scale has an alpha coefficient of .82, suggesting it possess good reliability [25].

Satisfaction

The Evaluating and Nurturing Relationship Issues, Communication and Happiness Marital Satisfaction Scale (ENRICH Marital Satisfaction Scale, [26]) was used to measure

relationship satisfaction. Items on this scale include: “My partner completely understands and sympathizes with my every mood” and “I have some needs that are not being met by our relationship”. Items were scored on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The ENRICH Marital Satisfaction scale demonstrates high reliability with an alpha coefficient of .92 [26].

Appreciation in Relationships

The Appreciation in Relationships Scale (AIR Scale, [16]) was used to measure gratitude felt within the participant’s own relationship. The first subscale was directed towards feeling appreciative of one’s partner, while the second subscale was focused on feeling appreciated by one’s partner. Sample items of the AIR Scale include: “I tell my partner often that s/he is the best” and “At times, my partner takes me for granted”. Items were scored on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). This scale has strong alpha coefficients of .88 on the appreciative subscale and .90 on the appreciated subscale [16].

Perceived Superiority

Lastly, each participant was asked: “What do you think the state of your relationship is in comparison to that of most other students?” They answered on a 5-point Likert scale, in which 1 = much worse, 2 = somewhat worse, 3 = as good as, 4 = somewhat better, and 5 = much better, in order to assess perceived superiority [21]. This measure has a coefficient alpha of .92, which demonstrates that it is psychometrically sound [21].

Each participant completed these measures at both the pre- and the post-test (six weeks apart) in a relatively large classroom. The control group and the experimental (gratitude practice) group separately completed the measures both at a six-week interval during the same timeframe.

V. RESULTS

Once the pre- and post-test data were matched, the sample size of both groups decreased slightly from pre-test samples due to mild subject attrition. The data file was cleaned, and outliers and missing data were replaced with the series mean in both pre and post-test scores (to nullify their effects). Data collected from those who only completed pre-test were considered incomplete and excluded from the analyses.

Comparing the two groups at pre-test, a one-way ANOVA indicated that the gratitude ($n = 32$) and the control group ($n = 35$) were equal at pre-test, with no significant differences found between the groups. This demonstrates that the control group was initially equal in comparison to the experimental group on all measures of interest. Therefore, any changes from pre to post-test that occur in the experimental group (and not the control group) can be interpreted as a result of the gratitude practice intervention (see Fig. 1).

At post-test, a one-way ANOVA examined difference between groups (Gratitude vs. Control), and a significant difference was found in appreciation, $F(1, 65) = 5.33, p = .024$. The gratitude group displayed higher levels of appreciation (M

$= 53.21, SD = 5.36$) compared to the control group ($M = 49.37, SD = 7.88$). A marginally significant difference was found in relationship satisfaction, $F(1, 65) = 3.36, p = .072$. The gratitude group was higher in relationship satisfaction ($M = 60.84, SD = 6.82$) compared to the control group ($M = 57.29, SD = 8.83$). Significance would likely have been reached if there were more statistical power within the study to detect between-group differences, such as if the sample size was bigger (see Fig. 2). Participants who engaged in gratitude practices demonstrated higher appreciation and greater relationship satisfaction at post-test than those who did not practice gratitude.

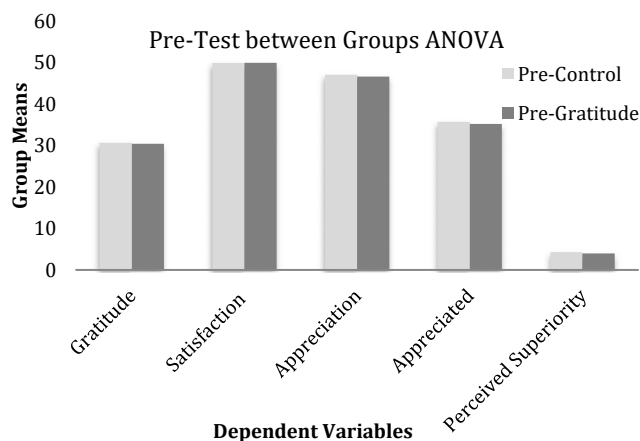


Fig. 1 The mean values representing the gratitude group and control group at pre-test. Both groups were equal on all dependent variables at pre-test

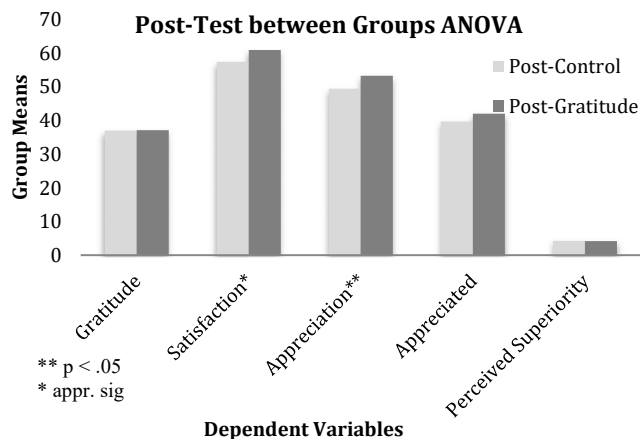


Fig. 2 The mean values between the gratitude group and the control group at post-test. The gratitude group was significantly higher in appreciation. Significance was approaching in satisfaction, with a trend in higher levels for the gratitude group

A sequence of paired samples t-tests compared the differences within the experimental and control groups from pre-test to post-test. The analyses determined that at post-test, the gratitude group was significantly higher than at pre-test in gratitude ($M = 37.05, SD = 3.46; M = 30.41, SD = 2.35$), $t(27.34) = -8.99, p < .001$, satisfaction ($M = 60.84, SD = 6.82; M = 49.97, SD = 4.90$), $t(31) = -7.33, p < .001$, appreciation ($M = 53.21, SD = 5.36; M = 46.66, SD = 4.19$), $t(31) = -5.44, p <$

.001, and appreciated ($M = 41.93, SD = 4.33; M = 35.23, SD = 2.72$), $t(26.06) = -7.42, p < .001$ (see Fig. 3). Therefore, at post-test, those who engaged in six weeks of gratitude practices were experiencing more gratitude, relationship satisfaction, feelings of appreciation, as well as feeling appreciated as compared to the pre-test.

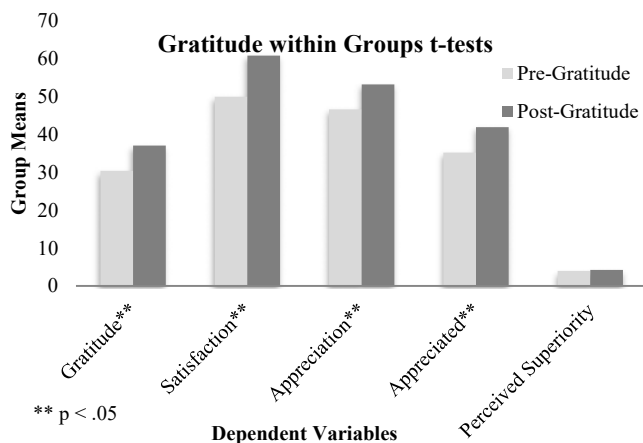


Fig. 3 Mean values comparing the gratitude group from pre to post-test. The gratitude group was significantly higher on gratitude, satisfaction, appreciation, and appreciated

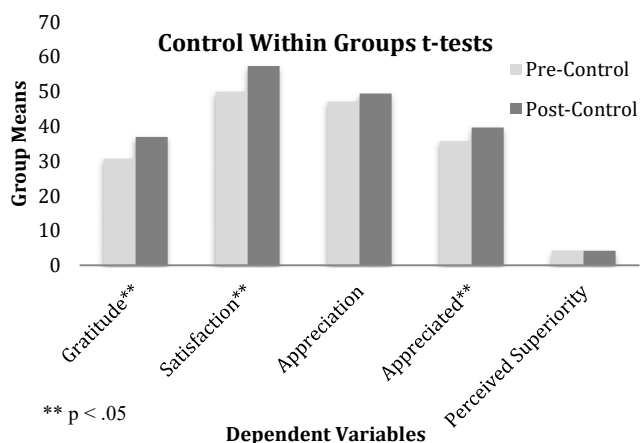


Fig. 4 Mean values comparing the control group from pre to post-test. The control group significantly increased in gratitude, satisfaction and appreciated

Another series of paired samples t-tests revealed that in the control group, participants at post-test experienced significant increases from pre-test in gratitude ($M = 36.93, SD = 3.60; M = 30.67, SD = 2.01$), $t(26.68) = -8.99, p < .001$, satisfaction ($M = 57.29, SD = 8.83; M = 49.94, SD = 3.81$), $t(23.12) = -4.52, p < .001$, and appreciated ($M = 39.63, SD = 7.03; M = 35.73, SD = 3.40$), $t(24.53) = -2.96, p = .005$ (see Fig. 4). At post-test, those in the no gratitude practice control group were experiencing more gratitude, relationship satisfaction, and feeling appreciated as compared to the pre-test.

Perceived superiority was high at both pre-test and post-test in the control and gratitude groups, with the average scores consistently reported around 4 out of 5. There was no evidence of changes from pre-test to post-test or between the gratitude

and control group in any of the analyses conducted (see Tables I and II).

TABLE I
 CONTROL GROUP MEANS

	Range	Pre-Test	Post-Test
Gratitude	6 - 42	$M = 30.67 (SD = 2.01)$	$M = 36.93 (SD = 3.60)$
Satisfaction	15 - 75	$M = 49.94 (SD = 3.81)$	$M = 57.29 (SD = 8.83)$
Appreciation	9 - 63	$M = 47.08 (SD = 2.96)$	$M = 49.37 (SD = 7.88)$
Appreciated	7 - 49	$M = 35.73 (SD = 3.40)$	$M = 39.63 (SD = 7.03)$
Perceived Superiority	1 - 5	$M = 4.29 (SD = 0.66)$	$M = 4.23 (SD = 0.69)$

TABLE II
 GRATITUDE PRACTICE GROUP MEANS

	Range	Pre-Test	Post-Test
Gratitude	6 - 42	$M = 30.41 (SD = 2.35)$	$M = 37.05 (SD = 3.46)$
Satisfaction	15 - 75	$M = 49.97 (SD = 4.90)$	$M = 60.84 (SD = 6.82)$
Appreciation	9 - 63	$M = 46.66 (SD = 4.19)$	$M = 53.21 (SD = 5.36)$
Appreciated	7 - 49	$M = 35.23 (SD = 2.72)$	$M = 41.93 (SD = 4.33)$
Perceived Superiority	1 - 5	$M = 3.97 (SD = 0.97)$	$M = 4.19 (SD = 0.69)$

A series of linear regression analyses were conducted in the gratitude group to explore relationships between the variables of interest. First, gratitude and perceived superiority were regressed onto relationship satisfaction to determine if the gratitude and perceived superiority scores at post-test in the gratitude group predicted levels of relationship satisfaction. Both gratitude and perceived superiority were determined as significant predictors of higher relationship satisfaction, respectively ($\beta = .641, t(31) = 6.96, p < .001$; $\beta = .226, t(31) = 2.46, p = .017$). Together, perceived superiority and gratitude accounted for 40.8% ($R^2 = .408$) of total variance in relationship satisfaction. These findings suggest that in the gratitude group, higher levels of gratitude and perceived superiority predict higher relationship satisfaction.

Next, gratitude and perceived superiority were regressed onto appreciation to determine if these two variables significantly predicted levels of appreciation felt for one's partner. These analyses revealed that gratitude was a significant predictor of higher levels of appreciation, $\beta = .518, t(31) = 4.89, p < .001$, while perceived superiority only marginally predicted higher levels of appreciation, $\beta = .189, t(31) = 1.79, p = .079$. Together, gratitude and perceived superiority accounted for 26.2% ($R^2 = .262$) of the variance in levels of appreciation. This suggests that in the gratitude group, enhanced gratitude (more than degree of perceived superiority) predicts greater appreciation for one's partner.

Finally, gratitude and perceived superiority were regressed onto appreciated to explore whether these two variables significantly predicted levels of feeling appreciated by one's partner. This regression revealed that gratitude, but not perceived superiority, significantly predicted higher levels of feeling appreciated, $\beta = .514, t(31) = 4.76, p < .001$, and accounted for 26.2% ($R^2 = .262$) of the variance in levels of feeling appreciated. These findings suggest that in the gratitude group, higher gratitude, but not perceived superiority, predicts greater levels of feeling appreciated by one's partner in a relationship.

To summarize the findings from the multiple regressions

analyses: in the gratitude practice intervention group (after six weeks of daily practice), increased gratitude significantly predicts increased relationship satisfaction, appreciation towards one's partner, and feeling appreciated by one's partner. On the other hand, increased perceived superiority significantly predicts enhanced relationship satisfaction, while only marginally predicting appreciation towards one's partner and not predicting degree of feeling appreciated. Overall, these findings suggest that gratitude practices are enhancing satisfaction in relationships, as well as appreciation expressed towards and felt by one's partner. Higher levels of perceived superiority in the gratitude group also predicted enhanced relationship satisfaction but was only marginal in predicting appreciation shown towards one's partner and did not predict appreciation felt. It is possible that because only one partner from the relationship participated in the gratitude intervention, there was a higher focus in participants showing appreciation for their partners than those partners showing appreciation in return. Nonetheless, the pathway, directionality, and causal relationships between the variables of interest may be complex and need to be explored in more depth in future research.

VI. DISCUSSION

The current study investigated the impact of a gratitude intervention (over a 6-week period) on relationship satisfaction, appreciation, and perceived superiority in college students. What was of particular interest was if gratitude practices might increase levels of perceived superiority, which could in turn produce greater levels of relationship satisfaction. We have not encountered previous research investigating whether perceived superiority could be related to the effect of gratitude practices on relationship satisfaction.

When the gratitude practice and control groups were examined at pre-test, there were no significant differences between them on any of the measures, indicating that the groups were equal before intervention. At post-test, those in the gratitude group had marginally higher levels of relationship satisfaction as compared to the control group. Because the increase in satisfaction is in the desired direction, it is possible that with more statistical power (larger sample size), significance would have been attained. Contrary to previous research, the gratitude group was not significantly more grateful compared to control at post-test [16]. However, when the gratitude group was examined further for within group differences, it was revealed that the gratitude intervention group did experience significant increases in gratitude, relationship satisfaction, and levels of appreciation felt towards one's partner and feeling appreciated by one's partner at post-test, supporting previous research [3], [16]. This partially supports the hypothesis that relationship satisfaction would increase after a gratitude intervention, even though there was not quite a significant difference detected between gratitude and control group.

Fascinatingly, when the control group was examined for within group differences, the paired samples t-tests discovered significant differences in gratitude, relationship satisfaction and feeling appreciated by one's partner from pre-test to post-test

measures. Without any instruction or intervention, the control group became considerably more grateful and experienced more relationship satisfaction and feeling appreciated from pre-test to post-test. It is possible that participating in a study titled 'Appreciation in Relationships' and filling out a self-report questionnaire in which the questions were directed towards showing gratitude for others and engaging in relationship maintenance behaviours influenced these participants to informally practice gratitude with their partner. They may not have been aware of doing so, but the nature of the questions could have initiated a positive change in behaviour that resulted in increased levels of relationship satisfaction. On the other hand, these individuals could have realized that the purpose of the study was about enhancing relationship satisfaction and appreciation, and their responses on the self-report questionnaire could have reflected this assumption, producing social desirability bias. Additionally, perhaps the change to warmer weather from the pre-test to post-test intervals enhanced participants' moods and as a result, their satisfaction within their relationship increased as well. While the participants in the control group may have experienced benefits from participating, their significant increases in the variables of interest impeded the range of potentially observable differences between the gratitude group and control group at post-test. It is important to emphasize, however, that the gratitude group did demonstrate higher levels of appreciation from pre to post-test and the control group did not. This suggests that gratitude practice may have specifically enhanced appreciation for one's partner.

The hypothesis that from pre-test to post-test, six weeks of gratitude practice would result in increased levels of perceived superiority was not supported. This could in part be due to the fact that perceived superiority acts as a bias wherein the majority of people will rate their relationship as better than that of most others' relationships, and this tendency has been found without any intervention [21]. Participants in the gratitude group at pre-test were already demonstrating this bias, leaving little to no room for improvement at post-test. Interestingly, even participants who scored lower on the measures of gratitude, satisfaction, and appreciation, still perceived their relationship as superior, supporting the previous research suggesting this is a bias wherein individuals' beliefs and perceptions of their own relationships involve much more positive than negative information as compared to the relationships of others [27]. Perhaps in future research it would be beneficial to examine when and how perceived superiority is manifested in romantic relationships and how that perception influences other positive emotions felt and expressed between partners. Although it seems to be a prevalent and persistent bias, perhaps certain factors can impact levels of perceived superiority. Furthermore, the results of this study suggest that perceived superiority tend to remain high regardless of levels of satisfaction and appreciation present within relationships. It could be possible that perceived superiority, while strengthening relationship satisfaction, can also bolster unrealistic optimism within relationships; potentially leading people to remain in unhealthy or abusive relationships (as they

fail to see warning signs).

It was suggested by Buunk [21] that men and women use perceived superiority differently. For men, it is a tool used to contrast their relationship against others, while women use it to assimilate to others. This study did not have a very large sample size and the male sample was particularly small, which did not allow for the statistical power necessary to explore potential gender differences. Future research could further investigate this claim and examine gender differences in gratitude practice and perceived superiority.

The regression analyses revealed that perceived superiority and gratitude together accounted for nearly half of the variance in relationship satisfaction. These findings are intriguing because it suggests a connection between individual's view of their own relationship and their resulting perception of satisfaction, as found in previous research [22], [21]. Furthermore, gratitude appears to also play an important role in a relationship's quality, and this study should serve as a basis for further research to determine the extent to which each variable contributes to relationship strength and durability. However, it remains in question whether increased levels of perceived superiority of one's relationship moderate the effect of gratitude practice on relationship satisfaction, as predicted in the third hypothesis. This study does not seem to suggest that perceived superiority is impacted by gratitude practice and therefore, the two may be independent or unrelated contributors to relationship strength and satisfaction. Gratitude practice, instead of perceived superiority, seems to impact appreciation in relationships, which might better explain its impact on satisfaction levels. As there was no difference in perceived superiority from pre-test to post-test in the gratitude group, future research must further examine how perceived superiority can be enhanced.

Alternatively, perhaps the fact that it is a naturally occurring and ubiquitous bias wherein people generally already view themselves and their social groups to be better than others suggests that the levels may not change, but simply remain high throughout the duration of most relationships. It has been argued that even though many people suffer from low self-esteem, they still tend to perceive and present themselves favourably to others, illustrating self-serving bias [28]. In a romantic relationship, when there are moments of hardship, individuals will likely attribute the negative events to external stimuli, while when the relationship is flourishing, partners will accept personal credit for their effort and success. Furthermore, people tend to more readily recall information concerning positive aspects of their relationship in an attempt to enhance self-serving motives and promote self-esteem. This can also be achieved through downward social comparison, wherein individuals compare themselves to those in a worse situation to reaffirm their sense of self [28]. People tend to view their group or relationship as being superior to those in other groups, even if the groups are comparable. While self-serving bias is an adaptive process that serves to protect people from depression and anxiety, if taken too far it can result in unrealistic optimism, wherein people believe that they are much less likely to experience negative outcomes in their own relationships

compared to others.

VII. LIMITATIONS

There are a few limitations to the current study design that warrant mention. A convenience sample was used, which may not be generalizable to the population. It is possible that participants were able to guess the true intention of the study through the nature of the questions connected to relationship satisfaction and appreciation. A higher level of deception could have been employed in the title of the study to ensure that the participants were not too knowledgeable. Additionally, incorporating other measures into the questionnaires that were unrelated to relationship satisfaction could have helped conceal the actual objective. Measures were all self-report, creating the potential for individuals to respond with higher scores as the result of social desirability bias. A social desirability detection measure could be employed to detect and remove overly biased responders from the data set. The study was focused on those in romantic relationships, and participation was limited to those in committed relationships of at least three months. This decreased the sample size and necessitated self-selection into the study rather than random sampling. It is probable that the students who were interested in participating were in relationships that were either already high in levels of satisfaction, or they were looking for an opportunity to actively work on their relationships. They therefore could have been predisposed to being more grateful or appreciative in their relationship. On the contrary, individuals who were not happy in their relationships or were not engaging in active relationship maintenance behaviours could have felt less inclined to participate in a study about relationship appreciation. This may also explain the improvements evidenced in both experimental and control groups across the study duration.

Due to subject attrition in the current study, the statistical power was not as strong as originally anticipated. Though the groups were equal at the pre-test, both the gratitude and control groups demonstrated increased scores on a number of measures including relationship satisfaction, potentially resulting in the non-significant difference between groups on some measures at post-test. Perhaps if the sample size had been larger, further significance could have been identified between the groups. Moreover, there was variation in how consistently participants practiced gratitude and how well they followed the instructions that were given for the six weeks. Many individuals reported in the follow-up questionnaire that they did not keep a gratitude journal, but verbally shared three things with their partner on average four times a week.

In current study, only one individual from the relationship was recruited to participate. Participants completed the pre- and post-test measures, along with the intervention, independently of their relationship partner. As a result, there was no assessment of whether one partner practicing gratitude on a daily basis also enhanced the other partner's perception of the relationship. It is possible that the intervention of gratitude practice over the six-week period impacted both partners differently and future research should include both partners in the intervention. For example, it is possible that the partner practicing gratitude (as part of their participation in the study) could have experienced enhanced satisfaction and appreciation,

but that does not reveal whether their relational partners not participating in the study experienced similar improvements in appreciation and/or satisfaction. Moreover, the enhanced satisfaction or higher perceived superiority of one partner may or may not be enough to enhance overall relationship outcomes for both partners. Previous research has suggested that when cohabiting couples both participated in an intervention of reporting thoughtful behaviours performed by their partner throughout day-to-day interaction, gratitude was significantly enhanced, which subsequently increased feelings of relationship satisfaction and connection the following day [17]. Future studies can expand on these findings by exploring how perceived superiority can play a role in enriching relationship satisfaction and examining potential differences in each partner's perception of the relationship quality.

Finally, a single item measure was used in the current investigation to assess participant's self-reported rating of perceived superiority in their relationship, and the 5-point Likert scale limited response variance. At pre-test, before any intervention, the majority of individuals were reporting their relationship to be better than others, leaving little room for enhancement at post-test. A more thorough measurement tool for perceived superiority could have potentially revealed a wider range of variance and yielded detectable significant differences between pre and post-test and should be implemented in future research exploring the potential role of perceived superiority in relationship maintenance behaviours such as gratitude practices.

VIII. FUTURE DIRECTIONS

Future research should delve further into perceived superiority and its potential connection to gratitude and relationship satisfaction. The benefits of perceived superiority in relationships could be better understood. The potential dark side to perceived superiority should also be investigated further. Just as self-serving bias, unrealistic optimism, and unrealistically high self-esteem can all sometimes be maladaptive, perceived superiority may also be a bias that comes with it benefits as well as drawbacks. For example, those with excessively high perceived superiority bias might fall victim to unrealistic optimism and fail to see the reality of their relationship's potential demise. Similarly, due to stronger biases, they may see their relationship as so much better than others' that they fail to have empathy and compassion for the trials and tribulations present in other relationships. Perhaps most concerning is the possibility that perceived superiority bias could contribute to some people irrationally remaining in relationships that are, in reality quite unhealthy, toxic, or abusive.

The gratitude practice in this study was not structured or formally enforced and it was within the participant's discretion to follow the instructions. Future research should investigate a means by which to standardize the gratitude practice in order to ensure that participants engage in it equally and consistently throughout the intervention period; this could potentially be achieved through an online logging system. Unfortunately, this was beyond the scope of feasibility for this particular study. Additionally, gratitude practice could be examined within

relationships, having the intervention being undertaken by both partners and assessing both individuals' perceptions of the relationship quality. Longitudinal follow-ups could also detect the degree of sustainability of relationship enhancement and maintenance behaviours, as well as positive relationship outcomes such as relational strength and longevity.

The present study examined specifically the romantic relationships of college students. While some of these relationships were long-term commitments, the majority of participants were young students in their early twenties in relatively new relationships. It would be interesting to examine these research questions in a different population, such as elderly individuals who have been living with their significant others for the majority of their lives. These individuals have likely experienced several important struggles and triumphs together, strengthening their intimate bond and their appreciation for each other. It is possible that gratitude felt and expressed in romantic relationships, along with perceived superiority, could vary significantly with duration of relationship as well as from younger populations to older populations.

IX. CONCLUSIONS

This study was to explore the potential moderating effect of perceived superiority in a gratitude practice intervention and the resulting levels of relationship satisfaction. Although this study did not show an increase in perceived superiority with gratitude practice, the results illustrate that this powerful and pervasive bias is likely present and relatively stable in the majority of intimate relationships. Gratitude practice specifically enhanced appreciation for one's relationship partner and relationship satisfaction (as compared to control group). Those in both the gratitude and control group evidenced improvements in gratitude, relationship satisfaction, and feeling appreciated within the relationship.

The fact that not very many differences emerged between the gratitude and control group was likely due to the fact that the control group significantly increased on many of the variables of interest without intervention. Aforementioned methodological revisions in future replications may curb changes evidenced by the control group and therefore enhance detectable between group differences.

Perceived superiority appears to be a healthy bias with a functional purpose and, along with gratitude, significantly predicts enhanced relationship satisfaction. However, this bias could potentially bring with it some of the pitfalls of other self-serving biases (such as excessively high self-esteem or unrealistic optimism). More research needs to explore the circumstances around when this bias is likely to be adaptive versus maladaptive for relational stability as well as individual well-being. If perceived superiority can be enhanced, more research should explore how this might be accomplished. Positive and negative impacts of perceived superiority bias should be further explored and perhaps caution should be taken to ensure that enhancing this bias would in fact be the healthiest thing to do for the individual as well as the relationship.

These findings give further insight into the factors that

contribute to maintaining successful relationships, suggesting that positive emotion-evoking methods such as daily gratitude practice could be used more widely in applied contexts to cultivate more appreciation for one's partner and/or to boost relationship satisfaction. This would help people to foster healthy relationships and could play an important role in creating happy and fulfilling lives for individuals. Not only is this research potentially beneficial for building positive social skills for cultivating satisfying intimate relationships but could also be applied to the enhancement of all social interactions including relationships with co-workers, friends, and family.

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