Does the Focus of Loving-Kindness Meditation Matter for Reducing Implicit Bias?

By

Christopher D. Saitta

In Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

in

The Department of Psychology

State University of New York
New Paltz, New York 12561

May 2022
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Reducing Implicit Bias?

Christopher D. Saitta
State University of New York at New Paltz

We, the thesis committee for the above candidate for the
Master of Science degree, hereby recommend
acceptance of this thesis.

Doug Maynard, Ph.D., Thesis Advisor
Department of Psychology, SUNY New Paltz

Corwin Senko, Ph.D., Thesis Committee Member
Department of Psychology, SUNY New Paltz

Matthew Wice, Ph.D., Thesis Committee Member
Department of Psychology, SUNY New Paltz

Submitted in partial fulfillment
of the requirements for the Master of Science degree
in Psychological Science
at the State University of New York at New Paltz
Implicit bias has been a popular area of research in recent years as the need to address it is a prerequisite for a just society. In the current study, different versions of loving-kindness meditation (LKM) were compared to see which one is associated with the lowest implicit bias levels. Participants followed an 8-minute LKM audio clip where the instructions were altered to manipulate the focus of the meditation across three groups. The meditation directed them to send their love and positive energy to either themselves, younger peers, or the elderly population. Then, participants took an age-based implicit association test (IAT) to compare whether the manipulation led to differences in implicit bias across groups. Additionally, participants were asked to rate their experience of several positive emotions to see if the conditions caused differences in types of positive emotion (either other-regarding or non-other-regarding) and whether these different types of positive emotions mediated the effects of LKM focus on implicit bias. The results revealed that LKM focus did not have a significant impact on differences in positive emotions or implicit bias, and the mediating effect of other-regarding positive emotions on the relationship between LKM focus and implicit bias was not observed. The results suggest the subject of meditative focus may be a negligible factor when it comes to influencing positive emotion and implicit bias levels.

*Keywords:* loving-kindness meditation, implicit bias, positive emotions, implicit association test, IAT
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In order to build a just society, fairness and equality are virtues we should strive for. This means that objectivity should be of high priority in our reasoning and judgments, especially in crucial situations. Nevertheless, biases are inevitable when we are trying to make sense of a complicated world. Even if we attempt to explicitly stop bias, the human mind implicitly categorizes and generalizes data in order to create manageable bits of information (Klein & O’Brien, 2018). There is utility in this feature of the mind, as heuristics help us navigate the world without always having to analyze every situation we find ourselves in. However, our mind is very complex and can make some errors in this process of implicit association if left unchecked. These unconscious biases can manifest as discrimination against people who aren’t within one’s social circle, for example. Even at small to moderate effect sizes, these biases can lead to large disparities on the societal level (Greenwald et al., 2015). In their meta-analysis, Greenwald et al. (2009) found that measures of implicit bias have moderate predictive validity of behavior, higher predictive validity than explicit measures on socially sensitive topics, and have distinct and incremental validity above and beyond self-report measures of criterion measures predicting intergroup behavior.

In the current study, I proposed to examine the effects of loving-kindness meditation (LKM) on implicit bias. Notably, LKM studies in general have recently risen in popularity due to the growing evidence for its ability to improve various aspects of psychological and physical health (for review, see Galante et al., 2014; Frederickson et al., 2008). However, I was interested in whether LKM can also be used as a way to buffer against implicit bias. Identifying tools to combat this societal bias is an important step toward a fairer and just world.

Implicit Bias
Implicit bias is an overarching term that refers to the attitudes, stereotypes, and behaviors that are beyond the conscious awareness of an individual (Greenwald & Banaji, 1995). Since its inception, implicit bias has been a huge area of research since understanding how it operates is crucial for combating systematic bias and contributing to the well-being of society. Attempts to combat this bias is evidenced by increases in implicit bias training across multiple institutions including law enforcement (Hunsinger et al. 2019), criminal justice (Fix, 2020), and higher education (Jackson et al., 2014).

There are important distinctions to be made about implicit and explicit attitudes. Firstly, implicit bias and explicit bias are distinct phenomena (Greenwald et al., 2009), meaning that an individual can feel explicitly that they have no bias against a certain group but may still show implicit bias against them. For example, a teacher might explicitly have no bias against any of her students but may still unconsciously pay more attention to students that she implicitly believes are more gifted. Secondly, whereas explicit bias is primarily associated with controlled processing, implicit bias is largely associated with automatic processing (Ranganath et al., 2008). We have less direct control over our automatic processing, so therefore it is more difficult to access or alter the implicit attitudes we hold in comparison to explicit attitudes.

**Implicit Bias Measurements**

There have been many measures created to assess implicit bias. Examples of some of these measures include the implicit association test (IAT; Greenwald et al., 1998), the go/no-go association test (GNAT; Nosek & Banaji, 2001) and the implicit relational assessment procedure (IRAP; Barnes-Holmes et al., 2006). All these measures involve a fast-paced procedure of sorting stimuli into categories and reaction times as a way to determine unconscious association.
The IAT is the most well-established, validated, and popular measure of implicit bias. It is used to assess a person’s subconscious associations between specified targets (e.g., white and black) and attributes (e.g., pleasant and unpleasant). The test evaluates the difference in how long it takes one to categorize stimuli into two predetermined categories. This measures relative implicit bias, meaning that the score can only determine the strength of subconscious association between one target and attribute in relation to the other target and attribute. The main assumption of the IAT is that an individual exhibits implicit bias against a target category when they take longer to pair it with positive attributes (relative to the other target) and they take less time to pair it with negative attributes.

**Implicit Bias Interventions**

In the literature, there have been many interventions proposed to reduce implicit bias. Scroggins et al. (2015) tested whether expanding a participant’s implicit group boundaries affected their implicit bias. Expanding implicit group boundaries functions by making salient a category of a perceived outgroup member that they share with the perceiver, thereby changing the perceived status of that member to be part of one’s ingroup. To test this, Scroggins et al. (2015) drew a sample of undergraduate students and conducted three experiments where they compared their scores on various implicit association tests (IATs) that had manipulations based on group identity.

In experiment 1, Scroggins et al. (2015) conducted a 2 (black vs. black classmate) x 2 (white vs. white classmates) between-subjects design that compared scores from 4 different IATs. The results of experiment 1 showed that implicit bias was lowest when group membership (i.e., classmate status) for the target group (blacks) was made salient. Experiment 2 was then conducted in order to determine whether the difference in implicit bias was caused by shared
group membership or positive evaluations of the group. To do this, scores on two IATs were compared. One IAT assessed the relative association of blacks and black classmates to pleasant and unpleasant attributes, and the other IAT assessed the association of blacks versus black firefighters to pleasant and unpleasant attributes. Experiment 2 confirmed that positive evaluation of the group alone was not enough to reduce implicit bias. The shared group membership component was necessary to see a significant implicit bias reduction. Lastly, experiment 3 tested shared group membership directly by using the same categories with the addition of categorizing ingroup and outgroup stimuli consisting of various school logos. They found that when the ingroup/outgroup distinction was made salient via school logos, implicit bias was lowest in the IAT scores that categorized faces into shared group memberships. Taken together, Scroggins et al. (2015) found that the way we categorize individuals into shared group membership can have important implications on our implicit bias. Though this intervention seems promising, finding shared group membership may not always be possible depending upon the overlap between the individual and the group of interest. It is important to find ways of reducing implicit bias that could be universally applicable.

A second method designed to reduce implicit bias involves increasing one’s motivation for fairness and equality. Nunspeet et al. (2015) reviewed research on this approach and found that heightening one’s internal motivation to achieve moral ideals is moderately effective at reducing implicit bias (Legault et al., 2011; for a full review, see Lai et al., 2014). A notable finding is that the framing of the objective of reducing implicit bias can be highly influential. Focusing on how enjoyable the feeling of being fair is reduced implicit bias to a greater extent than framing the objective as a moral obligation (Nunspeet et al., 2015). There are two proposed reasons for this pattern of findings. For one, internal motivation is associated with less bias,
especially when external motivation to be fair is low (as cited in Nunspeet et al., 2015). Second, reminding white individuals of the potential of being perceived as racist by others activates a stereotypic threat response that counterintuitively raises levels of implicit bias (Frantz et al., 2004; Rudman et al., 2007).

Visual approaches have also been studied as potential interventions for implicit bias. Dasgupta and Greenwald (2001) found that showing participants images of admired individuals from a target race resulted in a decrease in implicit bias against that target race. Furthermore, this result registered on an IAT for up to 24 hours after the images were presented (Dasgupta & Greenwald, 2001). Although promising, this research did not test long-term formats or the potential for generalizability to other domains of implicit bias unrelated to the target race.

Mindfulness meditation is another promising method in reducing implicit bias. Lueke and Gibson (2015) define mindfulness meditation as a practice that "focuses the individual on the present and encourages practitioners to view thoughts and feelings nonjudgmentally as mental events, rather than as part of the self." After a session of mindfulness practice, participants' results on an IAT were assessed using the quad model (Lueke & Gibson, 2015). This model is used to distinguish between the minute processes occurring during implicit task measures such as activation of automatic association and ability to overcome bias (Conrey et al., 2005). The model confirmed that the reduction in bias from mindfulness practice was attributed mostly to a decrease in automatic responses (Lueke & Gibson, 2015), displaying potential for this approach to generalize to implicit bias against other groups. Since implicit bias is related to automatic association and automatic responses, reducing automaticity in judgment should result in less overall implicit bias, regardless of type. Notably, participants also exhibited fewer explicit
discriminatory behaviors in a trust game task after a mindfulness meditation session (Lueke & Gibson, 2016).

In all, many implicit bias interventions have been empirically tested with varying degrees of evidence and efficacy. These interventions are diverse in their approaches and, depending on which is chosen, offer certain advantages over one another. Still, there may be other interventions that haven’t been adequately researched yet that may prove to be superior in terms of effort or efficacy.

**Positive Emotions and Loving-Kindness Meditation (LKM)**

Positive emotions have a complicated role in the bias literature at large. Lai et al. (2014) conducted a comprehensive meta-analysis evaluating the effectiveness of 18 different racial implicit bias interventions and found that positive emotions were not effective in reducing implicit bias. However, Lai et al.’s (2014) meta-analysis only included two emotional induction studies, both of which only used the positive emotion of elevation. Elevation is a moral emotion, coined by Haidt (2000), which is defined as an uplifting, inspiring, and moving affect typically experienced by people who witness morally praiseworthy behavior in others. Moreover, Lai et al.’s (2014) article was exploring implicit racial bias, whereas other studies show that elevation was effective at reducing other domains of implicit bias (implicit sexual prejudice; Lai et al., 2013). Considering this, it is possible that elevation only reduces certain types of implicit bias. Further, it is also possible that other types of positive emotions could still be effective at reducing implicit bias.

In terms of explicit bias, there is mixed evidence regarding the influence that positive emotions have on bias. On one hand, Sinclair et al. (2015) found that feelings of compassionate love resulted in decreased feelings of prejudice. Interestingly, this relationship was mediated by
whether an individual was including an outgroup member within the self. On the other hand, there is some evidence that positive mood may exacerbate bias. For example, positive mood is associated with increases in implicit stereotypic bias (Huntsinger et al., 2009) and explicit stereotypic judgments (Bodenhausen et al., 1994; as cited in Stell & Farsides, 2005). A potential explanation for this increase in stereotypic and biased behavior from individuals experiencing positive emotions is the tendency for them to rely on preconceived heuristics of the world (Bodenhausen et al., 1994; Shiota, 2014). It is important to note, however, that Bodenhausen et al.’s (1994) research focuses on explicit judgments. As noted above, implicit and explicit beliefs are discrete phenomena that come from different sources and thus have different remedies (Greenwald et al., 2009).

**Loving-kindness Meditation (LKM)**

LKM is a specific Buddhist practice with the aim to send loving thoughts, feelings, and attitudes toward oneself and others (Zeng et al., 2015). The practice can vary slightly in instruction, though the main goal is to conjure up compassionate emotions consciously and deliberately and direct them to the particular focus of one’s mind. Accordingly, meta-analyses have shown that LKM is effective for increasing positive emotions in practitioners (Zeng et al., 2015).

There are many ways in which individuals may decide to practice LKM. They can vary in terms of duration, ranging anywhere from a few minutes to a few hours per session. Beginners may practice with guided meditations, where an audio recording or meditation instructor guides them through the process to ensure they are executing the practice correctly. Once a practitioner is more experienced, they may opt for a non-guided version of the technique. The most
conventional form LKM is practiced is by sitting still, comfortably, and with eyes closed, though these are not requirements for the practice.

LKM is empirically associated with prosocial behavior and salutary benefits. For instance, it has been linked to attitude and behavioral changes in participants such as an increase in social connectedness (Hutcherson et al., 2008) and charitable donations (Galante et al., 2016). Additionally, there is evidence of functional neural plasticity that occurs after receiving LKM training such that participants could increase their capacity for empathy by buffering against negative effects caused by witnessing the distress of others (Klimecki et al., 2012; Klimecki et al., 2013). Considering LKM’s emphasis on explicitly increasing well-being intention toward others, these effects could potentially translate into changes in implicit preferences.

LKM also has promising empirical evidence for being an effective intervention for reducing implicit bias. Kang et al.’s (2014) research was the first to demonstrate this efficacy. After a six-week LKM training period, participants in the study exhibited a decrease in implicit bias towards both blacks and homeless people (Kang et al., 2014). Furthermore, post-hoc tests revealed that stress reduction had a significant mediation effect on the LKM-implicit bias relationship (Kang et al., 2014), suggesting that the cognitive resources typically used up by stress were freed up by LKM practice and reallocated toward distinguishing between stimuli in the implicit bias measure. This process might also happen in conjunction with a decrease in automatic processing that is seen as a result of mindfulness meditation (Lueke & Gibson, 2015), which is similar to LKM.

Evidence for successful short term LKM interventions comes from Stell and Farsides (2015). In their study, Stell and Farsides (2015) compared racial implicit bias across two conditions. One condition underwent LKM and directed their loving feelings toward a picture of
a black individual. The control condition imagined the physical features of two acquaintances they don’t feel strongly about, and then were instructed to examine the physical features of the same image of the black individual. Even after just a single, seven-minute intervention, the LKM condition was found to have lower implicit bias scores against blacks than the control group (Stell & Farsides, 2015).

Given the unclear relationship between positive emotions and both implicit and explicit bias elaborated above, more research is needed to parse the different mechanisms that might be in play which cause this difference in effect. There are some theoretical frameworks that make sense of these seemingly contradictory findings. One explanation that distinguishes between general positive emotions and LKM-induced positive emotions concerns where the emotions are directed to - that is, whether the positive emotions are other-regarding or non-other-regarding (Stell & Farsides, 2015). Stell and Farsides (2015) successfully demonstrated that a short term LKM induction was sufficient to reduce implicit bias in practitioners with the amount of other-regarding positive emotions being a significant mediator in this relationship. Another potential explanation for the different findings regarding positive emotions' effect on bias is that it is not the emotion itself but rather the degree of arousal experienced by the individual that leads to biased behavior. This would align with past literature since LKM activates the parasympathetic nervous system (Law, 2011) and may put practitioners in a less bias-inducing state.

**Purpose of the Present Study**

It is important to further study LKM as a potential intervention for implicit bias. First, it is more ethical than some other interventions such as exposing participants to counter stereotypic exemplars (e.g., reminding participants of Hitler to reduce implicit bias toward whites; Lai et al., 2014). Second, LKM would be a superior intervention since it also provides additional salutary
and prosocial benefits (e.g., reduced stress, buffer against negative reactions, increased self-compassion; Galante et al., 2014; Kang et al., 2014; Klimecki et al., 2012; Klimecki et al., 2013) that have not been demonstrated in comparable interventions such as expanding implicit group boundaries (Scroggins et al., 2015) or increasing motivations for fairness and equality (Nunspeet et al., 2015). Mindfulness meditation is one of the only other successful implicit bias interventions that rivals LKM in terms of beneficial effects (for a review of mindfulness benefits, see Grossman et al., 2004). Still, it’s important to have an option between these two methods depending upon the preferred benefits a potential practitioner would want to receive. For example, a person seeking implicit bias reduction that is concomitantly interested in reducing automatic processing might opt for mindfulness practices, while another person interested in increasing compassion might opt for LKM.

In addition, we were attempting to reconcile the two contradictory ideas that positive emotions may lead to an increase in implicit bias but loving-kindness meditation (which induces positive emotion) could reduce implicit bias. Building upon Stell and Farsides’ (2015) design, in the current research, I manipulated the target of loving-kindness during meditation to examine its effect upon participants’ other-regarding positive emotion and implicit bias. Participants were randomly assigned to one of three groups and followed nearly identical LKM guided recordings with the exception of certain sentences that instructed them to place their focus on themselves, an age-related ingroup, or an age-related outgroup. Then, age-related implicit bias was tested.

Taken together, the literature review culminates in the following hypotheses. First, I hypothesized that the types of positive emotions experienced will differ across focus conditions. Specifically, I propose the following:
H1A: The self-focused condition will have less other-regarding positive emotions than both the ingroup-focused and outgroup-focused conditions.

H1B: There will be no difference in positive emotions experienced, either other-regarding or non-other-regarding, between the ingroup-focused and outgroup-focused conditions.

The reasoning behind these predicted differences in other-regarding positive emotions is due to the differing focuses of the LKM conditions. The different conditions will produce these effects insofar as the focusing on oneself or others will lead to a difference in the types of positive emotions experienced.

Second, I predicted that implicit bias levels will differ across focus conditions, with the following hypothesis:

H2: Implicit bias in the outgroup-focused condition will be lower than both the ingroup-focused and self-focused conditions.

The reasoning for this prediction was two-fold. I believed that both the ingroup-outgroup distinction and the other-regarding and non-other-regarding positive emotion distinction influences implicit bias. Therefore, the out-group focused condition will be the lowest in implicit bias since they will meet both criteria; they will focus on an outgroup and will experience other-regarding positive emotions. The ingroup-focused and self-focused conditions will be higher in implicit bias. The proposed reason for this is due to the ingroup-focused condition lacking outgroup focus, and the self-focused condition lacking both outgroup focus and other-regarding positive emotions.

Regarding the in-group focused condition, it is unclear how the ingroup-outgroup distinction and the other-regarding and non-other regarding positive emotion distinction will interact to produce differences in implicit biases. It is possible that focusing on the in-group,
being young adults, will bolster implicit bias and override the influence of other-regarding positive emotions. Alternatively, producing other-regarding positive emotions might be more impactful than the particular focus of the meditation in affecting implicit bias levels. Because of the unclear relationship between these two variables, no formal hypotheses were drawn. Instead, the following research question was investigated:

RQ: Does an ingroup-focused LKM differentially affect implicit bias compared to a self-focused LKM?

Finally, I predicted two partial mediation effects of other-regarding positive emotions upon the relationship between the focus of the LKM practice and implicit bias, such that:

H3A: Relative to the self-focused condition, the in-group focused condition will result in lower levels of implicit bias due to eliciting higher levels of other-regarding positive emotions.

H3B: Relative to the self-focused condition, the out-group focused condition will result in lower levels of implicit bias due to eliciting higher levels of other-regarding positive emotions.

These hypotheses were informed by past research findings (Stell & Farsides, 2015). Stell and Farsides (2015) conducted a single mediation analysis and found that LKM, relative to a control, resulted in less bias measured on a race IAT, mediated by higher levels of other-regarding positive emotions. The present study attempted to replicate and build upon this finding by comparing a self-focused LKM practice with two separate other-focused LKM practices (one with an in-group target and one with an out-group target), both of which are expected to produce a relative increase in other-regarding positive emotion.
Lastly, one more mediation model was produced for exploratory purposes. It was identical to the model used for testing hypotheses 3A and 3B with the addition of non-other-regarding positive emotions as a covariate. This model was produced to see whether non-other-regarding positive emotions increased the model’s explanatory power or varied with either other-regarding positive emotions or IAT D scores. Because this is exploratory, there was no prediction with respect to non-other-regarding positive emotions relationships with the outcome variables.

Method

The present study was an experimental design where the independent variable was the focus of the LKM, and the dependent variable was implicit bias. Participants were randomly assigned to focus on themselves, an age-related ingroup, or an age-related outgroup. The study was conducted fully on Qualtrics - an online survey tool that allows for completely remote data collection.

Sample

Participants were students in psychology courses at SUNY New Paltz recruited through the university’s SONA system during the Fall 2021 semester. Individuals aged 18-29 were eligible to participate. Mimicking past research on LKM and implicit bias (Kang et al., 2014; Stell & Farsides, 2015) a power analysis was conducted for a medium effect size with .80 power for hypotheses 1A, 1B, and 2. This analysis yielded a recommended sample size of 159. Since this study was conducted online, requirements to participate in the study were a stable internet connection, as well as functional headphones, and a room in their residence that is free from distraction for the duration of the study.
The resulting sample consisted of \( n = 121 \) participants. The age of the sample ranged from 18-29 (\( M = 20, SD = 2.29 \)) with a large positive skew. In terms of gender, the sample was largely female (\( n = 95 \)) with some identifying as male (\( n = 21 \)) or non-binary (\( n = 4 \)). The sample was largely composed of white participants (\( n = 89 \)), followed by black/African American (\( n = 17 \)), Asian (\( n = 4 \)), Latinx (\( n = 4 \)), and others (\( n = 4 \)). Of importance, since participants can choose more than one ethnicity, the listed categories have slight overlap with some participants falling under more than one category.

**Materials**

*Demographic Questionnaire*

This questionnaire assessed various aspects of the participant’s identity such as their age, gender, race, socioeconomic status, and meditation experience.

*Loving-Kindness Meditation Guided Recording*

This was an 8-minute guided meditation recorded by the researcher (see full transcript in Appendix A). There were 3 different variations of this recording that differed in instructions regarding where to direct their thoughts and feelings toward. The audio began with instructions for the participant to sit in a comfortable position and begin breathing deeply for 1 to 2 minutes. Following this, the meditation guided the participant to start imagining a particular person or group of people in their mind based upon which condition the participant was randomly assigned to (“yourself,” “college students your age,” or “senior citizens”; see Procedure below). The participant was guided to repeatedly wish well-being, happiness, and health to the focus of their meditation.

*Implicit Association Test (IAT)*
The IAT was developed by Greenwald et al. (1998) to evaluate an individual’s implicit bias. In this study, participants were tested for implicit bias towards older adults. Two categories (e.g., young people and old people) and attributes (e.g., good and bad) were linked to two keys on the keyboard and were presented at the top-right and top-left of the computer screen. The participants were instructed to look at successive stimuli presented at the center of the screen, separated with an interstimulus interval of 250ms, and evaluate which category or attribute the stimuli belonged to by pressing the associated key. Stimuli were presented without replacement and replenished when the pool of stimuli was exhausted (Greenwald et al., 1998). The idea behind the IAT is that participants display implicit bias against a particular category if they are faster to discriminate the stimuli when its category is associated with the negative attribute (i.e., old people and bad) than when this category is associated with the positive attribute (i.e., old people and good).

The IAT consisted of 7 blocks in total. The first block consisted of 20 practice trials with only target categories (i.e., young people and old people). The second block consisted of 20 practice trials with only target attributes (i.e., good and bad). In the present study, there were four permutations of the IAT to counterbalance left and right starting positions of both target categories and target attributes (Carpenter et al., in press; Nosek et al., 2005). Depending upon Qualtrics’ randomizer, block 3 and 4 both paired either compatible (i.e., young people and good on one key and old people and bad on the other key) or incompatible (i.e., young people and bad on one key and old people and good on the other key) targets and attributes. These consisted of 20 practice trials and 40 critical trials, respectively. Following, block 5 consisted of 20 trials of only the target categories, but the keys were swapped to reduce any association of key and target category caused by the test itself. Lastly, block 6 and 7 consisted of 20 practice trials and 40
critical trials of the opposite combination of target categories and attributes tested in blocks 3 and 4.

In terms of handling participant errors during the IAT task, criteria were first defined to determine whether trials are too quick or too slow to suggest invalid data. Using Greenwald et al.'s (2003) suggestions, specific trials that take longer than 10,000 ms were considered too slow, while IATs that have less than 300 ms recorded for greater than 10% of trials were considered too fast. In the present study, data that met either of these criteria were excluded.

Moreover, there are different approaches to handling inputted errors during any specific trial. The original IAT doesn’t require participants to correct errors and instead just presents an error message for 300 ms and records the trial as the blocks mean of correct trials plus 600 ms (Greenwald et al., 1998). Alternatively, newer IATs present an error message and require participants to correct the error before proceeding (Greenwald et al., 2003). The IAT in the present study used the latter method.

Standardized D scores were then calculated using the data from blocks 3, 4, 6, and 7. First, four averages were computed for each of the blocks. Second, two difference scores were computed by subtracting blocks 7 and 4 as well as blocks 6 and 3. Third, each of these differences were divided by a pooled standard deviation derived from all the trials in the respective block pairs. Lastly, the two resulting numbers were averaged to arrive at a standardized difference (D) score for a given participant. A D score of 0 indicates no bias. A positive D score indicates an implicit bias toward the compatible blocks, while a negative D score indicates an implicit bias toward the incompatible blocks (Greenwald et al., 2003). In this study, a positive D score thus indicated an implicit bias against older adults.
The IAT used in this study was created through iatgen, survey software built by Carpenter et al. (in press) that allows for implementing this measure into Qualtrics. Furthermore, the choice for administering an age IAT was based upon past research showing age to have the strongest IAT effect in comparison to other types of IAT tasks (Nosek et al., 2007). This is potentially due to an overall negative cultural attitude toward the elderly (Chasteen & Cary, 2015). Also, the age categories (young versus old) clearly define an ingroup and an outgroup for the sample (college students, all of whom were within the age range of 18 to 29).

**IAT Stimuli**

Words used to sort into the target attributes of good and bad were obtained from Project Implicit’s (n.d.) age IAT. The words for “good” include: celebrate, fantastic, laughing, joyous, terrific, excitement, lovely, and cherish. The words for “bad” include: tragic, despise, bothersome, evil, annoy, angry, horrific, and selfish.

Face images used in the IAT were sourced from Nosek et al. (2007). This includes 12 pictures that are divided into 6 pictures of elderly faces and 6 pictures of youthful faces (see Figure 1).

**Figure 1**

*Example of IAT stimuli*
Other-regarding and Non-other-regarding Emotions

This scale involves participants rating the experienced intensity of 11 unique positive emotions during the LKM session on a 100-point slider scale (e.g., for gratitude: “After following the loving-kindness guided meditation, I felt gratitude;” 0 = not at all to 100 = strongly). Items are divided into 2 subscales: other-regarding or non-other-regarding. The other-regarding positive emotions include gratitude, elevation, love, and awe. The non-other-regarding positive emotions include amusement, buoyancy, hope, curiosity, happiness, pride, and contentment. Items are averaged within each subcategory to create two composite scores.

This is a modified version of the scale created by Stell and Farsides (2015), which used emotions from Frederickson et al.’s (2003) modified Differential Emotion Subscales (mDES). The original scale was not obtainable, so the measures were recreated as accurately as possible from Stell and Farsides’ (2015) methods section. There were two deliberate deviations from the original scale. For one, the original 5-point Likert scales were modified to 100-point slider scales to allow participants more specificity when reporting their emotional experiences. Second, the appearance of elevation and buoyancy were modified in the survey due to the expected lack of familiarity with these terms among participants. Elevation was changed to “lifted up and inspired to help others” and buoyancy was changed to “lighthearted and cheerful.”

Procedure

This experiment was fully completed through Qualtrics using the participants’ personal computer. The first block of the survey thanked them for participating and prepared them for the meditation portion of the study. Participants were instructed to get comfortable in their seat and to make sure their personal pair of headphones are connected to their computer.
When the participant felt ready, they were told to click play on the media file on screen. This played the guided, 8-minute LKM track which they were instructed to attentively listen to. The audio file gave the exact same instructions across conditions, with the exception of multiple sentences that were manipulated depending upon which condition the participant was randomly assigned to. The first 1-2 minutes of the recording was used to get the participant to take some deep breaths and relax into the meditation. After this portion, the manipulation was enacted. The person on the audio clip guiding the meditation then stated, "Now, for the remainder of this meditation, I want you to focus on sending these positive feelings toward yourself." In the case of the other conditions, the word "yourself" was replaced with the words "college students your age" or "senior citizens." The remaining 6-7 minutes consisted of the LKM guide reminding the participant to direct these positive emotions at the subject of interest and keeping them engaged. Importantly, time spent on this survey block was recorded to filter out careless responders who clearly skip over the meditation track.

Upon finishing, participants completed a manipulation check and instruction adherence questionnaire to ensure that they correctly followed the meditation prompts. This included 4 questions. One question asked, "Who were you asked to focus on during the meditation?" in an open-ended format. The other 3 questions were measured on 5-point scales such as "How engaged were you with the guided meditation you just listened to?" and "How well did you direct your focus on the instructed object of meditation?"

Following the manipulation check and instruction adherence section, the participants answered the series of questions assessing their experience of other-regarding and non-other-regarding positive emotions during the LKM session. Participants then completed the age IAT to assess the level of their age-related implicit bias. Following, participants answered demographic
questions that include questions about their past experience with meditation. Lastly, there was a final question asking participants whether they honestly believe their data should be used in the analysis. Mead & Craig’s (2012) research shows that this type of question can screen out a sizable portion of careless responders, especially with online data collection.

Results

Screening Criteria

Data collection occurred from August to December during the Fall 2021 semester, amassing $n = 252$ total responses. Out of this total, 131 participants had to be excluded due to one of several screening criteria listed in Table 1. The screening criteria are as follows: insufficient time spent on meditation page, insufficient manipulation check, insufficient IAT responses, careless responders, incomplete survey, an insufficient survey duration, and insufficient or unclear age. The screening procedure consisted of choosing one screening criterion at a time and going down the list of participants to see which they apply to. Therefore, certain participants could have violated more than one screening criteria but are not listed as such. After the screening process, $n = 121$ total responses remained available for analysis.
Table 1

Screening Criteria for Participants

<table>
<thead>
<tr>
<th>Criteria</th>
<th>n</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient meditation duration</td>
<td>25</td>
<td>The time spent on the meditation page of the survey wasn't at least as long as the meditation audio file.</td>
</tr>
<tr>
<td>Insufficient manipulation check response</td>
<td>33</td>
<td>An incorrect or blank answer for who the participant focused their attention on.</td>
</tr>
<tr>
<td>Insufficient IAT data</td>
<td>6</td>
<td>The participants' IAT data was unusable and excluded due to an excessive number of errors.</td>
</tr>
<tr>
<td>Careless responders</td>
<td>21</td>
<td>A blank answer or an answer of &quot;no&quot; for whether the participant completed the survey with care and honesty.</td>
</tr>
<tr>
<td>Incomplete survey</td>
<td>33</td>
<td>An incomplete survey response due to software issues or participants opting out.</td>
</tr>
<tr>
<td>Excessive survey duration</td>
<td>7</td>
<td>The duration of the survey was greater than 16 hours.</td>
</tr>
<tr>
<td>Insufficient or unclear age</td>
<td>6</td>
<td>The age of the participant was either not disclosed or not between 18-29.</td>
</tr>
</tbody>
</table>

Manipulation Check & Instruction Adherence

Manipulation check and instruction adherence questions were measured on Likert scales ranging from 1-5 (except for the question assessing headphone usage), with higher numbers indicating increased adherence to the meditative directions. When it came to how well participants directed their meditation to the instructed object of meditation, the data suggest a
relatively high amount of adherence ($M = 3.56$, $SD = .75$). Participants’ engagement with the meditation followed a similar pattern, where overall there was a relatively high engagement with the meditation ($M = 3.76$, $SD = 0.90$). In terms of distractibility, the overall score was relatively high ($M = 3.80$, $SD = 1$) indicating the majority of participants were in environments with minimal distractions.

To test whether manipulation checks and instruction adherence significantly differed across conditions, one-way ANOVAs were conducted. The ANOVAs did not yield a significant result for engagement with meditation, $F(2, 118) = .56, p = .575$, or distractibility, $F(2, 118) = 2.06, p = .132$. However, the one-way ANOVA conducted with directed attention scores revealed a significant difference between conditions, $F(2, 118) = 10.37, p < .001$. Tukey post-hoc tests revealed that the ingroup-focused condition ($M = 3.12$, $SD = .69$) had directed their attention to the instructed object of meditation significantly less than both the self-focused ($M = 3.83$, $SD = .74$) and outgroup-focused conditions ($M = 3.63$, $SD = .66$).

Lastly, most participants used headphones during the meditation, with most saying yes ($n = 92$) and some saying no ($n = 29$). This proportion of headphone usage was very similar across groups, with self-focused (73.9%), ingroup-focused (73.5%), and outgroup-focused conditions (80.5%) all having similar responses above 70% adherence.

**Meditative Experience**

Generally, the sample at large has very little experience with meditation. 56 participants claimed to have no experience with meditation, and 65 participants claimed to have some. Out of the 65 participants with prior meditative experience, 54 reported having “a little” experience, 9 reported “a moderate amount” of experience, and only 2 reported “a great deal” of experience. When it came to how many minutes per week that the participants practiced meditation, the
majority of them reported only either 0-20 minutes per week ($n = 48$) or 21-40 minutes per week ($n = 12$). When broken down by the number of weekly sessions, the most popular responses were “less than 1 session per week” ($n = 36$), 1 session per week ($n = 13$), or 2 sessions per week ($n = 7$).

Of those who specified which types of meditation they have attempted, the dominant response was mindfulness ($n = 55$), with only 8 participants explicitly stating that they have tried loving-kindness meditation prior to the current study.

**Main Analyses**

Each participant was randomly assigned to both a meditation condition and an IAT version. Out of the remaining 121 participants, 46 (38%) were in the self-focused condition, 34 (28.1%) were in the ingroup-focused condition, and 41 (33.9%) were in the outgroup-focused condition. With regard to the IAT, 4 versions were implemented to counterbalance the left and right starting positions for both the target categories and attributes. The breakdown of how many participants were given each version of the IAT is displayed in Table 2. Each IAT version generally received a similar amount of representation, both in total and when categorizing by condition, with the 4th IAT version (“Old people or Bad” on right side) receiving a slightly lower number of participants than the other three versions. A preliminary one-sample t-test was conducted to see whether the sample, regardless of condition, exhibited implicit bias. The t-test yielded a highly significant result, $t(120) = 11.1, p < .001, d = 1.01$. These results indicate that the sample possesses a strong implicit bias against older adults ($M = .41, SD = .40$).
Table 2

Participant Breakdown by Condition vs. IAT Version

<table>
<thead>
<tr>
<th>IAT Version</th>
<th>Self-focused</th>
<th>Ingroup-focused</th>
<th>Outgroup-focused</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Young people or Good&quot; on right side</td>
<td>12</td>
<td>7</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td>&quot;Young people or Bad&quot; on right side</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>&quot;Old people or Good&quot; on right side</td>
<td>15</td>
<td>12</td>
<td>8</td>
<td>35</td>
</tr>
<tr>
<td>&quot;Old people or Bad&quot; on right side</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td><strong>46</strong></td>
<td><strong>34</strong></td>
<td><strong>41</strong></td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis 1A states that the self-focused condition will experience less other-regarding positive emotions than either the ingroup-focused or outgroup-focused conditions. Other-regarding positive emotion scores were averaged into one composite score for each participant, then averaged across participants within each condition. A one-way ANOVA was conducted and yielded a nonsignificant result, $F(2, 118) = .50, p = .605, \omega^2 = .008$, not supporting Hypothesis 1A. The self-focused ($M = 59.4, SD = 20.2$), ingroup-focused ($M = 60, SD = 20.6$) and outgroup focused ($M = 63.7, SD = 21.6$) conditions were not significantly different.

Hypothesis 1B states that the ingroup-focused and outgroup-focused conditions will experience no difference in non-other-regarding positive emotions. Non-other-regarding positive emotion scores were averaged into one composite score for each participant, then averaged
across participants within each condition. A one-way ANOVA was conducted and yielded a nonsignificant result, $F(2, 118) = .24, p = .786, \omega^2 = .013$, supporting Hypothesis 1B. The ingroup-focused ($M = 55.2, SD = 18.3$) and outgroup-focused ($M = 55.1, SD = 20.5$) conditions did not significantly differ.

Hypothesis 2 states that implicit bias in the outgroup-focused condition will be lower than both the ingroup-focused and self-focused conditions. Each participant received a D score and were averaged to create 3 separate, composite scores between conditions. A one-way ANOVA was conducted and yielded a nonsignificant result, $F(2, 118) = 2.04, p = .134, \omega^2 = .017$, not supporting Hypothesis 2. D scores in the outgroup-focused ($M = .30, SD = .41$), ingroup-focused ($M = .46, SD = .41$), and self-focused ($M = .46, SD = .39$) conditions were not significantly different. These results suggest that the ingroup-focused and self-focused LKMs don’t differentially affect implicit bias.

Hypothesis 3A states that relative to the self-focused condition, the in-group focused condition will result in lower levels of implicit bias due to eliciting higher levels of other-regarding positive emotions. Hypothesis 3B states that relative to the self-focused condition, the out-group focused condition will result in lower levels of implicit bias due to eliciting higher levels of other-regarding positive emotions. The mediation effects of Hypotheses 3A and 3B will be tested using Hayes’ (2018) PROCESS, a computational macro for mediation analyses. This macro is a syntax file that runs on SPSS and allows for mediation analysis with a mult.categorical predictor variable. In the analysis, the independent variable was meditation focus, the dependent variable was D scores from the IAT, and the mediator was scores of other-regarding positive emotions. Because the independent variable has three levels (self-focused,
ingroup-focused, and outgroup-focused), two dummy codes were created, with the self-focused condition as the reference category (See figure 2 for path diagram).

The data trend revealed that, relative to the self-focused condition, neither the ingroup-focused ($B = .59, SE = 4.7, p = .9$) nor the outgroup-focused ($B = 4.23, SE = 4.47, p = .345$) conditions were significantly associated with increases in other-regarding positive emotion. Moreover, other-regarding positive emotions were not significantly associated with decreases in implicit bias scores, $B = -.002, SE = .002, p = .403$. Direct effects revealed that, relative to the self-focused condition, the ingroup-focused ($B = .007, SE = .09, p = .939$) and outgroup-focused ($B = -.15, SE = .09, p = .093$) conditions did not differ significantly in D scores. Each of the partial indirect effects were estimated through 5,000 bootstrapped samples, which produced a 95% confidence interval for that effect. A confidence interval which does not include zero is indicative of a significant partial mediation effect (Hayes, 2018). The bootstrapped confidence intervals for both the ingroup-focused ($B = -.0009, SE = .012, 95\% BCI [-.0253, .0239]$) and outgroup-focused ($B = -.0063, SE = .0135, 95\% BCI [-.0388, .0184]$) conditions overlapped with zero, indicating no significant indirect effects. Therefore, no partial mediation effects were found and Hypotheses 3A and 3B were not supported.
For exploratory reasons, we included non-other-regarding positive emotions into the mediation model as a covariate to see if that would increase the model’s explanatory power. The data trend revealed that, relative to the self-focused condition, the ingroup-focused condition ($B = 2.48$, $SE = 3.3$, $p = .454$) was not significantly associated with a change in other-regarding positive emotions but the outgroup-focused condition ($B = 6.20$, $SE = 3.14$, $p = .051$) approached a significant association with increases in other-regarding positive emotion. Additionally, non-other-regarding positive emotion significantly covaried with other-regarding positive emotions, ($B = .73$, $SE = .07$, $p < .001$). Direct effects revealed that, relative to the self-focused condition, the ingroup-focused ($B = .013$, $SE = .09$, $p = .888$) and outgroup-focused ($B = -.13$, $SE = .09$, $p = .126$) conditions were not significantly associated with changes in D scores. Moreover, both other-regarding positive emotions ($B = -.003$, $SE = -.003$, $p = .261$) and non-other-regarding positive emotions ($B = .002$, $SE = .003$, $p = .448$) were not significantly associated with changes in D scores. To test the partial indirect effects of the meditation condition on implicit bias scores, 5,000 bootstrapped samples were conducted to produce a 95% bootstrapped confidence interval for that effect. The bootstrapped confidence intervals for the indirect effects of both the ingroup-
focused ($B = -.007, \ SE = .013, \ 95\% \ BCI \ [-.0387, \ .0166])$ and outgroup-focused ($B = -.0177, \ SE = .0188, \ 95\% \ BCI \ [-.0579, \ .0199])$ conditions overlapped with zero, indicating no significant indirect effects.

**Discussion**

Understanding the effects of different types of LKM may aid our understanding in how to combat implicit bias most effectively. If we can understand how altering properties of LKM practice may produce significant changes in positive emotions and implicit bias, we can use this discovery to inform the general public on how to reduce such a subtle, but impactful problem in society. The current study investigated potential reduction in implicit bias after only a single LKM session.

First, the results revealed that differences in the instructed object of meditation did not produce different levels of other-regarding or non-other-regarding positive emotions. It is possible that Hypothesis 1A failed and Hypothesis 1B was supported because LKM may indiscriminately increase positive emotions, both other-regarding and non-other-regarding, and the subject of one’s meditative focus has a miniscule effect on the positive emotions produced. Alternatively, the meditation script and recording may have been of low quality and failed to keep the participant engaged with the practice. Therefore, participants may have experienced an increase in positive emotion, but the lack of adherence to the instruction may have not made the manipulation salient enough to see a divergence between the two types as predicted in Hypothesis 1A. The instruction adherence scores, such as directed attention, engagement with the meditation, and distractibility appeared satisfactory but perhaps not high enough.

Contrary to Hypothesis 2, the present study’s data does not support the notion that focus of meditation can differentially impact age-related implicit bias. The lack of significant finding
may be attributed to the low effect size and relatively small sample. The predetermined power analysis conducted before the study began yielded a recommended sample size of 159. Since over half the sample had to be screened out due to a combination of technical issues and data integrity issues, we were left with only 121 participants, potentially jeopardizing our chances to observe an effect with insufficient statistical power.

These results also give us preliminary insight into our research question. Although the outgroup-focused condition showed a (nonsignificant) decrease in implicit bias compared to the other conditions, the current data revealed virtually no difference between the self-focused and ingroup-focused conditions on the implicit bias observed. This data pattern suggests that practitioners of LKM may focus on oneself or an ingroup and there may not be any difference on bias exhibited.

Lastly, Hypotheses 3A and 3B were not supported by the data, suggesting that other-regarding positive emotion did not mediate the impact of LKM focus on implicit bias. Although the mediation model was improved with the inclusion of non-other-regarding positive emotions as a covariate, neither model revealed any significant direct or indirect effects. Considering Stell and Farsides (2015) findings, where their data suggest other-regarding positive emotions is a mediator between LKM and implicit bias, perhaps the current study could have revealed a mediation effect if it was relative to a control group. Still, the current study shows that, relative to focusing on oneself, focusing on an ingroup or outgroup member will not be associated with implicit bias, either directly or indirectly through other-regarding positive emotions.

Limitations and Future Directions
As with any research, limitations come with the methods, materials, and resources associated with the present study. For one, there was no control group in the experiment, therefore removing the possibility to observe if the intervention caused any difference in comparison to a baseline. The decision to exclude a control group was a deliberate decision, as we were more interested in comparing different focuses of LKM since the general impact of LKM on implicit bias has already been supported in past research (Kang et al., 2014; Stell & Farsides, 2015). Still, future research could compare each focus of LKM to a control group and see which pair exhibits the relatively largest reduction in implicit bias.

Another important limitation was the between-subjects nature of the current research. Comparing across participants as opposed to comparing scores within participants doesn’t account for individual differences. It might be the case that some participants were more resilient to implicit bias change than others, and by not testing within-subject differences, we potentially miss them in the design. We tried to counteract this by using participants of roughly the same age and education status. Still, it might be best for future research to replicate the results of the present study by using a within-subject design to compare pre and post IAT scores.

Only using the IAT to measure implicit attitudes and not using other measures that might provide convergent or discriminant validity could also be problematic. The IAT has questionable internal consistency and is substantially less reliable at measuring implicit bias when only using singular trials (Nosek et al., 2005). Further, there are also critiques regarding the test’s validity. For instance, some question the IAT’s ability to account for confounding variables such as cognitive fluency (McFarland & Crouch, 2002). In defense of this, the IAT has been improved so as to minimize the impact of reaction time differences (Greenwald, Nosek, & Banaji, 2003) and have increased reliability ratings since its first iterations (Greenwald et al., 2003; Greenwald et
al., 2009). Regardless, it is best to attempt replication of these findings with different implicit measure tests such as the Go/no-go association test (GNAT; Nosek & Banaji, 2001) or the implicit relational assessment procedure (IRAP; Barnes-Holmes et al., 2006) to improve confidence that the results of the current study reflect the true nature of the relationship between variables.

The effects of long-term LKM practice on implicit bias, its potential benefits, and the potential lasting effect of these benefits are still very understudied. The current study had participants only complete one, short LKM session and tested their biases immediately after. The effects of this type of acute intervention might not be impactful enough to reveal a tangible change in implicit preference. Moreover, even if implicit bias is reduced by short-term or long-term practices, it is unclear how long these effects might persist beyond the intervention's implementation. In regard to these issues, we are hoping that future longitudinal studies are conducted to evaluate more regimented LKM routines and that implicit bias tests are incrementally administered during and far beyond the intervention’s duration.

The generalizability of these findings is very limited given the subject pool (which consisted of college students majoring in psychology or taking psychology courses) and setting of the experiment. WEIRD samples are often criticized in regard to their lack of generalizability (Henrich et al., 2010). In addition, over 70% of the sample was female, begging the question of whether the same pattern of results would emerge in a predominantly male sample. Due to the nature of this sample, it is best for future research to include participants with diversified demographics.

Lastly, the online nature of the current research’s meditation is also an inherent limitation and factor of concern. Research evaluating online meditation programs is still in its early stages.
Spijkerman et al. (2016) conducted a meta-analysis and found that online meditation programs produce significant small to moderate effects, but these effects are smaller than those generally found from in-person meditation programs. Adherence rates were not able to be controlled in the meta-analysis and were posited as a potential reason for the observed difference in effectiveness. Issues surrounding practice adherence have already been identified as a larger problem for online meditation programs, potentially decreasing the effectiveness of a meditative intervention (Spijkerman et al., 2016). This concern is mirrored by Danilewitz et al. (2018), who tested the feasibility and effectiveness of online meditation among medical students. Their results suggest that, while satisfaction and attrition rates for the program were promising, adherence to a daily meditative practice was markedly low (Danilewitz et al., 2018).

In all, it is possible that participants in the current study had low adherence due to the online nature of the study. This is reflected in a sizable portion of the sample neglecting to either use headphones, complete the study in distraction-free zones, or be more engaged with meditation. Moreover, we believe that this study taking place during the COVID-19 pandemic could have impacted the quality of the LKM sessions and adherence scores. The current results should be interpreted with caution and online meditation programs in general need to be studied more rigorously. Perhaps when the health landscape returns closer to normalcy, replication attempts of the current study can illuminate if a controlled setting and the lack of pandemic-related stress and anxiety can produce more accurate results.

Conclusion

With more specific research questions that break down why techniques such as LKM are good at reducing implicit bias when practiced in certain ways, we can better inform our practices and more efficiently combat implicit bias. The current study’s results imply that the focus of
LKM might not impact positive emotions and implicit bias in practitioners, but more research into other LKM-related factors might deepen our understanding of how this practice may relate to these variables.
References


effects of meditation on empathy, compassion, and altruism. *Zygon, 40*(2), 391–408.
doi: 10.1111/j.1467-9744.2005.00671.x


Turner, R. N., Haidt, J., Kesebir, S., Hawkins, C. B., Schaefer, H. S., Rubichi, S., Sartori,

stress. *Dissertation Abstracts International: Section B: The Sciences and Engineering,
72*(7-B), 4365.

*Psychological Science, 22*(12), 1472–1477. doi:10.1177/0956797611427918

Lueke, A., & Gibson, B. (2015). Mindfulness meditation reduces implicit age and race bias: The
role of reduced automaticity of responding. *Social Psychological and Personality

*Psychology of Consciousness: Theory, Research, and Practice, 3*(1), 34–44. Doi:
10.1037/cns0000081


Appendix A

Loving-Kindness Meditation Script

*All meditations will include the introduction and then one of the three following segments depending upon random assignment. Each version is approximately 8 minutes. *

INTRODUCTION

Hello and welcome to the loving-kindness meditation

Let’s begin by getting into a position you will be comfortable in for the next 8 minutes

Sit in a posture that will allow you to be comfortable, but alert

Make sure to close your eyes for the duration of the meditation

Once you feel ready, start by taking a few deep breaths to relax the body

While you are breathing, pay close attention to wherever you notice the sensations of breathing the most.

This may be the tip of your nose, inside the throat, traveling down the chest, or the rising and falling of your stomach

Now that you are settled in, we will begin by moving your focus from your breath to your heart

(A) IF SELF-FOCUSED CONDITION:

As you do this, start visualizing yourself in your mind

Think about your journey in life - and who you have become

Realize that you deserve to be compassionate to yourself, and kind to yourself

Offer a gentle wish of well-being to yourself by repeating the following phrases:

May I be happy
*2 second pause*
May I be healthy
*2 second pause*
May I be safe
*2 second pause*
May I be loved
*2 second pause*
May I be at peace
*2 second pause*

Focus on continually sending these positive feelings toward yourself

Let these words wash over you and become attuned with your feelings

Remind yourself that you are trying your best and are worthy of love and compassion

Now repeat the following phrases:

May I be happy
*2 second pause*
May I be healthy
*2 second pause*
May I be safe
*2 second pause*
May I be loved
*2 second pause*
May I be at peace
*2 second pause*

Now think about a quality that you love about yourself

Maybe it’s a talent, a personality trait, or a physical feature

Whatever it is, admire it - feel the joy that it brings to you

Now repeat the following phrases:

May I be happy
*2 second pause*
May I be healthy
*2 second pause*
May I be safe
*2 second pause*
May I be loved
*2 second pause*
May I be at peace
*2 second pause*

Let these words wash over you as you repeat them again

May I be happy
*2 second pause*
May I be healthy
*2 second pause*
May I be safe
*2 second pause*
May I be loved
*2 second pause*
May I be at peace

As the meditation comes to an end, come back to your breath and reflect on the feelings you felt.

Take a moment to think about how you might incorporate these intentions of well-being into your daily life.

As you breathe in and out, appreciate the time you just took to extend loving-kindness to yourself.

Now, you can slowly open your eyes and re-adjust to your surroundings.

We really hope you benefited from this meditation.

Thank you for listening and have a wonderful day.

(B) IF IN-GROUP FOCUSED CONDITION:

As you do this, visualize other college students your age.

This may be your classmates, college friends - or it can simply be peers you see on campus.

Think about how you share many goals with them - to learn, to grow, to graduate.

Offer a gentle wish of well-being to them by repeating the following phrases:
May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

Consider how college students share a similar human experience to you - they desire to live, to love, to laugh, to grow

Remind yourself that they are trying their best and are worthy of love and compassion

Repeat the following phrases:

May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

Feel the sense of camaraderie between you and other college students your age

Realize there are more similarities than differences in both of your lived experiences

Visualize these shared experiences as bonds that connect you and other college students together

Repeat the following phrases:

May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

Let these words wash over you as you repeat them again:

May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

As the meditation comes to an end, come back to your breath and reflect on the feelings you felt.

Take a moment to think about how you might incorporate these intentions of well-being into your daily life.

As you breathe in and out, appreciate the time you just took to extend loving-kindness to college students your age.

Now, you can slowly open your eyes and re-adjust to your surroundings.

We hope you benefited from this meditation.

Thank you for listening and have a wonderful day.

(C) IF OUT-GROUP FOCUSED CONDITION:

As you do this, start visualizing senior citizens in your mind.
This may be an older neighbor, family member, or co-worker - or it could simply be elderly you come across in your daily life

Realize that - like you - they want to live a happy and joyful life

Offer a gentle wish of well-being to them by repeating the following phrases:

May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

Consider how senior citizens share a similar human experience to you - they desire to live, to love, to laugh, to grow

Remind yourself that they are trying their best and are worthy of love and compassion

May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

Feel the sense of camaraderie between you and other senior citizens

Realize there are more similarities than differences in both of your lived experiences

Visualize these shared experiences as bonds that connect you and the elderly together
Repeat the following phrases:

May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

Let these words wash over you as you repeat them again:

May they be happy
*2 second pause*
May they be healthy
*2 second pause*
May they be safe
*2 second pause*
May they be loved
*2 second pause*
May they be at peace
*2 second pause*

As the meditation comes to an end, come back to your breath and reflect on the feelings you felt.

Take a moment to think about how you might incorporate these intentions of well-being into your daily life.

As you breathe in and out, appreciate the time you just took to extend loving-kindness to elderly individuals.

Now, you can slowly open your eyes and re-adjust to your surroundings.

We hope you benefited from this meditation.

Thank you for listening and have a wonderful day.

End of Script