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Religiosity as a predictor of moral judgment and the effect of social connectedness on

forgiveness

Mestrado

André Luiz Alves Rabelo

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Dissertação de Mestrado apresentada ao Programa
de Pós-Graduação em Psicologia Social, do
Trabalho e das Organizações, como requisito parcial
à obtenção do grau de Mestre em Psicologia Social,
do Trabalho e das Organizações.

Orientador: Prof. Dr. Ronaldo Pilati

Brasília, DF

Junho de 2014

UNIVERSIDADE DE BRASÍLIA

INSTITUTO DE PSICOLOGIA

Dissertação de mestrado defendida diante e avaliada pela banca examinadora

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Agradecimentos

Agradeço a todos os meus familiares, amigos e amigas que me apoiaram e acompanharam a minha trajetória ao longo do mestrado. Agradeço também os meus colegas do ScienceBlogs Brasil e do Bule Voador, que me permitiram aprender muitas coisas, em um nível que eu provavelmente nem mesmo tenho consciência. Agradeço os membros do Laboratório de Psicologia Social (LAPSOCIAL), pela convivência quase diária nos últimos anos, a parceria e a confiança dentro e fora do laboratório. Conheci pessoas muito legais trabalhando no LAPSOCIAL e pude aprender muita coisa com várias dessas pessoas. Gostaria de fazer um agradecimento especial às pessoas que me ajudaram a conduzir os estudos relatados nessa dissertação. Camila Gastal, Renata Fleury, Rafael Medeiros, Gabriel F. Micas e Beatriz Cavendish, muito obrigado por fazerem parte dessa jornada! O fato de poder contar com vocês tornou todo esse processo muito mais tranquilo, bem feito e divertido! Vocês são pessoas muito inteligentes e que eu adorei ter conhecido, tenho certeza que seja lá qual for o rumo de vocês no resto do curso, serão profissionais sérios e competentes. Duas pessoas merecem um agradecimento especial pela importância que possuem na minha trajetória profissional (e pessoal). Meu orientador, prof. Ronaldo Pilati, por me apresentar, logo no início da minha graduação, tantas coisas que passaram a me fascinar e logo determinariam todo o rumo da minha carreira profissional. Além disso, agradeço por toda a paciência, dedicação e seriedade na orientação que recebi pelos últimos cinco anos, um grande privilégio que me fez aprender o tipo de profissional que eu gostaria de ser. Por fim, gostaria de agradecer a minha mãe, Margareth Alves da Silva, pelo apoio único e decisivo que me deu no início tão confuso dessa jornada e ao longo dos anos. Pela compreensão, benevolência, otimismo e cuidado constantes, eu jamais conseguirei expressar inteiramente a minha gratidão.

Obrigado a todos vocês!

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RESUMO

O objetivo desta dissertação é investigar a relação entre conectividade social, moralidade e religiosidade. A presente dissertação é composta por dois estudos com o objetivo de explorar algumas das relações entre essas variáveis. No Estudo 1, a relação entre a moralidade, a religiosidade, e a empatia foi explorado em um *survey*. No Estudo 2, o efeito da conectividade social sobre o perdão foi testado experimentalmente. No Estudo 1, 655 participantes responderam a medidas de julgamento moral, religiosidade e empatia. O Estudo 2 foi um experimento de laboratório com 108 participantes aleatoriamente designados para uma de duas condições (*Loving-kindness meditation* [LKM] x controle). Os resultados do Estudo 1 mostraram que a religiosidade pode prever os padrões de julgamento moral e que, apesar de uma diferença na severidade dos julgamentos morais ter sido observada entre os participantes religiosos e não-religiosos, esta diferença não foi de grande magnitude, ao contrário do que se poderia esperar de noções de senso comum sobre a moralidade e religião. O Estudo 2 indicou que até mesmo uma breve experiência de conectividade social pode aumentar o perdão e que este efeito não interage com muitas variáveis que prediziam o perdão em estudos anteriores. Ambos os estudos revelaram evidências iniciais sobre as relações entre conectividade social, religiosidade e moralidade.

Palavras-chave: conectividade social, moralidade, julgamento moral, religiosidade, meditação, perdão, diferenças individuais.

ABSTRACT

The aim of this thesis is to investigate the relationship between social connectedness, morality, and religiosity. The present thesis is composed of two studies with the aim of exploring some of the relationships between these variables. In Study 1, the relationship between morality, religiosity, and empathy was explored in a survey. In Study 2, the effect of social connectedness on forgiveness was experimentally tested. In Study 1, 655 participants responded to measures of moral judgment, religiosity, and empathy. Study 2 was a laboratory experiment with 108 participants randomly assigned to one of two conditions (loving-kindness meditation [LKM] condition x control condition). The results from Study 1 showed that religiosity can predict patterns of moral judgment and that, although a difference in the severity of the moral judgments could be observed between religious and non-religious participants; this difference was not of a big magnitude, contrary to what could be expected from commonsense notions about morality and religion. Study 2 indicated that even a brief experience of social connectedness can increase forgiveness and that this effect doesn't interact with many variables that predicted forgiveness in previous studies. Both of these studies revealed initial evidence about the relationships between social connectedness, religiosity, and morality.

Keywords: social connectedness, morality, moral judgment; religiosity; meditation; forgiveness; individual differences.

The extreme social interdependence of humans is probably the result of evolutionary pressures to cooperate, affiliate, and conform to groups. This feature might have been one of the most important influences in the successful reproduction and survival of early human tribes (Tomasello, 2014). Morality is a central aspect of humans and is the result of cultural and biological evolutionary processes that favored individuals and groups capable of developing and performing rule-based social interactions and cooperation (Haidt & Kesebir, 2010; Haidt, 2007, 2008). As described by Haidt (2008), “moral systems are interlocking sets of values, practices, institutions, and evolved psychological mechanisms that work together to suppress or regulate selfishness and make social life” (p. 70). His new approach in moral psychology focuses on a definition based on the functions of morality instead of the content of it, on which previous definitions had focused. The specific content of such social norms will vary in terms of culture, time, and religion, but morality tends to be present in any human group. It is argued that without morality, human groups would probably be too unsustainable and unstable to prosper (Haidt & Kesebir, 2010).

Another consequence of this evolutionary history is a basic need to belong to others or a need for social connectedness (Baumeister & Leary, 1995; Baumeister, 2012; Fiske, 2010). This means that humans are quite willing to create and keep meaningful and lasting relationships with at least a certain amount of people. If this is a basic human need, the lack of social connectedness should have detrimental consequences. Studies about social isolation show that it might be a major risk factor for physical and mental health comparable to smoking or obesity (Cacioppo, Hawkley, Norman, & Berntson, 2011; Cruwys, Haslam, Dingle, Haslam, & Jetten, n.d.).

The philosopher John Stuart Mill highlighted that people who make utilitarian moral judgments, that is, judgments based on the maximizing total benefits principle, are regarded as socially disconnected and morally indifferent (Mill, 1879). But what theoretical

relationship should we expect between social connectedness and morality? According to the need-to-belong theory (Baumeister, 2012), feeling socially connected might lead to different cognitive and behavioral effects, such as the satiation of the need to connect and subsequent weaker motivation to connect (DeWall, Baumeister, & Vohs, 2008). If this is true, then feeling socially connected could lead people to be less prosocial and benevolent in their moral perception and behavior. But recent studies have indicated that feeling socially connected might impact morality in more complex ways than previously thought (Kurzban, DeScioli, & Fein, 2012). For example, in one study, participants exhibited a more utilitarian moral inclination when a task requested them to save in-group members (Cikara, Farnsworth, Harris, & Fiske, 2010). Another study showed that feeling socially connected led participants to exhibit a more utilitarian moral judgment (Lucas & Livingston, 2014).

The influence of social connectedness on cognition and behavior has increasingly grown as a focus of attention in many subfields of psychology and neuroscience (Epley, Akalis, Waytz, & Cacioppo, 2008; Hofmann, Grossman, & Hinton, 2011; Hutcherson, Seppala, & Gross, 2008; Janssen, IJsselsteijn, & Westerink, 2014; Leung et al., 2012; Ritter, Preston, & Hernandez, 2013). It has been shown that many aspects of morality can be influenced by social connectedness, such as prosocial responses (Condon, Desbordes, Miller, & Desteno, 2013; Leiberg, Klimecki, & Singer, 2011), dehumanization (Waytz & Epley, 2012), implicit intergroup bias (Kang, Gray, & Dovidio, 2014), and explicit intergroup bias (Hunsinger, Livingston, & Isbell, 2014). A question that remains unexplored systematically is how social connectedness is related to other moral aspects, such as moral judgments and forgiveness toward past moral transgressors.

The aim of this thesis is to investigate the relationship between social connectedness and morality. The present thesis is composed of two studies. In Study 1, the relationship

between morality, religiosity, and empathy was explored in a survey. In Study 2, the effect of social connectedness on forgiveness was experimentally tested.

Study 1: Are less religious people less morally severe?

Compassion, benevolence, forgiveness, and empathy are valued virtues among the world's major religions and the association between these moral virtues and being religious is frequent in many cultures (Gervais, Shariff, & Norenzayan, 2011; Gervais, 2011). Many would even argue that religions are the moral basis underlying people's moral emotions, cognitions, traits, and behaviors (Bloom, 2012; Norenzayan & Shariff, 2008). In spite of the widespread assumptions about the association of religion with empathy, generosity, and moral inclinations, few studies have empirically evaluated such relationships. The goal of the present research was to test whether religiosity predicts the severity of moral judgments. Additionally, we aimed to test if empathy interacts with religiosity to predict the participant's moral judgments.

Morality, religiosity, and empathy

Religiosity is the degree of belief, commitment, and practices of one's religion (Taunay et al., 2012). The study of how religious belief and commitment influences the moral domain is filled with findings that are contradictory with commonsense assumptions. According to four recently published literature reviews, religion might not predict moral emotions and behaviors (Galen, 2012; Norenzayan & Shariff, 2008; Preston, Ritter, & Ivan Hernandez, 2010; Stavrova & Siegers, 2014). Interestingly, few studies have investigated whether it could predict moral judgments, although it is popularly believed that religion shapes our morality (Bloom, 2012).

One set of studies showed that liberals and conservatives differ in the moral foundations underlying their moral judgments (Graham, Haidt, & Nosek, 2009). This resulted in differences in the severity of moral judgments and reactions to taboo trade-offs between these two groups of participants. Considering that religious people are more conservative than non-religious people (Bloom, 2012; Gervais, 2011; Graham & Haidt, 2010), we could expect

to find some difference between these two groups regarding the severity of their moral judgments toward everyday moral dilemmas. Another reason to expect a difference between these individuals relies on the fact that they probably have different motivations in the moral domain, such as the need for cognitive consistency (Gawronski, 2012). As religious people are inserted in a moral community from which they must learn, act accordingly, and protect a set of moral rules, moral dilemmas can trigger motivated reasoning in religious people to maintain cognitive consistency by reaching a moral judgment that is consistent with their moral system. As a first step in the exploration of the relationship between religiosity and moral judgments, we aimed to test whether religiosity would predict the severity of moral judgments.

Many studies have shown that empathy, conceptualized as the capacity to feel, share, and identify with the emotions of others - emotional dimension - as well as adopting the perspective and evaluating the reasons for the emotional states of others - cognitive dimension (de Waal, 2008), is a major predictor of moral inclinations, such as prosocial propensity and compassion (Davis, 1983; Eisenberg & Miller, 1987; Hollan, 2012; Morelli, Rameson, & Lieberman, 2014; Rabelo & Pilati, n.a.; Saslow et al., 2013; Sze, Gyurak, Goodkind, & Levenson, 2012). As empathy is related to reactions to another person's suffering, it might predict the severity of one's moral judgment, as more empathic people might have a stronger emotional bias driving their judgment, which would result in more severe judgments. Considering these results, we aimed to statistically control for the association of empathy with moral judgments.

In the study of religion, less religious people such as atheists and agnostics have been poorly investigated (Gervais et al., 2011), although this population is potentially very important to a broader understanding of religion, as they lack religiosity, the key variable of interest – similarly, amnesia patients lacking short-term memory were a very important

population of individuals for the study of memory (Schacter, 2001). Less religious people could show the consequences of lacking religiosity and this in turn could indicate the role of religiosity itself. The study of less religious people is especially important in the realm of morality, as a lack of religiosity is frequently linked to a lack of morality in the common sense (Bloom, 2012). If this is true, then less religious people should exhibit much less severe moral judgments compared to religious people. More than only identifying a difference between these groups, we should observe a big difference in the severity of moral judgments between these groups and a high positive correlation between religiosity and moral judgment, if the lack of religiosity is related to a lack of moral principles. Considering this, we aimed to collect data with a greater number of non-religious participants than is usually common in the literature (Gervais, 2011).

Method

Participants

The total sample was composed of 790 participants. We initially excluded 135 participants from the database because 122 participants did not complete at least 30% of the research, 12 did not complete 70% of the research, and 1 additional participant gave the same answer on all of the instruments. These 122 participants dropped out of the research on the very first page, which justifies their exclusion, and we considered the exclusion of the other 12 participants to be justified, as it represented 0.01% of the total sample. The final sample consisted of 655 participants, mainly composed of men (420 men, 231 women, and 4 did not inform), and with a mean age of 29.57 ($SD = 13.19$). Considering religion, most of the participants were non-religious (363 atheists, 52 agnostics), religious (75 Catholics, 39 Protestants, 24 Spiritualists, 6 adepts of afro-Brazilian religions, 4 Buddhists, and 2 Jewish) or undefined (68 didn't have one specific religion, 21 declared having another religion not specified as an option, and one participant didn't answered to this question).

Instruments and materials

To measure moral judgment, we used the back-translation method (Hambleton & Zenisky, 2011) to adapt to Portuguese moral judgment scenarios used in previous research (Schnall, Haidt, Clore, & Jordan, 2008; Wheatley & Haidt, 2005). Two fluent speakers of English and Portuguese translated and then back-translated five scenarios. The final back-translation was compared to the original scenarios to look for adjustments in the language of the translated version. These five scenarios described ambiguous situations, in which one person committed a morally condemnable action (e.g. killing and eating a young boy in order to survive a plane crash in the Himalayas) (see Appendix A).

Participants reported their moral judgments using one scale of moral judgment varying from “extremely wrong” to “not at all wrong”. Participants were asked to choose a position in a visual-continuum Likert scale divided into 100 points. A factor analysis with the responses to the five scenarios revealed that one of them (i.e. the “train” scenario, see Appendix A for more details) did not exhibit a factor loading of at least .30, and so the average index of moral judgment was computed with the responses to the other four scenarios (factor loadings varying from .31 to .60; $\alpha = .53$). The same analysis was done individually with the moral scenarios as dependent measures, and as the results were similar with the results obtained using the aggregated index, we opted to report the results for the analysis considering only the aggregate result in spite of its low reliability.

Individual differences in empathy were measured with the Portuguese version of the Interpersonal Reactivity Index (IRI) (Davis, 1983; Sampaio & Menezes, 2011). The instrument is composed of 26 items (e.g., “I try to understand my friends imagining how they see things”; “I put myself in the place of the other if I worry about him”) and uses a five-point scale ranging from 1 (*does not describe me well*) to 5 (*describes me very well*) that captures four factors of empathy: fantasy ($\alpha = .85$); empathic concern ($\alpha = .86$); personal distress ($\alpha =$

.85); and perspective taking ($\alpha = .77$) – reliability scores are related to the sample in the present study.

Religiosity was measured with the Portuguese version of the Duke Religious Index (DUREL) (Koenig & Büssing, 2010; Taunay et al., 2012). Five items compose the instrument; two ask for frequencies of behaviors related to their religious commitment (e.g., How frequently you go to churches, temples, or a religious meeting?) and three items related to religious beliefs and commitment (e.g., In my life, I feel the presence of God [or the Holy Spirit]). We computed one index of religiousness by averaging the responses to the 5 items (factor loadings varying from .85 to .90; $\alpha = .93$). Sex, age, religious affiliation, and other socio-demographic information were collected as well.

Procedures

Participants were invited by email using the EFS Survey software. A term of free consent form was presented on the first page after participants clicked on the link to the research in the email. If participants agreed with the terms, they then answered the instruments in the following order to avoid impression management biases related to their religiosity: moral judgment scenarios, empathy scale, religiosity scale, and finally the socio-demographic data.

Results

Table 1 exhibits the correlation matrix between the composite indexes of religiosity, moral judgment, and empathy dimensions. Moral judgments correlated significantly with religiosity, empathic concern, personal distress, and IRI. A grouping variable was also created to code participants who reported any kind of religious affiliation as “religious” ($n = 150$), and participants who reported being atheist or agnostic as “non-religious” ($n = 415$). A t-test not assuming equal variances indicated that religious participants exhibited harsher moral

judgments ($M = 76.93$, $SD = 16.26$) compared to non-religious participants ($M = 65.80$, $SD = 17.73$), $t(285.54) = 7.01$, $p < .001$, $r = .27$.

A sequential regression analysis with moral judgment as the criterion variable was performed with empathic concern and personal distress inserted in the first step as predictors, as these empathy dimensions were more strongly correlated with moral judgments. In the second step, religiosity was inserted as a predictor. The largest VIF value associated with the predictors was smaller than 10 ($VIF = 1.12$), and the tolerance ratio was 0.90, which indicates that multicollinearity is not a problem in our analysis.

Table 1

Correlation Matrix for Religiosity, Empathy, and Moral Judgment

Variable	F	EC	PD	PT	MJ
Religiosity	.05	-.10**	-.06	.06	-.28**
Fantasy (F)	-	.27**	.14**	.20**	-.05
Empathic concern (EC)	-	-	.32**	.23**	.16**
Personal distress (PD)	-	-	-	-.02	.09*
Perspective taking (PT)	-	-	-	-	-.02
Moral judgment (MJ)	-	-	-	-	-

Table 2

Sequential Regression of Empathy Dimensions and Religiosity as Predictors of Moral

Judgment

Variable	<i>B</i>	<i>SE B</i>	<i>Beta</i>	CI 95%	<i>sr</i> ^{2a}
EC	3.14	1.01	.12**	1.16, 5.12	.03
PD	.87	.80	.04	-.71, 2.45	.07
Religiosity	-3.58	.51	-.27***	-4.58, -2.59	

$R^2 = .10$
 R^2 adjusted = .09
 $R = .32$

^a increase in the explained variance.

** $p < 0,01$.

*** $p < 0,001$.

This analysis, presented in Table 2, showed that after controlling for the variance shared between empathic concern, personal distress, and moral judgment, religiosity was still a

significant predictor of moral judgments. The negative coefficients indicate that harsher moral judgments could be predicted by higher religiosity.

Discussion

Religiosity was a significant predictor of moral judgment, even after controlling for empathy. Nevertheless, the magnitude of prediction was only moderate to low, which indicates that other variables might be more relevant, such as intrinsic religiosity (Zavala, Cichocka, Orehek, & Abdollahi, 2012) or conservativeness (Graham et al., 2009). Empathy was not a strong predictor of moral judgments, which shows that the influence of religiosity is more important than individual differences in empathy. We also found that religious people differed from non-religious people in their moral judgment tendencies – religious participants exhibited harsher moral judgments compared to non-religious participants.

Considering the commonsense notion about the relationship between morality and religiosity (Bloom, 2012), these results indicate that religious people may exhibit harsher moral judgments, but the magnitude of the difference in moral judgment compared to non-religious participants was not high, which is contradictory to what we could expect if the proposed relationship between these variables was so interdependent as is usually assumed in the common sense. This shows that less religious people might be less severe in their moral judgments, but not so much different given the observed low magnitude of the difference.

This raises questions regarding the cultural antecedents of moral judgments. For example, could other dimensions such as conservativeness (Graham et al., 2009) be more predictive of moral judgments than religiosity? Could individual differences in the sensitiveness to disgust (Inbar, Pizarro, Knobe, & Bloom, 2009; Schnall et al., 2008) be more important as an antecedent of moral judgments compared to religiosity? Answering these questions might illuminate our theoretical understanding of moral judgments and demystify

common stereotypes regarding the importance of religiosity in one's moral inclinations (Bloom, 2012).

The present study has some limitations. Among them, its correlational design does not allow inferences about the causal relationship between religiosity and moral judgment, something to be extended by future studies. The sample was also unbalanced regarding religious and non-religious. Future studies should both aim to include a balanced number of religious and nonreligious participants as well as opt for experimental manipulations that allow for more conclusive data regarding causality (Gervais & Norenzayan, 2012; Norenzayan & Shariff, 2008).

Although we have used commonly adopted moral dilemmas from previous studies (Schnall et al., 2008; Wheatley & Haidt, 2005), these scenarios are problematic in many aspects, such as the lack of control for the length of the description of the situation, perspective of the reader, severity of the situation, and other dimensions identified to be commonly disregarded in the moral psychology literature (Christensen & Gomila, 2012). These problems might explain the low reliability found in our moral judgment composite index, as many of the scenarios are heterogeneous considering the dimensions cited above. Future studies should produce moral scenarios that are more comparable in terms of these dimensions. Additionally, future studies should explore more directly whether the need for cognitive consistency explains the moral inclinations of religious people (Gawronski, 2012) and whether moral foundations are indeed underlying variables that explain differences in the pattern of moral emotions and behaviors exhibited not only by conservatives and liberals but also by religious and non-religious people (Graham et al., 2009).

Study 2: Sweetening bitterness with kindness: Loving-kindness meditation increases forgiveness

People in many cultures have been practicing meditation. Loving-kindness meditation (LKM) is a Buddhist technique from the Theradava tradition and involves a deliberate generation of positive emotions and thoughts toward oneself, those who are close, strangers, and even people with whom one has problems (Hofmann et al., 2011). This practice aims to cultivate a higher sense of connectedness and unconditional love to all beings. The interest of psychologists and neuroscientists in understanding the impact of such practices on cognition and behavior is widespread and growing in the literature (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Hofmann et al., 2011; Leung et al., 2012; Tang & Posner, 2013). Many studies have focused on the effect of meditation trainings on mental and physical health, and also on the neural basis of meditation. However, the cognitive mechanisms underlying meditation practices are still poorly understood and the present research represents an attempt to better comprehend them.

Although LKM usually involves an element of conscious direction of positive feelings and thoughts toward people with whom one has had difficulty, to our knowledge no study has experimentally tested whether this type of meditation can actually lead, for example, to an observable increase in forgiveness toward a past transgressor. The main goal of the present study was to test the effect of LKM on forgiveness. We also aimed to test whether this effect would be qualified by an interaction with social connectedness or other individual differences previously identified in the literature as predictors of forgiveness.

Forgiveness and meditation

Forgiveness can be conceptualized as a psychological process of neutralizing negative reactions associated with painful past episodes (Fehr, Gelfand, & Nag, 2010; Thompson et al., 2005). According to some authors (McCullough, Rachal, Sandage, Brown, & Hight, 1998;

McCullough, 2000, 2001), forgiveness is a motivational process through which a victim changes his or her prosocial motivation towards a transgressor, decreasing the likelihood of engaging in behaviors such as the avoidance of contact with and revenge against the transgressor. A central question in the present study is: can a short-term LKM practice promote a change in the prosocial motivation toward a past transgressor? Additionally, is perceived social connectedness a mechanism through which LKM impacts one's forgiveness? Many studies, described below, support our rationale.

LKM and compassion meditation have been found to increase social connectedness (Hutcherson et al., 2008), positive emotions (Fredrickson et al., 2008), prosocial responses (Condon et al., 2013; Kemeny et al., 2012; Weng et al., 2013), and empathy (Wallmark, Safarzadeh, Daukantaitė, & Maddux, 2012), being influential even when practiced for a short period (Hutcherson et al., 2008; Leiberger et al., 2011). Hutcherson et al. (2008) were interested in investigating the explicit and implicit effects of LKM on social connectedness, and they found that LKM increased participants' explicit measure of social connectedness, but they found no effect of it on the implicit measure of social connectedness. Kok et al. (2013) found that social connectedness, as evaluated with an explicit measure, mediated the effect of LKM on a measure of physical health. Using a different meditation technique, another study indicated that mindfulness-training can increase dispositional mindfulness, and this variable, in turn, mediates the effect of this training on well-being measures (i.e., perceived stress, rumination, and forgiveness), although no effect was found for the forgiveness measure (Shapiro, Oman, Thoresen, Plante, & Flinders, 2008). As suggested by some authors (Shapiro et al., 2008; Webb, Phillips, Bumgarner, & Conway-Williams, 2012), this evidence also indicates that the relationship between meditation practices and forgiveness needs further empirical investigation. Given the lack of affective and interpersonal stimulation in mindfulness practices compared to practices such as LKM (Hofmann et al., 2011), and the

evidence described earlier that LKM influences many variables related to prosocial characteristics and responses, one might think that the positive, compassionate, and interpersonal nature of LKM could lead participants to change their prosocial motivation toward past transgressors.

Additionally, if LKM can influence one's forgiveness, this can happen by means of many psychological and affective mechanisms. Social connectedness, empathy, agreeableness, or positive emotions might interact with the relationship between LKM and forgiveness. Past research indicates that social connectedness is an important mediator variable underlying the effects of positive emotions on cognition and behavior (Kok et al., 2013; Mauss et al., 2011). For this reason, we hypothesized that social connectedness would mediate the effect of LKM on forgiveness. Past evidence also indicates that individual differences such as empathy, agreeableness, and religiosity are related to increased forgiveness (Escher, 2013; Fehr et al., 2010; Karremans, Van Lange, & Holland, 2005; McCullough et al., 1998; McCullough, Worthington, & Rachal, 1997; McCullough, 2001) , although, contrary to common sense, the link between religiosity and forgiveness seems less evident (Davis, Worthington, Hook, & Hill, 2013; Fehr et al., 2010).

Considering this evidence, we also tested alternative mechanisms through which LKM could influence forgiveness – whether the effect would interact with empathy, agreeableness, or religiosity and then produce a significant change in forgiveness. Participants higher in empathy, agreeableness, or religiosity would already be more prone to forgive, independent of experimental manipulations, because these variables are significant predictors of higher forgiveness, so we could expect a moderation effect in which low levels of these variables would be related to stronger effects, while high levels of them would be related to weaker effects. A final possibility still weakly explored in the literature is whether the quality of the meditation experience moderates the level of influence of LKM on the dependent measures,

and we also examine this in the present experiment. This might be an especially important variable in the case of short-term mental trainings and less experienced participants, therefore we measured it and evaluated its importance.

In sum, the research reviewed here shows that: LKM influences many variables related to one's prosocial tendencies and responses; LKM increases social connectedness; and social connectedness has been shown to mediate different effects of LKM. Considering this, we formulated two hypotheses to be tested in the present experiment: participants in the LKM condition would exhibit a higher positive change in their forgiveness compared to participants in the control condition (Hypothesis 1); the effect of LKM on forgiveness will be mediated by social connectedness (Hypothesis 2). The present study offers potential theoretical and practical contributions to different disciplines, as our two main variables of interest, namely meditation and forgiveness, have been of interest to researchers and professionals from social, personality, cognitive, clinical, counseling, and organizational psychology, as well as to researchers from neuroscience and anthropology (Fehr et al., 2010). The evaluation of the effect of LKM on forgiveness and the mechanism through which such mental training might affect forgiveness represents the main theoretical contribution to these fields.

Present study

To test our two hypotheses, we designed an experiment with two experimental conditions (LKM x control). We reasoned that LKM would have a direct effect on forgiveness, but that an indirect effect through social connectedness would also be observed. As the evidence reviewed earlier indicated, we expected that higher social connectedness resulting from the LKM training would be associated with a higher effect of LKM on forgiveness. Also considering previous evidence, many variables could interact with the effect of LKM on forgiveness, such as one's level of empathy, agreeableness, current mood,

religiosity, and quality of meditation practices. We tested these alternative explanations in the present experiment.

Method

Participants

In the initial online part of the study, 136 undergraduate students at a Brazilian university took part in the study in exchange for course credits. However, only 108 participants (76 women; $M_{\text{age}} = 19.19$; $SD = 9.89$) participated in the second part of the study in which the experimental manipulation occurred. Given that the study had these separate parts, only the participants who completed the second part comprised the final sample. Regarding skin color, the sample was mainly composed of whites (66 white, 10 black, 37 brown, 2 yellow). Catholic and having no religion were the main self-reported religious affiliations (21 Catholics, 11 Protestants, 12 Spiritualists, 5 Atheists, 4 Agnostics, 22 declared not having a religion, 3 Buddhists, 1 African-Brazilian derived religion, 1 declared “other” and 28 did not report any kind of religious affiliation due to technical problems with the software used in the data collection).

Instruments and materials

Meditation practice. Our experimental manipulation consisted of two different guided mental practice audio files for two independent groups: the loving-kindness condition and the mental imagery control condition. The audio files for the LKM condition were based on guided LKM used in previous research (Hutcherson et al., 2008) with the addition of a section in which participants were instructed to imagine a person who hurt, disappointed, or mistreated them in the past and left them very hurt. Then participants were instructed to direct love and warmth toward that person and to silently wish they were well, happy, and free from any mental or physical pain (see Appendix B and C for the instructions of the task in each condition). Gender and skin color of the person in the pictures were the same as those of the

participants. In the control condition, participants practiced a very similar imagery training, in which they should think of, and mentally visualize, various aspects of these people, such as the clothes they were wearing. The reflection directed to the picture of an unknown person, on the computer screen, focused only on visual aspects as well. The imagery condition allowed us to control for the possible effects of relaxation and cognitive activity.

Forgiveness. Our measure of forgiveness was based on commonly used measures in the forgiveness literature (Allemand, 2008; Brown, 2003; McCullough et al., 1998). We adapted items from measures used in these previous studies to evaluate current forgiveness toward a specific transgressor, as no measure of it was identified. Participants were first asked to remember a specific situation in which somebody hurt, offended, or treated them in an unjust manner. They were asked to remember something really bad that somebody did to them and something done by a person with whom they would have difficulty in forgiving today. Participants were also requested to report: when the situation happened, using a continuous time scale from their birth to the present; what was the relationship they had with that person at that time, by choosing one option of a multiple choice question (i.e. relative, romantic partner); and to type in a text box a detailed anonymous description of what happened and their feelings in that situation. This information was requested in order to increase their memory accessibility to the details of the problematic situation, which would make their responses more realistic, and to obtain evidence that they really retrieved a specific episodic memory of their lives with emotional relevance to them. This information would also allow us to analyze whether the temporal distance from the situation and the type of relationship with the problematic person influenced forgiveness. Finally, six items associated with five-point scales indicated the willingness of participants to forgive the person (e.g., “Today I feel capable of forgiving this person”; “Today I forgive this person for what he/she did to me.”). The scales ranged from 1 (*does not describe me well*) to 5 (*describes me very*

well) and showed satisfactory reliability (test retest reliability: $r = .78, p < .001$) (see Appendix D for the scale instructions and items). These, and all of the other reliability indicators presented below, are related to the present data.

Explicit measure of social connectedness. Based on previous work (Hutcherson et al., 2008), we used an explicit measure of social connectedness. Participants had to respond to four items (e.g., “I feel connected to this person”; “I feel similar to this person”) using a five-point scale ranging from 1 (*does not describe me well*) to 5 (*describes me very well*) to indicate their perceived social connectedness toward three different faces of people of their own skin color and gender, presented in different photos. One of them was the same as the one presented in the meditation/imagery stage. Each face was presented separately on a computer screen, and after participants indicated their perceived social connectedness toward the person in the picture, another face was presented, and so on until the third picture was presented. Both the pre- and post-test measures showed acceptable reliability (test retest reliability: $r = .76, p < .001$).

Implicit measure of social connectedness. Hutcherson et al. (2008) used a priming task to measure social connectedness and found no evidence of the effect of LKM on this dependent measure. One possibility is that this might be due to procedural and psychometric limitations of the task itself, as there is evidence that, among implicit measures, the evaluative priming task exhibits lower validity and reliability compared to, for example, the Implicit Association Test (IAT) (Bar-Anan & Nosek, in press). For this reason, we believe that the development of an IAT measuring social connectedness can be an important contribution to the investigation of implicit structures and processes underlying meditation practices. To accomplish this, a personalized implicit measure of social connectedness was created based on previous research (Hutcherson et al., 2008). We adapted the script version of a personalized Implicit Association Test (IAT) available at the Millisecond software website.

The main categories used to classify the stimulus in the task were *unknown* and *known*; and the attributes were *positive* and *negative*. The same photos of faces used in the explicit measure of social connectedness were used as the stimuli of the *unknown* category. We also added a fourth picture to increase the number of stimuli that could be selected by the software, as an IAT makes use of a higher number of stimuli for each category and attribute. The stimuli for the *known* category were provided by the participants themselves in the initial part of the task. They were instructed to type, in the following order, only the first name of their mother, father, grandmother, and grandfather. Stimuli for the attribute categories were eight positive words (e.g., freedom, happiness, peace, vacation) and eight negative words (e.g., misery, tragedy, death, illness) with similar levels of valence and arousal (Hutcherson et al., 2008; Oliveira, Janczura, & Castilho, 2013). The D measure, calculated as recommended in the literature (Greenwald, Nosek, & Banaji, 2003), would indicate the degree to which participants implicitly associated positive and negative words to known and unknown others.

As LKM is supposed to increase one's general perceived social connectedness and unconditional love toward all beings, a high and negative D would indicate a high implicit positive evaluation of unknown people compared to known people. In contrast, a high and positive D would indicate a high positive evaluation of known people compared to unknown people. We expected that participants in the LKM condition would exhibit a more negative D in the post-test compared to participants in the control condition, as their increased perceived social connectedness would imply a more positive evaluation of unknown people. The pre- and post-test measures exhibited acceptable reliability (test retest reliability: $r = .93, p < .001$).

Empathy. We measured individual differences in empathy with the interpersonal reactivity index (IRI) (Davis, 1983; Sampaio & Menezes, 2011). The instrument is composed of 26 items (e.g., “I try to understand my friends imagining how they see things”; “I put myself in the place of the other if I worry about him”) associated with five-point scales

ranging from 1 (*does not describe me well*) to 5 (*describes me very well*) that captures four dimensions of empathy: fantasy ($\alpha = .63$); empathic concern ($\alpha = .87$); personal distress ($\alpha = .79$); and perspective taking ($\alpha = .71$).

Agreeableness. We used the shorter form of the agreeableness subscale from the Big Five (Goldberg, 1992; Hauck Filho, Machado, Teixeira, & Bandeira, 2012) to measure individual differences in prosocial orientation. Participants had to indicate whether five different characteristics (e.g., comprehensive, sympathetic, loving, kind, good) described them well using a five-point scale ranging from 1 (*not at all*) to 5 (*very much*) for each characteristic. A principal components analysis showed that the "comprehensive" item did not correlate with the other four items, and so an agreeableness index was computed to aggregate only the other four characteristics (factor loadings varying from .40 to .80; $\alpha = .74$).

Religiosity. The Duke religious index (DUREL) (Koenig & Büssing, 2010; Taunay et al., 2012) was used to measure participants' degree of religiosity. The instrument is composed of five items, two of them asking participants to describe frequencies of behaviors related to their religions (e.g., How frequently you go to churches, temples, or a religious meeting?) and three of them related to religious beliefs and commitment (e.g., In my life I feel the presence of God (or the Holy Spirit)). We calculated one index of religiousness by aggregating the responses to the items (factor loadings varying from .81 to .92; $\alpha = .90$).

Mood. Similarly to previous research (Carvalho et al., 2013; Hutcherson et al., 2008), participants reported their mood according to four dimensions of positive (e.g., calm, happy, cheerful, satisfied) and negative (e.g., anxious, unhappy, down, unsatisfied) mood using a version of the Positive and Negative Affect Schedule (PANAS) associated with a visually continuum scale of one-hundred points. This scale was used to make it easier for participants to indicate their approximate mood, as more constrained scales might make it harder for participants to be precise and confident in their subjective estimates of their feelings. We

computed one index of positive mood (test retest reliability: $r = .79, p < .001$) and one of negative mood (test retest reliability: $r = .76, p < .001$). The “calm” and “anxious” dimensions were not included in these aggregate values, as a principal components analysis revealed that both exhibited low correlations with the other dimensions.

Quality of the meditation experience. Studies about loving-kindness meditation do not usually attempt to measure the quality of the meditation practices, even though it probably varies considerably between participants and might interfere with the influence of meditation. Participants described their experience during the meditation practices by responding to four items (e.g., “I was not able to concentrate myself during the meditation”; “I found it easy to meditate”; “I was able to fully follow the instructions given in the audio”) using five-point scales ranging from 1 (*does not describe me well*) to 5 (*describes me very well*) (see Appendix E for the scale instructions and items). One index of meditation quality was computed, and exhibited acceptable reliability (factor loadings varying from .71 to .84; $\alpha = .67$). One item exhibited a low correlation with the rest of the items and was not included in the calculation of this meditation quality index. We also used a socio-demographic questionnaire to measure participants’ age, gender, skin color, and previous experience with meditation.

Procedures

The study had two steps. In the initial online step, participants were invited via email to participate in a study about attention that would involve two parts. First, participants would answer an online questionnaire and then, in the final laboratory step, they would go to a laboratory room and be randomly assigned to practice LKM or the imagery exercise. As soon as participants answered the questionnaire of the first step, we contacted them and tried to schedule a meeting to finish the study. In the first step, participants read and agreed to an informed consent statement. Participants were informed that the research was anonymous, voluntary, and that they could stop their participation at any time they wished. Then they

provided their cellphone number, which was used as a code for later database keying, their skin color, and gender, and responded, in the following order, to the IRI, agreeableness scale, forgiveness scale, socio-demographic questionnaire, and DUREL. Participants finished the first step in approximately 20 minutes. In the final laboratory step, participants were asked to sit in front of a computer in a laboratory room and respond to the following instruments and materials: pre-test implicit measure of social connectedness, pre-test explicit measure of social connectedness, pre-test mood, meditation practices, post-test mood, quality of meditation, forgiveness scale, post-test implicit measure of social connectedness, post-test explicit measure of social connectedness. This step usually took from 25 to 30 minutes to be completed. All the instruments and materials were presented using a combination of EFS Survey and Inquisit software.

Results

Participants exhibited a medium level of easiness with the meditation practices ($M = 3.59$; $SD = .96$) and no statistically significant difference was observed between participants in the two conditions. Participants who reported having any previous experience with meditation didn't differ from participants without previous experience regarding the main dependent measures. A series of t-tests with the experimental condition as the independent variable and the pre-test measures as the dependent variables indicated that there was no statistically significant difference between groups regarding the pre-test measure of forgiveness, explicit social connectedness, implicit social connectedness, positive mood, or negative mood. Religiosity did not correlate significantly with either the explicit or implicit measures of social connectedness. For the purpose of testing Hypothesis 1 and evaluating the direct effect of LKM on previous dependent measures (Hutcherson et al., 2008), a repeated-measure analysis was performed including as independent variable the experimental condition and as repeated measures the following variables: forgiveness, explicit measure of social

connectedness, implicit measure of social connectedness, positive mood, and negative mood.

Means and standard deviations associated with this analysis are presented in Table 3.

Table 3

The Influence of Loving Kindness Meditation on the Dependent Measures

Measure	Loving-kindness (N = 54)	Control (N = 54)
Forgiveness		
Pre	3.49 (1.09)	3.77 (1.05)
Post	4.00 (.90)	3.95 (.94)
Implicit connectedness		
Pre	.83 (.36)	.91 (.29)
Post	.69 (.32)	.76 (.35)
Explicit connectedness		
Pre	1.51 (.69)	1.42 (.60)
Post	1.87 (1.10)	1.45 (.58)
Positive mood		
Pre	49.73 (14.85)	54.08 (16.42)
Post	53.46 (16.03)	53.21 (16.42)
Negative mood		
Pre	24.30 (17.97)	20.98 (17.05)
Post	18.63 (16.55)	19.47 (16.54)

Note: Standard deviations are in parenthesis.

Participants in the LKM condition showed a significant increase in their willingness to forgive a specific transgressor compared to participants in the control condition, $F(1,104) = 6.70, p = .011, \eta_p^2 = .06$. Participants from both conditions became slightly more positive toward unknown people, as indicated by a decrease in the value of D, but no statistically significant difference between groups was identified. A significant, higher positive change in

explicit social connectedness was observed among participants in the LKM condition ($F(1,104) = 9.42, p = .003, \eta_p^2 = .08$) compared to participants in the control condition. Participants significantly differed between conditions regarding positive mood, $F(1,104) = 4.32, p = .040, \eta_p^2 = .04$, and marginally so regarding negative mood, $F(1,104) = 3.12, p = .080, \eta_p^2 = .03$. Participants in the LKM condition showed a higher increase in positive mood and higher decrease of negative mood after the experimental manipulation compared to participants in the control condition.

Hypothesis 2, which predicted that social connectedness would mediate the effect of LKM on forgiveness, was tested by means of the PROCESS tool for SPSS (Hayes, 2012). We performed the mediation analyses considering only the explicit measure of social connectedness, as the previous analysis indicated that the implicit measure was not influenced by the experimental condition. To perform the following analyses, we subtracted all of the post-test measures from the pre-test measures, related to the repeated measures (e.g., forgiveness, explicit measure of social connectedness, and positive and negative mood) and used this score as an index of change in the measure after the experimental manipulation. No significant indirect effect of LKM on forgiveness through the explicit measure of social connectedness was identified, $b = -.044$, BCa CI $[-.166, 0.045]$, representing a small effect, $\kappa^2 = .032$, 95% BCa CI $[0.001, 0.109]$. Empathy, agreeableness, religiousness, temporal distance from the reported episode, type of relationship with the problematic person, positive and negative mood, and meditation quality were tested as moderators of the effect of LKM on forgiveness, also using the PROCESS tool for SPSS. This tool allowed us to run a series of regressions evaluating the level to which forgiveness would be predicted by the experimental condition, the moderation variable, and their interaction. Results from the regressions indicated that none of the variables interacted significantly with the experimental condition to predict forgiveness.

Discussion

In the present experiment, a short-term LKM practice increased participant's forgiveness compared to participants that practiced an imagery exercise. We aimed to evaluate if the cognitive basis underlying this effect would be related to changes in one's perceived social connectedness, but we found no evidence that social connectedness mediates this effect. Finally, empathy, agreeableness, religiousness, temporal distance from the reported episode, type of relationship with the problematic person, positive and negative mood, and quality of the meditation experience did not significantly interact with the effect of LKM on forgiveness, in spite of their reported associations with forgiveness (Fehr et al., 2010; McCullough, 2001). As none of these variables predicted one's forgiveness, our results highlight the potential use of LKM in psychotherapy interventions with individuals characterized by many different patterns of individual differences, although the comprehension of the actual impact of these kinds of interventions demands further investigation. Future research might indicate the usefulness of using simple mental practices such as the LKM to generate even short-term cognitive restructuring and consequently benefitting patients suffering from difficulty in forgiving (e.g. post-traumatic stress disorder).

We found evidence in favor of the generalizability and replicability (Asendorpf et al., 2013) of the effects of LKM on the explicit measure of social connectedness found in previous research (Hutcherson et al., 2008). We did not find a significant effect of LKM on the implicit measure of social connectedness. Similarly, Hutcherson et al. found no effect of LKM on implicit social connectedness toward unknown people. Considering the fact that the IAT has demonstrated increased psychometric qualities compared to other implicit measures (Bar-Anan & Nosek, in press), our development of a social connectedness IAT, and the attempt to identify implicit effects of LKM, is a relevant contribution to the field, and our results also might be an indication that changes in social connectedness at the implicit level

may require long term meditation practices. In one study in which participants practiced LKM for a more prolonged period, participants exhibited a change in their implicit attitudes toward unknown members of stigmatized groups (Kang et al., 2014). One important direction for future studies is to evaluate the effects of LKM on implicit social connectedness by means of a more prolonged practice of LKM.

The present study has some limitations. Among others, we tested the effect of a short-term meditation exercise on forgiveness, although the future evaluation of a more extensive training in LKM would be more conclusive regarding the magnitude with which this mental training can affect forgiveness. We also did not evaluate the durability of the effect of LKM on forgiveness, a finding that has presumable importance for future psychotherapy interventions (Hofmann et al., 2011). Also, no direct instruction was given to participants regarding who they should think about in the final part of the LKM practice.

Future research could test whether the effect is stronger when participants are explicitly asked to think about a particular person who harmed them, and then the forgiveness measure has as its target this same person. Also, more studies are necessary to evaluate the cognitive mechanisms that might underlie this effect, as we found no evidence for the variables tested in the present study. Despite these limitations, this is the first study to our knowledge to demonstrate empirically that even such a short term LKM practice can increase forgiveness, and that social connectedness did not mediate this effect. The understanding of the cognitive and affective mechanisms through which LKM increases forgiveness deserves more investigation in the future because they may help to plan more effective ways in which LKM can sweeten bitterness.

General discussion

The aim of the present work was to produce initial evidence of the relationships between social connectedness, religiosity, and morality. Our interest in morality was focused

mainly on moral judgment and forgiveness. Two studies were designed to investigate the relationship between religiosity and moral judgment (Study 1) and the effect of social connectedness on forgiveness (Study 2). The results from Study 1 showed that religiosity can predict the severity of moral judgment and that, although a statistically significant difference in the severity of the moral judgments could be observed between religious and non-religious participants, this difference was not very large. Additionally, Study 2 indicated that even a brief experience of social connectedness can increase forgiveness.

Both of these studies showed that religiosity was not a strong predictor of the dependent variables. Religiosity was only a significant predictor of moral judgment, albeit with a low magnitude (Study 1), and did not correlate with any of the measures of social connectedness (Study 2). Considering the evidence that much of the religious motivation in moral behavior is related to impression management concerns (Norenzayan & Shariff, 2008; Preston et al., 2010) and not with compassion and other prosocial mechanisms (Saslow et al., 2013), these results indicate that religiosity may not be an important variable for understanding the relationships between social connectedness and morality, at least with Brazilian samples. Another possibility is that religiosity, as it has been conceptualized and measured, might not be a predictor of moral behavior, but other measurements could show different patterns of prediction (Jackson & Bergeman, 2011; Reutter & Bigatti, 2014; Zavala et al., 2012), and future studies should explore alternative measures of religiosity.

Finally, although this study has tested the relationship between religiosity, which is presumed to be an important source of social connectedness, and moral judgments, this study still did not directly test how social connectedness is related to moral judgments. Study 1 was a necessary first step to explore whether religiosity was an important interacting variable to be included in theoretical models relating social connectedness with moral variables such as moral judgment. Considering the present evidence from studies 1 and 2, religiosity should be

furthered explored before being included as a moderator in a model (Preacher, Rucker, & Hayes, 2007)

In Study 2, social connectedness influenced the prosocial motivation of participants toward moral transgressors, which indicate that feeling socially connected can indeed affect even the moral inclinations that one has with people that harmed them, as is assumed in the Theravada tradition. Individual differences in social connectedness did not mediate the effect of LKM on forgiveness, which is contradictory with past research (Fredrickson et al., 2008; Kok et al., 2013). Nevertheless, we used the same measure of social connectedness as Hutcherson et al. (2008), which is different from the studies that identified an indirect effect of the experimental manipulation on the dependent variable through social connectedness. A more conclusive and robust test of this relationship is necessary in future studies with a longitudinal design, more intensive LKM training, and using the same measures of social connectedness that were used in the previous studies cited above.

The intent of the present thesis was to understand some of the possible relationships between two basic social characteristics of humans: the need for social connectedness and morality. Understanding how these two basic features are related can help us in understanding the workings of human groups and better conceptualize both of these variables. Are individual differences in social connectedness related to different moral tendencies? Can social connectedness predict the severity of moral judgments? Can experiences with social connectedness lead people to have more benevolent and empathic moral evaluations of others? Does group membership affect whether social connectedness is influential in one's moral thinking and behavior (Halabi, Nadler, & Dovidio, 2011; Stürmer, Snyder, & Omoto, 2005)? These are some of the questions that remain unanswered and are triggered and initially informed by the present studies reported in this thesis.

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Appendix A

Moral Judgment Scenarios used in Study 1

Cachorro

O cachorro de Francisco foi morto por um carro em frente à sua casa. Francisco ouviu falar que na China as pessoas costumam comer carne de cachorro e ele estava curioso sobre como era o gosto dela. Então ele cortou o corpo do cachorro, cozinhou e o comeu no jantar. Quão errado é que Francisco coma o seu cachorro no jantar?

Acidente de avião

Seu avião caiu no Himalaia. Os únicos sobreviventes são você, um homem e um menino jovem. Vocês três viajam durante dias lutando contra o vento e o frio extremo. Sua única chance de sobreviver é conseguir chegar a um pequeno vilarejo no outro lado da montanha, a vários dias de distância. O menino tem uma perna quebrada e não pode se mover muito rapidamente. As chances de ele sobreviver à jornada são praticamente zero. Sem comida, você e o outro homem provavelmente irão morrer também. O outro homem sugere que você sacrifique o menino e coma seus restos mortais pelos próximos dias. Quão errado é matar esse menino para que você e o outro homem possam sobreviver à sua jornada em segurança?

Gato

Mateus está brincando com o seu novo gatinho tarde da noite. Ele está vestindo apenas o seu bermudão e o gatinho anda às vezes sobre os seus genitais. Eventualmente, isso excitou Mateus, e ele começa a esfregar os seus órgãos genitais nus ao longo do corpo do gatinho. O gatinho ronrona e parece gostar do contato. Quão errado é que Mateus se esfregue contra o seu gatinho?

Carteira

Você está andando na rua quando se depara com uma carteira caída no chão. Você abre a carteira e descobre que ela contém várias centenas de reais em notas bem como a carteira de motorista do dono. Pelos cartões de crédito e outros itens na carteira, é bem claro que o dono da carteira é rico. Você, por outro lado, tem passado por tempos difíceis recentemente e poderia realmente fazer uso de algum dinheiro extra para si mesmo. Quão errado é para você manter o dinheiro que encontrou na carteira para ter mais dinheiro para si mesmo?

Currículo

Você tem um amigo que tem tentado encontrar um trabalho ultimamente sem muito sucesso. Ele imaginou que seria mais provável que ele fosse contratado se ele tivesse um currículo mais impressionante. Ele decidiu colocar algumas informações falsas no seu currículo para torná-lo mais impressionante. Ao fazer isso, ele finalmente

conseguiu ser contratado, superando vários candidatos que eram realmente mais qualificados do que ele. Quão errado foi o seu amigo colocar informações falsas em seu currículo para ajudá-lo a encontrar emprego?

Trem

Você está no volante de um trem correndo rápido se aproximando de uma bifurcação nos trilhos. Nos trilhos se estendendo à esquerda, está um grupo de cinco trabalhadores ferroviários. Nos trilhos se estendendo à direita, está um único trabalhador ferroviário. O único jeito de evitar as mortes desses trabalhadores é apertar um interruptor no seu painel de instrumentos que irá fazer o trem seguir à direita, causando a morte do trabalhador ferroviário que está sozinho. Quão errado é que você aperte o interruptor para evitar as mortes dos cinco trabalhadores?

Appendix B

Loving-Kindness Meditation (LKM) Script for the Guided Practices

Script	Time
Feche os seus olhos, relaxe	0.00
Dirija a sua atenção suavemente para dentro de você	
Inspire profundamente e expire lentamente	
Inspire novamente de maneira profunda e expire lentamente	
Relaxe todo o seu corpo	
Mais uma inspiração profunda até preencher os seus pulmões, enchendo também a sua barriga, e expire lentamente	
Agora pense em uma pessoa que você gosta muito e que também gosta muito de você	0.45
Imagine essa pessoa em pé ao seu lado, te transmitindo todo o seu amor	
Essa pessoa está te desejando bem-estar e felicidade e está te transmitindo esse desejo	
Você está repleto e transbordando de amor	1.15
Agora pense em outra pessoa que gosta muito de você, de pé ao seu lado	1.30
Esta pessoa está te passando todo o amor que ela sente por você	
Esta pessoa está te desejando saúde, felicidade e bem-estar	1.48
Sinta o amor vindo dessa pessoa	2.01
Todo o seu ser está repleto de amor	2.09
Dirija toda a sua atenção a este sentimento de amor	2.18
Você está recebendo amor de toda parte	2.27
Agora traga a sua mente para outros parentes e amigos seus, que gostam muito de você	2.38
Imagine-os de pé ao seu redor formando um círculo	
Eles estão todos direcionando a você desejos de felicidade	
Sinta o amor vindo a você de todas as partes	3.09

Você está repleto e transbordando de amor	
Agora abra os seus olhos e olhe para a pessoa na fotografia	3.35
Comece a direcionar o seu amor à pessoa na fotografia	3.43
Repita silenciosamente as seguintes frases:	3.55
Que você esteja bem, que você esteja feliz, que você esteja livre de qualquer dor física ou mental	
Que você esteja bem, que você esteja feliz, que você esteja livre de qualquer dor física ou mental	4.05
Dirija todo o seu desejo de bem-estar a esta pessoa na fotografia	4.40
Que você esteja bem, que você esteja feliz, que você esteja livre de qualquer dor física ou mental	4.52
Dirija calor e amor a esta pessoa	
Agora feche os olhos novamente e imagine uma pessoa que te prejudicou no passado. Uma pessoa que te maltratou, que te decepcionou ou te deixou muito chateado.	5.00
Foque o seu pensamento nesta pessoa.	
Dirija a essa pessoa todo o seu amor.	5.40
Dirija calor e amor a esta pessoa.	
Repita silenciosamente as seguintes frases:	6.00
Que você esteja bem, que você esteja feliz, que você esteja livre de qualquer dor física ou mental	
Que você esteja bem, que você esteja feliz, que você esteja livre de qualquer dor física ou mental	
Dirija todo o seu desejo de bem-estar a esta pessoa	
Que você esteja bem, que você esteja feliz, que você esteja livre de qualquer dor física ou mental	6.40
Dirija a essa pessoa todo o amor que foi anteriormente direcionado a você pelas outras pessoas	7:00
Agora você pode relaxar, você terminou a tarefa	7.23
Total	7:30

Appendix C

Control Script for the Neutral Guided Practices

Script	Time
Feche os seus olhos, relaxe	0.00
Dirija a sua atenção suavemente para dentro	
Inspire profundamente e expire lentamente	
Inspire novamente de maneira profunda e expire lentamente	
Relaxe todo o seu corpo	
Mais uma inspiração profunda até preencher os seus pulmões, enchendo também a sua barriga e expire lentamente	
Agora pense em uma pessoa que você não conhece muito bem e em relação à qual você não possui nenhum afeto em particular	0.45
Imagine essa pessoa em pé ao seu lado e pense em como ela pode estar vestida	
Tente pensar nos tipos de postura que essa pessoa pode exibir	1.03
Imagine o tipo de calçado que essa pessoa pode estar usando	1.12
Agora pense em uma outra pessoa que você não conhece muito bem e em relação à qual você não possui nenhum afeto em particular	1.23
Pense também em como essa pessoa pode estar vestida, que tipos de calçado ela pode estar usando	1.36
Nos tipos de postura que essa pessoa pode exibir	1.50
Traga a sua mente cada detalhe dos aspectos da face dessa pessoa	2.00
Seus olhos, nariz, boca, cabelos, sombrancelha	
Visualize com o máximo de detalhe que você conseguir	
Agora pense em outras pessoas que você não conheça muito bem e em relação à qual você não possui nenhum afeto em particular	2.42
Imagine essa pessoa em pé ao seu lado e pense em como ela pode estar vestida	2.56
Tente pensar nos tipos de postura que essa pessoa pode exibir	3.08

Imagine o tipo de calçado que essa pessoa pode estar usando	
Agora abra os seus olhos e olhe para a pessoa na fotografia	3.42
Dirija a sua atenção para essa pessoa e imagine o que ela pode estar vestindo	3.53
Traga à sua mente o tipo de calçado que ela pode estar usando	4.03
O tipo de bolsa ou mochila que esta pessoa pode estar usando	4.15
Imagine com o máximo de detalhe que você conseguir	4.25
Agora foque a sua atenção nos aspectos da face dessa pessoa	4.37
Seus olhos, nariz, boca, cabelo, sombrancelha	4.47
Preste atenção em cada detalhe da face da pessoa	5.27
Agora feche os olhos e imagine uma outra pessoa com a qual você interagiu no passado, mas que não conheceu muito bem e em relação à qual você não possui nenhum afeto em particular também. Foque o seu pensamento nesta pessoa.	5.40
Dirija a sua atenção para essa pessoa e imagine o que ela pode estar vestindo	5.50
Traga à sua mente o tipo de calçado que ela pode estar usando	6.10
O tipo de bolsa ou mochila que esta pessoa pode estar usando	6.20
Imagine com o máximo de detalhe que você conseguir	6.30
Agora foque a sua atenção nos aspectos da face dessa pessoa	6:40
Seus olhos, nariz, boca, cabelo, sombrancelha	6.50
Preste atenção em cada detalhe da face da pessoa	7:15
Agora você pode relaxar, você terminou a tarefa	7.23
Total	7:30

Appendix D

Forgiveness Scale Instructions and Items

Agora, tente se lembrar de um evento no qual alguém te agrediu, ofendeu ou tratou injustamente. Essa pessoa pode ser um estranho, conhecido, amigo ou membro da sua família. Os eventos podem envolver, por exemplo: um assalto, uma agressão física ou verbal, uma briga, uma humilhação, um ato de discriminação ou de deslealdade. Em outras palavras, tente se lembrar de algo muito ruim que alguém lhe fez - algo feito por uma pessoa que, hoje, você teria dificuldade de perdoar. Foque a sua atenção na pessoa que fez isso com você. Assim que se lembrar do evento, responda às questões a seguir.

1. Quando o evento ocorreu? Clique na reta abaixo para indicar há quanto tempo aproximadamente ocorreu o evento que você se lembrou. A reta representa o período desde o seu "nascimento" até "hoje", sendo que quanto mais à esquerda você clicar na reta, mais perto do seu nascimento o evento ocorreu, e quanto mais à direita, mais recentemente ele ocorreu.
2. Qual era a sua relação com a pessoa na época em que o evento ocorreu?
3. Digite na caixa de texto abaixo uma descrição do evento lembrado e da pessoa envolvida. Foque-se nos principais detalhes do evento. Lembre-se que essas informações são confidenciais e anônimas. Para aumentar a caixa de texto, clique e arraste a parte inferior à direita da caixa.

Responda os itens a seguir considerando a pessoa envolvida no evento que você descreveu na última página.

Enquanto responder os itens, tente se focar na pessoa que te agrediu, ofendeu ou tratou injustamente. É importante que você tente ser o mais sincero possível quanto às suas emoções, motivações e desejos em relação à essa pessoa.

1. Hoje, eu desejo que coisas ruins aconteçam com essa pessoa.
2. Hoje, eu não guardo ressentimentos dessa pessoa.
3. Se eu tivesse uma oportunidade, eu me vingaria dessa pessoa.
4. Hoje, eu perdoo essa pessoa pelo que ela fez a mim.
5. Hoje, eu sinto raiva dessa pessoa.
6. Hoje, eu me sinto capaz de perdoar essa pessoa.

Appendix E

Quality of the Meditation Scale Instructions and Items

Os itens a seguir visam avaliar como foi a sua experiência de meditação durante esse estudo. Tente responder o mais sinceramente possível quanto a como foi seguir as instruções dadas no áudio. Não existe uma maneira desejada ou indesejada de se sentir em relação à esta meditação. Pessoas diferentes se sentem de maneiras diferentes em relação a ela, por isso contamos com a sua espontaneidade na resposta aos itens abaixo. Responda usando as escalas abaixo dos itens.

1. Consegui seguir plenamente as instruções dadas no áudio.
2. Fiquei com sono durante a meditação.
3. Não consegui me concentrar durante a meditação.
4. Consegui entender plenamente as instruções dadas no áudio.
5. Tive facilidade para meditar.