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ORIGINAL PAPER

Appreciative Joy in Buddhism and Positive Empathy in Psychology: How Do They Differ?

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Abstract Appreciative joy, as one of the four immeasurables in Buddhism, refers to feeling happy for people, and it is cultivated by appreciative joy meditation (AJM). There is a debate regarding whether appreciative joy is conceptually the same as positive empathy (empathy for others' positive experiences); thus, this report empirically tests the similarities and differences between appreciative joy and positive empathy. Study 1 recruited a sample of 317 general participants using an online survey and evaluated the similarities and differences between the Appreciative Joy Scale (AJS) and the Positive Empathy Scale (PES) on the outcome variables of altruism, envy, and subjective well-being. Confirmatory factor analyses showed that the AJS and PES were independent of one another, and hierarchical multiple regressions indicated that AJS accounted for more variances on altruism than the PES. Study 2 recruited 119 participants in an experiment in a laboratory setting and compared the effects of AJM and the psychological operation of positive empathy in a matched setting on self-reported emotions and interpersonal attitudes. The analysis of variance (ANOVA) demonstrated that AJM generated significantly more other-focused positive emotions (e.g., love) in comparison with the positive empathy condition. These two studies supported that the concept and psychological operation of positive empathy differ from appreciative joy and AJM in Buddhism. In particular, the results in terms of altruism and other-focused positive emotions supported the conceptual analysis that appreciative joy directly involves kind intentions toward the target, whereas positive empathy does not necessarily do so.

Keywords Appreciative joy · Sympathetic joy · Empathic joy · Positive empathy · Muditā · Loving-kindness meditation · Four immeasurables · Buddhism · Altruism · Envy

Introduction

While mindfulness meditation has been widely studied in psychological research, other Buddhist meditations and relevant concepts are now beginning to receive increasing attention (Rosenzweig 2013). Buddhism cultivates a group of four prosocial attitudes toward all beings that are widely known as the "four immeasurables" (FIs). The FIs are (1) mettā, which translates as loving-kindness and indicates friendliness; (2) karuṇā, which translates as compassion or a willingness to stop the suffering of the distressed; (3) muditā, which translates as appreciative joy or sympathetic joy and refers to feeling happy for others; and (4) upekkhā, which translates as

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equanimity and refers to an attitude of calm based on Buddhist wisdom (Kraus and Sears 2009; Zeng et al. 2015). In Buddhism, the FIs are cultivated by a group of four meditations, the "four immeasurable meditations" (FIMs). The core psychological operations of the FIMs are described as generating certain FI toward the imagined target(s), and various additional psychological operations such as silently repeating phrases of a blessing or imagining golden light emanating from oneself to the target are widely used in different traditions (Zeng et al. 2017). Detailed loving-kindness meditation cultivates loving-kindness and blesses a target in general manners such as "May you be happy" and "May you be safe." Compassion meditation specifically imagines a target's suffering and blesses that target with sentences such as "May you be free from suffering" to cultivate compassion. By contrast, appreciative joy meditation (AJM) imagines a target's success or happiness and blesses that target with sentences such as "May you not lose what you gain" or "May you gain more in the future" to cultivate appreciative joy. Equanimity meditation rephrases sentences such as "He (she) bears his (her) own karma" to cultivate an attitude of calm (Zeng et al. 2017).

Empirical studies on the FIMs have grown rapidly in recent years (Galante et al. 2014). A series of studies showed the effects of the FIMs on positive emotions (see Zeng et al., 2015) and prosocial attitudes (e.g., Hutcherson et al. 2008); FIM interventions also have wide applications for various clinical problems (see Shonin et al. 2014). However, most studies on FIMs have focused on loving-kindness meditation or compassion meditation or mixed all four FIMs together in interventions; focused studies on AJM or equanimity meditation are scant (see Zeng et al. 2017). To our knowledge, the only study focused on AJM thus far is the study that compared a one-shot practice of AJM and compassion meditation in a laboratory setting (Zeng et al. 2017). This study showed that AJM and compassion meditation had different effects on emotional experience, which supported scholars' arguments that four FIMs, as well as the concepts of FIs, should be differentiated in psychological studies (e.g., Zeng et al. 2013; Shonin et al. 2014).

Similar to the few empirical studies on AJM, the empirical investigation on the concept of appreciative joy are in nascent stages, and currently, there is a debate on the concept of appreciative joy. Some scholars considered appreciative joy in Buddhism to be essentially the same as "positive empathy" (Morelli et al. 2015; Yue and Huang 2016) or "empathic joy" (Light et al. 2015; Morelli et al. 2015) in psychological literature, which has been defined as "perceiving another person's positive affect, activating a similar positive affective state in the observer" (Telle and Pfister 2016, p. 155). However, another group of researchers has argued that appreciative joy in Buddhism is feeling happy for others and is essentially a process of "sympathy" (Wispé 1986), which is a manner of relating from one's own position, as opposed to "empathy," which is a manner of knowing from the target's position (Zeng et al. 2016). These authors have illustrated that laboratory-based studies on positive empathy asked whether the emotions of the targets had "rubbed off" on participants (e.g., Light et al. 2015), whereas AJM is blessing others from one's own position, as introduced above. They also noted that the Positive Empathy Scale measured empathy (e.g., "If I do not understand why someone is excited, I try to put myself in their shoes and understand what they are thinking and feeling"; Morelli et al. 2015), whereas the Appreciative Joy Scale emphasized "feeling happy for others" (e.g., "I would be sincerely happy for my friends' achievements"; Zeng et al. 2016).

Although the above-mentioned study illustrated the potential conceptual difference between appreciative joy and positive empathy (Zeng et al. 2016), no study has empirically differentiated these two concepts. Because these two concepts are quite similar, with both involving responding with joy to others' happiness or success, it is important to empirically differentiate these two concepts with available measurements (i.e., scales) and relevant paradigms (e.g., laboratory experiments). With such empirical differentiation, appreciative joy and positive empathy should be treated as different concepts in future studies.

Appreciative joy and positive empathy may be differentiated by variables in terms of prosociality, including kind intentions toward others. Previous studies have noted that appreciative joy is caused by the fact that people are happy or successful. In other words, one considers others' happiness or success to be positive events. Appreciative joy, as one of the FIs, directly involves one's kindness toward others. By contrast, positive empathy is understanding or generating the same happiness enjoyed by others; conceptually, positive empathy does not emphasize kindness toward the targets as appreciative joy does but shares the positive emotion experienced by others (Zeng et al. 2016). Researchers proposed a theoretical model for the relation between positive empathy and prosocial behavior in which the empathy of others' positive affects triggers mood maintenance motivation, which in turn facilitates prosocial behavior that leads to positive emotions (Telle and Pfister 2016). Positive empathy does not directly involve kindness to targets of positive empathy in this model. Thus, although positive empathy is correlated with prosociality in daily life, as empirical studies have observed (see Morelli et al. 2015), one may assume that appreciative joy is more closely related to altruism in daily life and that AJM generates more prosocial emotions than the psychological operation of positive empathy.

Another potential variable that differentiates appreciative joy from positive empathy is envy. Envy is an unpleasant emotion that occurs when comparing oneself unfavorably with others, and envy is characterized by the ill will felt toward the envied, such as diminishing others' advantages or destroying the good things that other people have (see Smith

and Kim 2007). Appreciative joy and envy are opposite reactions to seeing others' success. Appreciative joy involves positive emotions and prosocial intentions, whereas envy involves negative emotions and antisocial intentions. In fact, Buddhism notes that the function of appreciative joy and the purpose of AJM are to reduce envy (Bodhi 2012, p. 90). Positive empathy is not as closely related to envy in concept, and current studies on positive empathy do not focus on envy (see Morelli et al. 2015). Thus, appreciative joy is assumed to have a stronger negative relation to or more effect on envy than on positive empathy.

Additionally, emotional experiences are also worth exploring when comparing appreciative joy and positive empathy. Both appreciative joy and positive empathy have been observed to be associated with higher subjective well-being, which comprises life satisfaction and positive emotions (see Morelli et al. 2015; Zeng et al. 2016). Because the causal relations and underlying mechanisms have not been clarified (see Zeng et al., 2016), it is difficult to predict which concept should be more closely linked to subjective well-being. Nevertheless, the current study explored their differences in predicting subjective well-being with the expectation that appreciative joy would be more closely linked to subjective well-being because of reported correlations with life satisfaction in previous studies (approximately .40 for appreciative joy, Zeng et al. 2016; .24 for positive empathy, Morelli et al. 2015). Furthermore, appreciative joy and positive empathy may be different in other emotional aspects in addition to valence (i.e., positive). For example, because emotional experiences during positive empathy should largely follow the emotional status of targets, positive empathy may share people's pride or excitement in success. In sum, we attempted to differentiate between appreciative joy and positive empathy in terms of prosociality, envy, and emotional experience.

Study 1

Introduction

Measurements for appreciative joy (Zeng et al. 2016) and positive empathy (Morelli et al., Positive empathy: Its structure and relation to prosociality, social connection, and well-being, unpublished manuscript) in daily life have recently been developed. Study 1 used these scales to differentiate appreciative joy from positive empathy. Appreciative joy and positive empathy should correlate positively with one another because the two are similar; however, appreciative joy and positive empathy should also be two separate but correlated constructs rather than one construct in confirmatory factor analysis (CFA) because these two concepts are distinguishable. Furthermore, it was expected that appreciative joy would be more closely related to prosociality, envy, and subjective well-being than to positive empathy. Thus, the key hypotheses in study 1 were (1) in CFA, the model that considers appreciative joy and positive empathy to be separate variables will fit better than the model that considers the two concepts to be one variable and (2) in hierarchical multiple regressions, appreciative joy has a greater incremental explained variance on trait altruism (as an indicator of prosociality), dispositional envy, and subjective well-being than on positive empathy.

Method

Participants

A sample of 317 general Chinese-speaking participants from mainland China (mean age = 31.27, SD = 6.50, 190 females) were recruited using an online sample service company. Of the participants, 237 (74.8%) declared no religious belief, 56 (17.7%) reported a belief in Buddhism, and 24 (7.6%) reported a belief in other religions.

Procedure

The data were collected by an online sample service, and the online survey was packaged in the order of the Satisfaction with Life Scale (SWL), Positive Affect and Negative Affect Scale (PANAS-C), Appreciative Joy Scale (AJS), Positive Empathy Scale (PES), Dispositional Envy Scale (DES), and Sub-dimension of Altruism (SOA) (see below). The consent form was attached to the first page of the survey; however, no signatures were collected. As a way of quality control, the sample service only provided cases that completed the survey in more than 280 s. The research team did not further exclude any data after the data were obtained from the sample service company. There was no missing data because all items were forced answer.

Measures

The AJS measured the concept of appreciative joy in Buddhism, and its Chinese version was validated (Zeng et al. 2016). The AJS comprised 14 items scored from 1 (not at all like me) to 9 (totally like me). The items were categorized into three dimensions: "sense of joy" (a subjective feeling of joy, five items, e.g., "I would be sincerely happy for others' achievements"),"positive interpersonal bias" (appreciative joy for others' small successes or virtues, five items, e.g., "I can always notice the many little kind acts performed by others"), and "self-transcendence" (appreciative joy when one is suffering or inferior to others, four items, e.g., "I can still be happy for my friends' good fortune even if I am having bad luck"). To be comparable with the Positive Empathy Scale, the current study replaced "friends" in the original AJS with "others" and adjusted the instructions accordingly. The structure of the AJS was deemed fit by CFA

(details available upon request), and the alpha coefficient for the three dimensions ranged from .847 to .900 in the current study. Because the three dimensions of AJS were highly correlated (.808 to .844), the total score of AJS was used in the analysis.

The PES measured the concept of positive empathy (Morelli et al., unpublished manuscript). This scale comprised seven items scored from 1 (does not describe me at all) to 5 (describes me very well). It was reported that PES had good reliability and validity; for example, it was positively correlated with negative empathy (e.g., empathy of others' sadness), perspective taking, positive affect, extraversion, and agreeableness and was uncorrelated with irrelevant constructs, such as social desirability (see Morelli et al. 2015). The English version was translated into Chinese by two PhDs in psychology from the USA and Canada and then back-translated by two PhDs in psychology in Hong Kong. The first author took charge of any discrepancies in the translation. The structure of single dimension was deemed fit by CFA (details available upon request), and the alpha coefficient was .825 in the current study.

The SOA was extracted from NEO Personality Inventory-Revised (NEO-PI-R) (Costa and MacCrae 1992) to measure trait altruism. The SOA comprises eight items scored from 1 (does not describe me at all) to 5 (completely describes me). The Chinese version of NEO-PI-R was well validated and is widely used (Yang et al. 1999), and the alpha coefficient of the SOA is .793 in the current study.

The DES (Smith et al. 1999) measures trait envy. This scale comprises eight items scored from 1 (strongly disagree) to 5 (strongly agree). Its Chinese version exhibits good reliability and validity (Guo et al. 2013), and the alpha coefficient in the current study is .907.

The SWL (Diener et al. 1985) measures traits such as satisfaction with life. This scale comprises five items scored from 1 to 7 points. The SWL has been widely used, and its Chinese version exhibits good validity (e.g., Zeng, Li, et al. 2015). The alpha coefficient in the current study is .887.

The Chinese PANAS-C measures the frequency of positive experiences (eight items) and negative experiences (six items) during the past month and is scored from 1 (never) to 4 (often) (Chen and Zhang 2004). The PANAS-C has been widely used in many studies in China, and the alpha coefficients in the current study are .863 and .875 for positive and negative experiences, respectively.

Data Analyses

The CFA was conducted by AMOS with maximum likelihood. The fit indexes included the root mean square error of approximation (RMSEA; <0.08 as acceptable fit and <0.05 as good fit; Steiger and Lind 1980), the comparative fit index (CFI; >.90 as acceptable fit and >.95 as good fit; Bentler, 1990),the normed fit index (NFI; >.90 as acceptable fit and >.95 as good fit; Bentler, 1990), the non-normed fit index (NNFI; >.9 as acceptable fit and >.95 as good fit; Bentler, 1990), and standardized root mean square residual (SRMS; <.08 as good fit; Hu and Bentler 1999). Additional chi-squared statistics were used to compare different models. Other statistics were conducted by SPSS 19.0.

Results

As presented in Table 1, positive empathy and appreciative joy had a correlation of .753. Furthermore, confirmatory factor analysis compared two models (see Fig. S1 in Online Resource for details). The first model had two correlated factors, one of which comprised 14 items in the AJS, while the other factor comprised seven items in the PES. The results deemed this model acceptable: RMSEA = 0.059, CFI = .947, NFI = .904, NNFI = .941, SRMS = .040, and chi-squared/degree of freedom (χ^2/df) = 395.069/188 = 2.101. The second model combined all 21 items into one factor. The results for this model were inferior to those of the first model, and its NFI was not acceptable: RMSEA = 0.071, CFI = .922, NFI = .880, NNFI = .914, SRMS = .047, and χ^2/df = 492.662/189 = 2.607. The change in χ^2 between the two models was 97.593 (df = 1, p < .001), which also confirmed that the first model was better than the second model. Additionally, an exploratory factor analysis (EFA) with all 21 items (14 from AJS and 7 from PES) was conducted. The result showed a two-factor structure, with all items of AJS on one factor and five out of seven items of PES on the other factor (see "Exploratory Factor Analysis" in the Online Resources for details of EFA).

As presented in Table 1, appreciative joy and positive empathy had similar correlations with other variables, as both of them positively correlated with life satisfaction, positive emotions, and altruism and negatively correlated with negative emotions and envy. Furthermore, hierarchical multiple regressions were conducted with appreciative joy and positive

Table 1 Correlations between variables in study 1

	AJS	PES	LS	POS	NEG	Envy
PES	.753					
LS	.498	.483				
POS	.491	.496	.688			
NEG	−.440	−.436	−.558	−.660		
Envy	−.473	−.456	−.341	−.501	.652	
Altruism	.601	.538	.322	.460	−.561	−.673

Note: *AJS* Appreciative Joy Scale (total score), *PES* Positive Empathy Scale, *LS* life satisfaction measured by SWL, *POS* positive emotions measured by PANAS-C, *NEG* negative emotions measured by PANAS-C. Envy and altruism were measured by DES and SOA, respectively. All correlations are significant at the level of .01

empathy as independent variables and five other variables as dependent variables. As shown in Table 2, to evaluate the incremental explanation of dependent variables when the other independent variable was controlled, the two independent variables entered the models individually, and their order was exchanged. Both appreciative joy and positive empathy showed significant incremental explanation on all five dependent variables. Notably, appreciative joy provided an 8.9% incremental explanation on altruism, which was considerable because the total variance explained by positive empathy was only 28.9% (model 1). By contrast, appreciative joy could explain 36.1% of altruism, and positive empathy could only provide 1.7% more explanation (model 2). As for the other four dependent variables, all incremental explanations were less than 4.2%. The inclusion of demographic variables or replacing the total score of AJS with three dimensions of AJS did not essentially impact the aforementioned findings. Detailed results are presented in Tables S2, S3, and S4 in the Online Resources.

Table 2 Comparison between appreciative joy and positive empathy in study 1

	LS	POS	NEG	Envy	Altruism
Model 1					
Step 1					
F	96.094	102.571	73.943	82.695	128.296
R^2	.234	.246	.190	.208	.289
β (PES)	.483	.496	−.436	−.456	.538
Step 2					
F	59.653	60.387	43.954	51.483	95.422
R^2	.275	.278	.219	.247	.378
F change	18.019	13.977	11.500	16.264	44.735
R^2 change	.042	.032	.029	.039	.089
β (AJS)	.310	.272	−.257	−.300	.438
Model 2					
Step 1					
F	103.978	100.112	75.435	90.911	178.027
R^2	.248	.241	.193	.224	.361
β (AJS)	.498	.491	−.440	−.473	.601
Step 2					
F	59.653	60.387	43.954	51.483	95.422
R^2	.275	.278	.219	.247	.378
F change	11.772	15.920	10.256	9.579	8.550
R^2 change	.027	.037	.026	.023	.017
β (PES)	.250	.291	−.243	−.230	.198

The labels of variables are the same in Table 1. In model 1, step 1 entered PES only and step 2 added AJS. In model 2, step 1 entered AJS only and step 2 added PES. All F and t values of standardized beta are significant at the level of .01

Because all of the above incremental explanations were significant, it is necessary to further compare the amount of incremental explanations in another manner. Thus, additional comparisons between the AJS and the PES in terms of their correlations with dependent variables were explored (Eid et al. 2011). The results confirmed that altruism had a significantly higher correlation with AJS (r = .601) compared with its correlation to positive empathy (r = .538, p = .022). The correlations with other variables did not significantly differ between the two scales (p > .311).

Discussion

As expected, the PES and dimensions of the AJS showed highly positive correlations, which indicated that the two scales measured similar concepts. Simultaneously, CFA confirmed that the model of two separate yet correlated variables fit the data better, and additional EFA also supported the difference between items of AJS and those of PES, proving that the two measurements were nevertheless distinguishable.

Both the AJS and PES showed positive correlations with altruism and subjective well-being and negative correlations with envy. It is not surprising that both scales could provide a significant incremental explanation on dependent variables because these two scales also differ in aspects other than the concepts measured. However, the unique explanation of the AJS on altruism was considerably more detailed than the explanation of the PES, and further calculation confirmed significant differences in terms of correlations. Such results are consistent with the theoretical analysis that appreciative joy directly involves prosocial intentions, whereas positive empathy does not.

The hypothesis that appreciative joy is more closely related to envy and subjective well-being was not clearly supported. A previous study reported that the AJS did not provide an incremental explanation of envy after controlling for interpersonal relationships and also proposed the possibility that people feel envy for people they dislike and feel appreciative joy for people they like; thus, the AJS did not make a unique contribution to envy in addition to general interpersonal relations (Zeng et al. 2016). This result may also explain why the AJS was not more closely related to dispositional envy than the PES, although the items on the AJS emphasized situations of potential envy. The current study observed that the AJS and PES had similar correlations with subjective well-being when both were packaged in the same survey, which indicates that previous different values (Morelli et al. 2015; Zeng et al. 2016) may be influenced by different samples and other factors. As mentioned earlier, the causal relation between the AJS or PES and subjective well-being remains unclear. Previous

studies showed that positive emotions can broaden one's attention and activities (Fredrickson 2001), and thus, it is possible that stronger positive emotions enable one to pay more attention to other people, which can increase both appreciative joy and positive empathy. Furthermore, the daily emotions measured in the current study were influenced by many factors in daily life. Thus, although appreciative joy and positive empathy may generate different amounts of positive emotions or positive emotions of a different nature (e.g., excited or peaceful), such differences may not be detected.

The cross-sectional design of this study, which was based on a survey, had several limitations. Because the AJS and PES differ in their levels of involvement in situations and other aspects, the results are not sufficiently solid to draw conclusions regarding the differences between appreciative joy and positive empathy. Furthermore, the above discussion noted that the causal relation between variables was not clear, and because daily outcome variables, such as positive emotions, reflected the overall experience of daily life, the variables cannot be attributed to the effects of appreciative joy or positive empathy. Therefore, it is necessary to conduct an experimental study to compare appreciative joy and positive empathy in a well-controlled setting.

Study 2

Introduction

Study 1 compared appreciative joy and positive empathy with self-reported scales. In addition to survey-based studies, researchers also investigated appreciative joy and positive empathy in a laboratory setting (e.g., Zeng et al. 2017; Morelli and Lieberman 2013). Thus, study 2 intends to compare AJM and the psychological operation of positive empathy with an experiment. Such an experiment can compare the effects of two processes in matched situations and investigate causal relationships to overcome the limitations of study 1.

Because appreciative joy is similar to sympathy, one expects AJM to generate more other-focused positive emotions (e.g., love) and suppress other-focused negative emotions (e.g., envy). By contrast, because positive empathy is empathy for the emotions of successful people, the psychological operation of positive empathy in matched setting (referred as "positive empathy meditation" (PEM)) was expected to generate more self-focused positive emotions (e.g., pride) and suppress opposite self-focused negative emotions (e.g., shame). Furthermore, because people are generally excited when experiencing success, it is expected that PEM will show more high-arousal positive emotions (e.g., excitement) and fewer low-arousal positive emotions (e.g., peacefulness) than AJM when imagining people who are experiencing success.

The implications for prosociality have been covered by the above-mentioned other-focused emotions. Furthermore, positive attitudes toward targets and non-targets in meditations, which have been used in previous studies on loving-kindness meditation (Hutcherson et al. 2008), will also be evaluated as additional measurements of prosociality.

The participants were university students who imagined outstanding students during meditations. Thus, academic motivation was used as a control variable because some participants may not consider academic success to be as important as other participants do, which may influence the results. Furthermore, because study 1 observed that dispositional envy and trait altruism were associated with trends in appreciative joy and positive empathy in daily life, these variables were also used as control variables so that the influence of individual differences was further reduced.

Therefore, the hypotheses for study 2 were (1) AJM leads to increased other-focused positive emotions and fewer other-focused negative emotions than PEM; (2) PEM leads to more self-focused positive emotions and fewer self-focused negative emotions; (3) PEM leads to more high-arousal positive emotions and fewer low-arousal positive emotions than AJM; and (4) AJM leads to more positive attitudes toward targets and non-targets than PEM.

Method

Participants

An initial 134 local Chinese students from a university in Hong Kong were recruited and randomly placed in the AJM or PEM condition. The data from 15 students were excluded because of machine errors (2), failure to follow instructions (2), and previous experiences with meditation, yoga, Qigong, or Tai-Chi (11). Finally, 119 students (mean age = 20.80, SD = 2.84, 73 females) were included in the analysis, with 59 cases in the AJM condition. A previous study on AJM (Zeng et al. 2017) reported the largest effect size at .32 (η^2), which indicated that the present sample size was adequate to reach a power of 80%.

Procedure

Before the experiment, the participants completed the consent form and were given an envelope with instructions enclosed. Following the instructions, the participants started the e-prime program that conducted the entire experiment. The first step of the experiment measured covariates, including scales for daily variables and positive attitudes toward two faces of neutral emotion. Then, participants in two conditions practiced corresponding meditations for three target faces of happy emotions, with the same manikins and emotional words measured before and after meditations. In the next step, participants evaluated three items of positive attitudes toward each of the three target faces and another three non-target faces that also displayed

happy emotions. At the end, participants answered some questions, including questions regarding their previous experience with meditation and any difficulty they experienced during meditation. After the experiment, the participants were debriefed and offered 50 HKD.

During meditations, participants followed the recorded guidance and applied corresponding psychological operations to three target faces shown on the screen. Each target face was shown for 2 min and was accompanied by a brief sentence that described that target's story. Participants first viewed the story for each face for 10 s and then practiced AJM or PEM while looking at the face. AJM was adopted from traditional AJM in Buddhism (Sujiva 2007), in which participants bless the target with a sentence, such as "May you not lose what you gained; may you be happy every day" and other positive imaginings. PEM was adopted from experiments on positive empathy (Morelli and Lieberman 2013) and matched the duration and components of AJM. PEM required participants to consider the target's perspective and imagine how the target felt about the situation and how this situation influenced his/her life. The script of recorded guidance is presented in the Online Resources and was recorded by a female research assistant who did not know the hypothesis.

Measures

Emotional Words Sixteen emotional words in Chinese were used as state measures for emotions at the moment. They were presented in random order and rated from 1 (not at all) to 9 (extremely strong). Six categories were included: other-focused positive emotion (love, care, friendliness, $\alpha = .834$; selected from Seppala et al. 2015; Hutcherson et al. 2015), other-focused negative emotions (envy, hatred, hostility, $\alpha = .798$; used in Zeng et al. 2017), self-focused positive emotion (pride, self-esteem, $\alpha = .846$; selected from Seppala et al. 2015), self-focused negative emotions (shame, inferiority, $\alpha = .822$; generated by authors), high-arousal positive emotions (elation, enthusiasm, excitement, $\alpha = .908$; selected from Lee et al. 2013), and low-arousal positive emotions (calm, peace, serenity, $\alpha = .857$; selected from Lee et al. 2013). See Table S5 in the Online Resources for emotional words in Chinese.

Manikin for Arousal and Valence Two 9-point manikins were also used as state measures for the overall valence (pleasant–unpleasant) and arousal (activated–inactivated) of emotion at the moment, both of which have been widely used in previous studies (Bradley and Lang 1994).

Positive Attitudes Participants evaluated their attitudes to the facial picture shown on the screen with three items: "To what extent you feel positive toward/connected with/familiar with this person?" These three items were rated from 1 to 9 points and were presented in random order. This evaluation was used in previous studies on loving-kindness meditation (e.g., Hutcherson et al. 2008), and the alpha coefficient in the present study was greater than .778.

The Performance-Approach Subscale (PAS) was extracted from the measurement of different types of students' achievement goals (Li 2004). The PAS describes the motivation to pursue academic success with an underlying motivation to display one's ability in front of other people. For example, "I intend to draw others' attention with a good performance." The PAS comprises nine items, scored from 1 (not at all like me) to 5 (completely like me) points. The PAS was validated in a previous study (Li 2004), and the alpha coefficient in the current study was .873.

The same SOA and DES in study 1 were also measured and used as covariates in study 2. Their alpha coefficients were .779 and .903, respectively.

All facial pictures were selected from the Chinese Facial Affective Picture System and were presented in gray without hair (Gong et al. 2011). The facial pictures shown in the experiment were the same gender as the participants, and each participant was shown two pictures of neutral emotion and six pictures of happy emotions (see Table S6 for attributions of pictures). The six pictures of happy emotions were divided into two groups of three pictures, including both target and non-target faces. The two groups of pictures were counter-balanced across participants, and the order of the pictures was randomized in all positions throughout the experiment.

During meditations, each picture of a target face was accompanied by brief sentences introducing the academic achievement of the person in the picture. For example, "Jacky graduated from the division of social science in 2015. Now, he is studying at Stanford University for a PhD degree." The participants were told that the stories were adapted from real cases in their university but replaced by a standardized photo and false name for privacy. The entire meditation lasted for 6 min.

Data Analyses

The data were analyzed using SPSS 19.0. The effect sizes were presented as η^2, in which .02 was small, .13 was medium, and .26 was large. Normality was tested for all dependent variables, and skewness for all dependent variables fell between −2 and +2, which were considered acceptable normality (George and Mallery 2010). There was no significant difference between the two conditions of the three covariates (i.e., SOA, DES, PAS) or between gender and age ($p > .508$). Before the meditation practice, no significant difference was found between the two groups in emotions and positive attitudes, regardless of the controlling covariates (controlled, $p > .144$; not controlled, $p > .156$). Thus, the randomization was successful.

Results

For all self-reported emotions, 2 condition (AJM, PEM) × 2 time (before meditation and after meditation) ANOVAs were conducted, with time as the repeated measure, and SOA, DES, and PAS as covariates. The descriptive statistics and interaction of condition and time are presented in Table 3.

The hypothesis that AJM generated more other-focused positive emotions was supported. The interaction of other-focused positive emotions was significant. The simple effect showed a marginally significant increase (p = .080) in the AJM condition, and the change in the PEM condition was not significant (Table 3, row 1). However, there was no interaction or main effect on other-focused negative emotions (Table 3, row 2).

The unique effect of PEM on self-focused positive emotions was also confirmed. The interaction for self-focused positive emotions was significant. The simple effect showed a significant increase in the PEM condition, and the change in AJM was not significant (Table 3, row 3). However, there was no interaction or main effect on self-focused negative emotions (Table 3, row 4).

As expected, the PEM condition created an exciting experience in the current experiment. The interaction for high-arousal positive emotion was significant. The simple effects showed a significant increase in the PEM condition and no significant change in the AJM condition (Table 3, row 5). Consistently, the interaction for low-arousal positive emotion was marginally significant. A simple effect indicated a significant decrease in the PEM condition and, again, no significant change in the AJM condition (Table 3, row 6).

As for overall indicators, no significant interaction for arousal or valence was observed. Further exploration on simple effects showed a significant increase in arousal in the PEM condition, which was consistent with the above findings, and the AJM condition also had a marginally significant increase in arousal (p = .050; Table 3, row 8). Although the above analysis confirmed the generation of positive emotions, the simple effects on valence showed no significant change in any condition (Table 3, row 7).

Additionally, the univariate ANOVA was used to analyze the average positive attitudes for targets and non-targets. The SOA, DES, PAS, and positive attitudes for neutral faces before meditation were used as covariates. The two conditions showed no significant differences in positive attitudes, either for targets or for non-targets. The detailed results are presented in Table S7 in the Online Resources.

Discussion

The results of study 2 supported the difference between AJM and PEM. Although the result was marginally significant, AJM tended to generate other-focused positive emotions, which supported the argument that appreciative joy involves prosociality. Simultaneously, PEM generated self-focused positive emotions, such as pride, and generated increased excitement, as indicated by high-arousal positive emotions, which were consistent with the expectation that positive empathy generates emotions similar to the target's emotions. The two conditions had similar overall valence and arousal, which confirmed the necessity to explore other aspects of emotions in addition to valence. That is, appreciative joy and positive empathy generated a similar intensity of positive emotions, although the types of positive emotions were different.

The self-focused and other-focused negative emotions did not demonstrate the expected changes. It is possible that participants focused on the required mental activities or may have made less social comparison in a manipulated experiment setting; thus, envy or shame was not generated, preventing further regulation of these emotions.

Table 3 Descriptive statistics and interaction on self-reported emotions in study 2

	AJM pre Mean ± SE	AJM post Mean ± SE	AJM post-pre F (p, η^2)	PEM pre Mean ± SE	PEM post Mean ± SE	PEM post-pre F (p, η^2)	Interaction F (p, η^2)
OFPE	4.62 ± 0.20	4.95 ± 0.22	3.130 (.080, .027)	4.79 ± 0.20	4.58 ± 0.22	1.359 (.245, .012)	4.299 (.040, .036)
OFNE	2.00 ± 0.14	2.20 ± 0.13	2.196 (.140, .019)	1.95 ± 0.13	2.17 ± 0.13	2.658 (.106, .023)	0.009 (.926, <.001)
SFPE	2.82 ± 0.18	2.67 ± 0.24	0.473 (.495, .004)	3.00 ± 0.18	3.46 ± 0.24	4.705 (.032, .040)	4.044 (.047, .034)
SFNE	2.40 ± 0.20	3.02 ± 0.21	11.486 (.001, .092)	2.75 ± 0.19	2.98 ± 0.21	1.525 (.221, .013)	2.363 (.127, .020)
HAPE	2.98 ± 0.18	2.92 ± 0.25	0.061 (.805, .001)	3.14 ± 0.18	3.80 ± 0.25	9.223 (.003, .075)	5.323 (.023, .045)
LAPE	5.82 ± 0.23	5.63 ± 0.24	1.087 (.300, .009)	6.08 ± 0.23	5.43 ± 0.23	12.157 (.001, .096)	2.953 (.088, .025)
Valence	6.04 ± 0.17	5.80 ± 0.20	1.400 (.238, .012)	5.93 ± 0.17	6.10 ± 0.20	0.714 (.401, .006)	2.055 (.154, .018)
Arousal	4.75 ± 0.22	5.17 ± 0.23	3.906 (.050, .033)	4.49 ± 0.21	5.37 ± 0.22	18.821 (<.001, .142)	2.302 (.132, .020)

Note: *OFPE* other-focused positive emotions, *OFNE* other-focused negative emotions, *SFPE* self-focused positive emotions, *SFNE* self-focused negative emotions, *HAPE* high-arousal positive emotions, *LAPE* low-arousal positive emotions. The degrees of freedom F test were 1, 114

Additionally, because the current experiment did not manipulate negative emotions before meditation, floor effects (see Table 3) could have limited the potential decrease.

There was no significant difference in positive attitudes between the two conditions, and it is possible that AJM and PEM had similar effects on this indicator. Notably, positive attitudes were measured by "familiar with," "connected to," and "feel positive toward" those successful targets. Because participants blessed those targets in AJM, it is reasonable that AJM increased their positive attitudes. Although the current study was not concerned with the change before and after AJM, the effect on positive attitudes has repeatedly been reported in previous studies on AJM (Zeng et al. 2017) and other FIMs (e.g., Hutcherson et al. 2008). Because PEM required participants to consider those successful targets' perspectives, it is also reasonable that participants in PEM would feel "familiar with" or "connected to" those targets, although this procedure did not necessarily involve kind intentions toward the targets. In such cases, positive attitudes were influenced by both practices; however, this indicator could not explain how AJM and PEM changed the positive attitudes. Thus, future studies should attempt to clarify the underlying mechanism behind their effects on positive attitudes.

General Discussion

Based on the online survey and laboratory experiments, the current research compared appreciative joy and positive empathy in terms of prosociality, envy, and emotional experiences. Across the two studies, most results illustrated the similarities between appreciative joy and positive empathy: their correlation to one another, their similar relations to other variables, and their similar effects on overall emotional experiences and positive attitudes. Despite the similarities, the findings of the two studies consistently suggested that appreciative joy tended to have a stronger link to prosociality (i.e., altruism and other-focused positive emotions) than positive empathy. Such a finding is consistent with the previous conceptual analysis that appreciative joy directly involves kind intentions toward the target, which does not necessarily occur with positive empathy (Zeng et al. 2016). Although study 1 did not identify an obvious difference in terms of emotion between the two scales, further investigation in study 2 showed that appreciative joy and positive empathy generated different types of positive emotions, although their overall valence was similar. In all, appreciative joy and positive empathy are different concepts despite their similarities. Thus, our findings suggest that positive empathy should not be assumed to be identical to or equivalent to appreciative joy.

Notably, it can be argued that AJS and AJM covered more than the simple mental activity of "feeling happy for others," such as "positive interpersonal bias" in AJS and blessings for future success in AJM. In addition, the technical details of FIMs and relevant theories may be different in different schools of Buddhism (Zeng et al. 2015), and one might disagree with the components of AJS and AJM used in the current study. Nevertheless, the current study showed that there are two distinguishable concepts being studied in psychological research, and the mental process studied in previous studies of positive empathy was different from that of AJM, at least in some schools of Buddhism.

In addition to differentiating appreciative joy from positive empathy, the current empirical findings raised some interesting questions for future studies. Appreciative joy and positive empathy have some distinct differences, and such knowledge may be used to improve the emotional outcomes of the two practices. For example, one can use positive empathy to better understand others' happiness and use appreciative joy to facilitate feeling happy for others. Furthermore, Buddhism claims that the function of appreciative joy is to counter envy (Bodhi 2012, p. 90); however, the current study and previous works (see Zeng et al. 2016, 2017) do not support such a claim. Future studies could utilize an improved study design to further test the special relationship between appreciative joy and envy.

Limitations

A limitation worth noting is that both studies used a self-report method. Thus, it is possible that common method variance in the survey and the demand effect in the experiment influenced the results. Studies on positive empathy have used neuro-imaging to identify the involved brain activities (see Yue and Huang 2016), and future studies could compare the two mental processes with neuro-imaging or other objective indicators. Additionally, the reviewer of this article has pointed out that using ordinal measures in ANOVA might violate the basic assumptions of tests, and the state measures lacked enough validation. In order to be consistent with previous studies, the current article did not change the statistical analyses and measures that were used in previous studies, but such methodological limitation should be noted. Despite these limitations, the two studies consistently showed that the two concepts of appreciative joy and positive empathy may be differentiated, at least with extant self-reported measurements. The findings support the core argument that psychological studies should consider appreciative joy in Buddhism and positive empathy as different concepts.

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Author Contributions XZ and FL designed the study; XZ, VC, and XL collected and analyzed the data; XZ, TO, and XL collaborated in the writing of the paper. All authors discussed the findings, reviewed, and commented on the manuscript.

Compliance with Ethical Standards

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare that they have no competing interests.

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