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# Let the Music Play: Live Music Fosters Collective Effervescence and Leads to Lasting Positive Outcomes

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**Abstract**

This work examined the power of live music events to enhance wellbeing through collective effervescence (CE)—the sense of sacredness and connection felt when in large groups. Four studies ($N = 789$) using both university and community samples examined the relationship between live music events and CE and how this relationship contributes to positive, lasting outcomes. Results suggest that CE is highly related to positive outcomes associated with attending live music events. CE uniquely predicted meaning in life and enjoyment during the event above and beyond related constructs. Feeling CE was also related to greater meaning in life during the event and continued happiness a week after live music events. Further, CE mediated effects between various elements of live music events (e.g., parasocial bonds with the artist) and positive lasting outcomes. In summary, CE plays a key role in the lasting wellbeing that follows live music events.

**Keywords**

live music, collective effervescence, happiness, meaning in life, belonging

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> *"Everything else just falls away . . . and you have just dancing. You are lost, it is sweaty, everything is beating, you look around and everyone is feeling it, smiling. . .the bewilderment, the love, and the music! Music as loud as the air is heavy with heat. That is why I live. . ." — Brazilian samba/bossa nova singer, Astrud Gilberta*

The experience of listening to live music with others has been found across time and cultures (Sixsmith & Gibson, 2007). Previous research suggests that music may be particularly well suited to facilitating an all-important sense of social belonging and psychological wellbeing (Baumeister & Leary, 1995; Maury & Rickard, 2016). Although listening to live music with others does not directly lead to the formation of social relationships, it may foster a sense of connection to the other people present and a sensation that something special is being shared. The combination of those experiences is sometimes called *collective effervescence* (CE; Gabriel et al., 2017), a term borrowed from Durkheim who used it to explain the psychological experience of group religious rituals (Durkheim, 1965). We propose that live music events offer a unique experience of CE and that CE may predict positive psychological consequences of attending live music events.

In the current research, we explored the power of attending live music performances to increase wellbeing, and the unique role of CE in that process. We also examined other related constructs—such as flow, awe, and emotional synchrony. Furthermore, we examined whether common features of live music events—such as parasocial bonds with artists, lyrical immersion, and being in the company of friends—would predict wellbeing via increased CE. Although we do not suggest that these features are exclusive to live music events, we argue that live music events are related to wellbeing in part because of these features. In summary, we examined whether live music events predict wellbeing, whether CE plays a role in that (above and beyond the effects of related constructs), and which factors of live music experiences increase wellbeing via increased CE.

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## Music and Wellbeing

People have been making music together since the earliest human civilizations (Sixsmith & Gibson, 2007). Indeed, music evolved as a form of social communication to enhance social living. Groups used music to pass information to members about shared mental states (Loersch & Arbuckle, 2013), to regulate emotions, and to develop social bonds (Maury & Rickard, 2016). Today, music continues to offer these adaptive benefits toward human flourishing and wellbeing. Research suggests that listening to music reduces stress, anxiety, and depression (Daykin et al., 2018), provides a source of meaning and helps regulate and improve affect (Groarke & Hogan, 2016), and serves as a means of connecting with others (Maury & Rickard, 2016).

Although listening to music alone or through prerecorded media can offer benefits (Gabriel & Paravati, 2021; Paravati et al., *revise and resubmit*), live music performances may be particularly well suited to enhancing wellbeing. When people attend live music events they connect in a community of like-minded others, forming a unique relationship between fans and the artist (Black & Kochanowski, 2007). Indeed, this atmosphere motivates people to attend live concerts (Brown & Knox, 2017), with these spaces often inviting the most intense experiences people report ever having (Lamont, 2011). And although attending live performances has been found to lower biological stress (Fancourt & Williamon, 2016), the exact mechanisms by which attending live music events affect wellbeing are unclear. In the current work, we propose that CE plays an important role in explaining the benefits of live music.

## Collective Effervescence and Music

Engaging with large collectives plays an essential role in psychological wellbeing through the sense of collective effervescence (CE) fostered by collective events (Gabriel et al., 2017). CE is experienced when a collective event gives (a) a sense of connection to the other people present and (b) a perception that something special or sacred is occurring (Gabriel et al., 2020). Over the past decade, researchers have found empirical evidence of CE in events such as large-scale cultural gatherings (Páez et al., 2015), giant dance parties (e.g., Berkers & Michael, 2017), and fire-walking activities (Xygalatas et al., 2011). In addition, CE has been found to play a key role in a number of psychological processes. The proclivity for CE predicts a sense of social connection, decreased loneliness, increased wellbeing, and the feeling that life has meaning, even when controlling for other means of social connection and personality factors (Gabriel et al., 2017). CE mediates the positive effects of group participation on positive affect, happiness, positive social beliefs, identity fusion, and enhanced collective and personal self-esteem (Páez et al., 2015). Finally, events that increase CE also increase a sense of connection, feeling good about oneself, and feeling good about one's life (Gabriel et al., 2017). The more of these events that one experiences in life, the happier one is, across a wide variety of measures (Gabriel et al., 2020). Therefore, based on the link between CE and collective events and the link between CE and positive outcomes, we predict that live music events will be associated with CE and the positive outcomes that follow.

The benefits of live music may also be linked to other experiences aside from CE. For example, flow, awe, and perceived emotional synchrony are also predictive of positive experiences during group events (Gabriel et al., 2020; Wlodarczyk et al., 2020; Zumeta et al., 2016). When describing experiences with live music, people often report experiencing ritualistic, flow-like states (Lamont, 2011), and past work finds that collective gatherings elicit a sense of shared flow, promoting personal wellbeing, positive emotions, and greater social cohesion (Zumeta et al., 2016). Music also commonly elicits awe (Monroy & Keltner, 2023; Silvia et al., 2015) and features of live music events have been found to produce awe (Monroy & Keltner, 2023). Additionally, when in collective group settings, such as live music events, people often experience emotional synchrony wherein individuals share in unified emotional responses and feel an overlap with the collective self (Krueger, 2014; Wlodarczyk et al. 2020; Wood & Kinnunen, 2020). Music unites people in their emotional expression (Loersch & Arbuckle, 2013), and live music events in particular foster a sense of emotional synchrony through features like physically synchronous movements (e.g., swaying; Lakens, 2010). Previous research directly compared CE to these constructs and found that CE is related but distinct from them (Gabriel et al., 2017; 2020). Thus, although these elements may be related to wellbeing during live music events, we propose that increased feelings of CE during live music events may explain the positive benefits of live music events above and beyond these related constructs and play a key role in understanding the relationship between live music and wellbeing.

In addition, we predict that specific elements of live music experiences may be related to the experience of CE and the resulting positive outcomes. For example, live music may promote wellbeing through facilitating parasocial relationships—one-sided bonds with individuals, such as performers (Giles, 2002; Isotalus, 1995; Perse & Rubin, 1989; Rubin & McHugh, 1987). Bonds with performers may increase CE by making people feel a sense of connection and that something special is happening, and this feeling of CE should lead to wellbeing. People may also feel immersed in the lyrics of the live music performance and feel a sense of being transported into another setting, temporarily distanced from the present world (Green & Brock, 2000). Immersion in the world of music with a crowd of other people may lead to a sense of something special happening and connection to the other people sharing that experience—in other words, CE. Finally, being at live music events with friends may contribute to CE and, thus, wellbeing. Being with others may increase one's

sense of connection and the feeling that the event is special (Gabriel et al., 2020). Thus, we predict that parasocial bonds with the musical artists, lyrical immersion, and attending live music events with friends are likely to predict wellbeing via their effect on CE.

### Overview of Research

Across four studies, we tested the hypothesis that collective effervescence (CE) explains many of the positive short and long-term effects of attending live music events. In Study 1, we tested the hypothesis that CE events are more likely than non-CE events to include music. In Study 2, we examined whether CE plays a role in making live music events enjoyable, above and beyond the effects of other related constructs. We predicted that CE would be the strongest predictor of why live music events were enjoyable and increased meaning in life for participants. Finally, in Studies 3a and 3b, we tested how elements of live music events directly and indirectly relate to positive outcomes through CE. We predicted that CE would be directly related to meaning in life and continued happiness one week following the event and would mediate the effects of elements of the concert experience (i.e., parasocial bonds with the musical artists, lyrical immersion, and attending live music events with friends) on wellbeing.[1]

Wellbeing can be conceptualized in a variety of ways. In the current work, we examined outcomes related to psychological wellbeing such as state meaning in life (MIL), state happiness, and enjoyment of the event. Previous work has found that higher levels of trait MIL are related to higher levels of psychological wellbeing and a lower likelihood of experiencing psychological difficulties (Routledge et al., 2011; Steger et al., 2006). Moreover, state MIL, which represents short-term variations in a person's experience of meaning in life, has been found to be related to positive affect (King et al., 2006) and self-concept clarity (Schlegel & Hicks, 2011). From a sociogenomic perspective (Roberts & Jackson, 2008), state levels of MIL are likely to relate to global levels of MIL for an individual. Furthermore, state happiness has been found to be one of the strongest predictors of subjective wellbeing (Diener & Seligman, 2002), and positive feelings such as enjoying events in life, is one of the hallmarks of a happy and thriving individual (Diener et al., 1999). By using different measures of wellbeing—state meaning in life, enjoyment, and happiness—we were able to assess wellbeing as a complex and multifaceted construct.

All data, syntax, and preregistered hypotheses can be found at the following link: https://osf.io/jf36t/?view_only=dff517ae59d740eead0a29ef9e85bce6.

## Study 1

First, to establish the link between CE and music, we conducted a study to explore whether CE events were more likely than non-CE events to include music. Participants described group events in which they experienced (or did not experience) CE, and then answered questions about the event.

### Method

*Participants.* We collected data over the course of an academic semester, which resulted in a total sample size of $N = 182$. We conducted a sensitivity analysis in G*Power (Faul et al., 2007) for our primary outcome comparing the means of the control and CE-prime groups with a paired samples t-test, assuming a two-tailed test and an alpha of .05. A sample of this size provides 80% power to detect a small effect ($d = .21$). Therefore, we were well powered for this study. In all, 182 participants (101 female) from a large public state university took part in this study. Participants were compensated with partial fulfillment of a course requirement in a psychology course. Participants who indicated their willingness to participate in the study completed a survey and all questionnaires on the external website Qualtrics. The sample was ethnically diverse (14 Black/African/African American, 47 Asian/Asian American, 16 Hispanic/Hispanic American, 1 Native American/Alaska Native, 87 Caucasian/White, and 14 Other) with an average age of 19.00 years old ($SD = 2.26$). This sample is representative of the population of interest.

*Procedure.* Participants were presented with two prompts in a random order. A CE Prime Prompt briefly described CE and asked participants to write about a time they were at a group event and experienced CE. A Control Event Prompt did not describe CE and asked participants to describe a time the participant was at a group event but *did not* feel any sacredness or anything special about the event. Participants were able to write about events that happened at any point in their lives. After each prompt, participants responded to a series of questionnaires regarding the music at the event and a state CE measure. After the prompts and associated questionnaires, participants were asked about their demographic information and were debriefed and thanked for their participation.

#### Materials

*CE Prime and Control Event Prompts.* Participants responded to both the CE Prime and Control Event prompts in a random order. The full text for each prompt is available in the Supplemental Materials.

*State Collective Effervescence.* Eight items were used to assess participants' state CE during the CE and non-CE events that they recalled during the writing task. Examples of the items included, "I feel connected to others who were at the event" and "I feel as if there was something special about the event" (Gabriel et al., 2020). Participants responded to

these items using a response scale of 1 (*Strongly disagree*) to 7 (*Strongly agree*). These items were reliable in both the CE-prime condition ($\alpha = .91$) and the non-CE prime condition ($\alpha = .87$). Full scale items are available in the Supplemental Materials.

*Music Involved in the Event.* Ten items were used to assess the degree to which music was involved in the event described in the prompts. Example items include "The event was focused on music" and "There was music in the background during the event." Participants responded to these items using a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). These items were reliable in both the CE-prime condition ($\alpha = .83$) and the non-CE prime condition ($\alpha = .73$). Full items for this scale are available in the Supplemental Materials.

### Results[2]

*Manipulation Check.* First, to check that the priming manipulation was effective, we conducted a paired samples *t*-test to examine whether the events that participants recalled in the CE prime condition involved more CE than the events that participants recalled in the non-CE prime condition. Participants in the CE prime condition did indeed feel more CE ($M = 5.45$, $SD = 1.17$) compared with those in the non-CE prime condition ($M = 2.79$, $SD = 1.25$), $t(166) = 20.17$, $p < .001$, $d = 1.71$, 95% CI [1.39, 1.91].

*Music and CE.* Next, we used a paired samples *t*-test to examine whether events recalled in the CE-prime condition involved music more than events recalled in the non-CE prime condition. Indeed, participants in the CE prime condition were more likely to report that there was some form of music during the event ($M = 4.95$, $SD = 1.21$) than those in the non-CE prime condition ($M = 3.29$, $SD = 1.09$), $t(167) = 12.48$, $p < .001$, $d = 1.72$, 95% CI [0.78, 1.15].

Additionally, we examined correlations to determine if the amount of CE experienced at an event was related to how strongly the event was focused on music. Because the amount of music experienced at the event was measured ordinally rather than linearly, and was not normally distributed, we examined the Spearman's rho correlation coefficients. The amount of CE was correlated with the amount of music for the event recalled in the CE prime condition ($r(167) = .17$, $p = .028$) but not in the non-CE prime condition ($r(167) = .04$, $p = .592$).

### Study 1 Discussion

The results of Study 1 suggest the importance of music in CE events. These initial findings suggest that music is more likely to occur during CE-events compared with non-CE events. Additionally, the presence of music is related to the amount of CE experienced during an event. Music seems to play a special role in fostering CE. In other words, it may be important to have music present during collective events as music and CE appear to be intricately bound.

## Study 2

Study 1 established that CE events are more likely to involve music than non-CE events, and that the amount of CE experienced is related to the amount of music at the event. Study 2 sought to explore if CE was related to positive outcomes at live music events over and above other constructs that are also related to positive experiences during group events. If CE is found to predict positive outcomes during live music events when controlling for other related constructs, this would suggest that CE has unique predictive abilities and is distinct in this from other similar constructs such as awe, emotional synchrony, and flow. To test this, we had participants recall an instance when they saw live music and describe their experience, including their feelings of CE and other constructs. Then, we performed a series of regression analyses with feelings of CE and other related constructs predicting positive outcomes.

### Method

*Participants.* We collected data throughout an academic semester, which resulted in a total sample size of $N = 183$. We conducted a sensitivity analysis in G*Power (Faul et al., 2007) for our primary outcome of linear multiple regressions with four predictors, assuming a two-tailed test and an alpha of .05. A sample of this size provides 80% power to detect an effect size of $F^2 = 0.067$.

We recruited 183 participants (55 female) from a large public state university diverse in ethnicity (17 Black/African/African American, 47 Asian/Asian American, 20 Hispanic/Hispanic American, 1 Native American/Alaska Native, 100 Caucasian/White, and 12 Other) with an average age of 19.19 ($SD = 1.59$). Students were recruited to participate as partial fulfillment of a course requirement in a psychology course. After indicating their willingness to participate, participants completed the survey on the external website Qualtrics. Participant demographics were representative of the intended population.

*Procedure.* Participants began the study by responding to a prompt about their experiences with live music. This prompt read, "Please think of a time when you saw live music. Tell us about it. Who was performing? Did you enjoy it? How many people were there? What was it like? How long did it last? Tell us as much as you can remember about the event." Participants were able to write about live music events that happened at any point in their lives. After responding to this prompt, participants responded to a series of questionnaires about the event. These questionnaires were presented in a random order and included CE and other constructs. After the prompt and associated questionnaires, participants were

**Table 1.** Correlations Among All Measures in Study 2.

| *M* | *SD* | Measure | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 4.74 | 1.19 | 1. State Collective Effervescence | — | | | | | |
| 4.23 | 0.99 | 2. Awe | .77*** | — | | | | |
| 3.92 | 1.55 | 3. Emotional Synchrony | .68*** | .56*** | — | | | |
| 5.07 | 1.27 | 4. Flow | .51*** | .33*** | .38*** | — | | |
| 5.68 | 1.08 | 5. Enjoyment of the concert | .61*** | .35*** | .41*** | .54*** | — | |
| 4.23 | 1.43 | 6. Meaning in Life | .57*** | .48*** | .51*** | .29*** | .26*** | — |

*Note.* ***$p < .001$.

asked about their demographic information and were debriefed and thanked for their participation. Additional items were also assessed for exploratory purposes; however, as these items did not correlate strongly with relevant constructs and were not related to the hypotheses addressed in this study, they are not reported here. Full items for all scales are included in Supplemental Materials.

## Materials

### Predictors

*State CE.* State CE (Gabriel et al., 2020) for Study 2 was measured using the same eight-item scale as in Study 1 ($\alpha = .92$).

*Awe.* Awe during the musical experience was measured with the 30-item Awe Experience Scale (AWE-S) from 1 (*Strongly disagree*) to 7 (*Strongly agree*; Yaden et al., 2019). Items comprised six facets of awe: time, self-loss, connectedness, vastness, physiological, and accommodation. Participants were asked to think about the musical event they described in the prompt, and to respond to items such as "I noticed time slowing," and "I felt that I was in the presence of something grand" ($\alpha = .94$).

*Emotional synchrony.* Emotional synchrony during the musical event was measured using a modified version of the Perceived Emotional Synchrony Scale (Páez et al., 2015). Participants responded to six items (e.g., "We felt a strong shared emotion"; "We felt that we were one") on a scale from 1 (*Not at all*) to 7 (*All of the time*; $\alpha = .94$).

*Flow.* Flow during the event was measured with eight items on a scale from 1 (*Strongly agree*) to 7 (*Strongly disagree*), modified from Rheinberg et al. (2003). Participants responded to items such as "During the concert, I was completely lost in the moment" and "During the concert, I did not notice time passing" ($\alpha = .90$).

### Outcome Measures

*Enjoyment of the Event.* Participants' enjoyment of the musical event was captured with three items. One item asked participants, "How good was this concert relative to other concerts you have been to?" on a scale from 1 (*The worst*) to 7 (*The best*). A second item asked participants, "During your musical experience did you feel positive?" on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). The third item asked, "During your musical experience did you feel negative?" on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). This item was reverse scored when creating the final composite enjoyment scale ($\alpha = .76$).

*Meaning in life (MIL).* Meaning in life experienced during the musical event was measured using a modified version of the Presence subscale from the Meaning in Life Questionnaire (Steger et al., 2006). To capture the effect of the live music event on participants' perceived meaning in life, we modified existing items from Steger et al. (2006) to reflect a state rather than trait scale. Participants responded to five items (e.g., "During the event, I felt like my life had a clear sense of purpose") on a scale from 1 (*Absolutely untrue*) to 7 (*Absolutely true*; $\alpha = .93$). However, the fifth item ("During the event, I felt like my life had no clear purpose"), which was reverse scored, was excluded from analysis as it did not show good reliability with the other items.

## Results

Observed means, standard deviations, and correlations among all variables can be found in Table 1. Due to high correlations between predictor variables, we conducted a test to see if the data met the assumption of collinearity. The Variance Inflation Factor (VIF) values were all less than 5. Therefore, multicollinearity was not a concern (Kim, 2019).

To examine the factors that were related to enjoyment of the concert, we ran one regression analysis (see Table 2), which included CE, awe, emotional synchrony, and flow during the live music event simultaneously predicting enjoyment. By entering all predictors simultaneously, each predictor's coefficient is interpreted in the context of all other predictors. This analysis revealed that CE predicted greater enjoyment of the concert even when other related variables were included in the model. Flow also was a significant predictor of enjoyment. Contrary to expectations, awe during the event predicted less enjoyment. Emotional synchrony during the event did not predict enjoyment of the concert.

**Table 2.** Standardized regression coefficients for models of CE and other related constructs in predicting wellbeing during live music events.

| *Dependent variable* | β | *t* | *p* |
|---|---|---|---|
| **Outcome measure: Enjoyment of concert** | | | |
| CE | .68 | 6.46 | .001*** |
| Awe | −.26 | −3.00 | .003** |
| Emotional Synchrony | −.01 | −.188 | .851 |
| Flow | .29 | 4.54 | .001*** |
| **Outcome measure: Meaning in Life** | | | |
| CE | .34 | 2.94 | .004** |
| Awe | .09 | .882 | .379 |
| Emotional Synchrony | .23 | 2.72 | .007** |
| Flow | .01 | .075 | .941 |

*Note.* ** $p < .01$; ***$p < .001$.

A second regression analysis included the same predictors of CE, awe, emotional synchrony, and flow simultaneously predicting MIL (see Table 2). This analysis revealed that CE remained a unique predictor of MIL even when accounting for other related variables. Emotional synchrony also predicted greater MIL when controlling for the other variables. Participants' feelings of awe and flow did not uniquely predict MIL.

### *Study 2 Discussion*

The present study examined whether CE explained the positive outcomes people experienced during a live music event over and above other related constructs. By entering all of the potential predictor variables simultaneously, each regression coefficient may be interpreted as the unique predictive power when accounting for the predictive power of the other entered variables. As predicted, CE predicted both enjoyment of the event and increased MIL even when controlling for the predictive power of other predictors: flow, awe, and emotional synchrony. Although flow also predicted greater enjoyment of the concert, and emotional synchrony predicted greater MIL, CE during the event remained the strongest predictor of the outcome variables and the only one that significantly predicted both outcomes. Thus, CE plays an important role in making live music events feel meaningful and enjoyable.

Contrary to expectations, awe during the live music event predicted less enjoyment of the event. Though past work suggests that awe increases wellbeing, it may be that when all other positive feelings are removed, the feelings of smallness and need for accommodation (i.e., the need to change your existing thinking to make sense of the experience) may not have been enjoyable to participants (Keltner & Haidt, 2003). This may suggest that when people are at live music events, it may benefit them to focus less on how they are a small part of a larger whole. Rather, people should focus more on their close connection to others around them and how this feeling is special. Further research would be necessary to examine that hypothesis.

In summary, Study 2 provided evidence that CE plays a unique and important role in predicting positive outcomes of live music experiences. Studies 3a and 3b attempted to replicate the positive effects of CE and to expand what is known by examining which elements within a live music experience may lead to CE. We examined whether lyrical immersion, attending the concert with friends, and parasocial bond with musicians would all lead to CE which would then lead to increased wellbeing. Study 3 used one of the same wellbeing outcomes as Study 2 (meaning in life) and a new wellbeing outcome: sustained happiness after the concert.

## Study 3a and 3b

In Study 3a and 3b, we explored how elements of live music events and CE were related to positive outcomes one week after experiencing the live music event. First, we expected that CE would be directly related both to positive experiences during the event (MIL), and to positive feelings (happiness) one week after the event. We also expected that variables related to attendees' personal positive experience of the live music event would be related to increased CE, and subsequently to positive outcomes both during the event, and one week after the event. We followed the same procedure across studies but conducted them with different populations. Using university and music community contacts, we gained access to concert and music festival goers to test our hypotheses in a natural setting. In doing so, we were able to examine the relationship between variables related to one's personal experience during the event, CE, and positive psychological benefits.

### *Method*

*Participants.* In Study 3a, we recruited 134 participants (78 female) from a large public state university diverse in ethnicity (5 Black/African/African American, 39 Asian/Asian American, 11 Hispanic/Hispanic American, 2 Native American/Alaska Native, 81 Caucasian/White, and 8 Other) with an average age of 19.58 ($SD = 3.79$). Students were compensated for their participation with partial fulfillment of a course requirement in a psychology course.

In Study 3b, we recruited 290 participants (229 female; 1 Gender-Queer/Gender Non-conforming) from a community sample (5 Asian/Asian American, 8 Hispanic/Hispanic American, 236 Caucasian/White, and 8 Other) with an average age of 43.60 ($SD = 10.12$). Participants were compensated for their participation by being entered into a raffle to be randomly chosen to win two free tickets to an upcoming live music event.

Participants were eligible to participate only if they had attended a live music event in the past week. Recruitment of

our community sample was conducted at local live music festivals and from Facebook groups run by fans of different bands. After indicating their willingness to participate in the study and confirming their attendance at a music event in the past week, participants completed the survey on the external website Qualtrics.

Wolf and colleagues (2013) have suggested that a sample size between 180 and 440 is reasonable to assess regressive paths within a structural equation model with missing data. Therefore, this sample size was adequate to address the current research questions.

*Procedure.* Data were collected from participants one week following their attendance at a live music event. Participants first described and answered questions about the music event that they attended such as who was performing and the genre of music that was played. This was done to remind participants of the experience so that they could more accurately respond to subsequent questions about the event. Then participants answered a series of questionnaires about their experiences at the event and level of CE at the event. These questionnaires were presented in a random order to account for ordering effects. Then, participants responded to questions assessing their feelings of MIL during the event, and their feelings of happiness now, one week after the live music event. After completing the questionnaires, participants completed demographic questions, were thanked, and were debriefed. The same procedure was used across both samples. Additional items were also assessed for exploratory purposes; however, as these items did not correlate strongly with relevant constructs and were not relevant to the hypotheses addressed in this study, they are not reported here. Full scale items are reported in the Supplemental Materials.

### Materials

*Parasocial bond with artist.* Six items measured participants' parasocial relationships with the musical performers of the event they attended on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) (adapted from the PSI processes scale; Schramm & Hartmann, 2008). Items included "Even though I don't know them in person, I feel a real bond to this artist/group, almost like I do for real friends" (3a: $\alpha = .85$; 3b: $\alpha = .83$). Due to the specific experience of having a parasocial relationship with a musical artist/group, we adapted items from the PSI processes scale to capture the intended construct.

*Lyrical Immersion.* How connected participants felt to the musician's lyrics during the event was measured with three items on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) (adapted from the Transportation Scale; Green & Brock, 2000). Due to the highly specific experience of immersing oneself in the lyrics at a live music event, we modified existing items from Green and Brock (2000) to capture the intended construct. Items included "I felt immersed in the world of the music," "The music took me out of my everyday life and into a different place: the world that is spun out of the music and/or lyrics," and "I was absorbed in the message or feelings behind the music" (3a: $\alpha = .91$; 3b: $\alpha = .88$).

*Being With Friends at the Event.* One item asked participants, "Were you with friends at this concert?" on a scale from 1 (*I went by myself*) to 5 (*I was friends with everyone or almost everyone there*).

*Continued Happiness After Event.* Feelings of happiness after the event ended were measured with three items. The first item was "How often do you find yourself thinking about the concert" and was measured on a scale from 1 (*I haven't thought about it at all since it ended*) to 7 (*I have been thinking about it almost constantly*). The second item asked, "How does thinking about the concert make you feel?" and was measured on a scale from 1 (*Extremely bad*) to 7 (*Extremely good*). The final item asked, "How has the concert affected your current happiness?" and was measured on a scale from 1 (*I would be much happier now if I hadn't gone to the concert*) to 7 (*I still feel a strong mood boost from the concert)*. The three items formed a reliable scale (3a: $\alpha = .80$; 3b: $\alpha = .73$).

Also measured were participants' state CE and state MIL during the event. These were measured in the same way as in Study 2. Both the state CE (3a: $\alpha = .92$; 3b: $\alpha = .90$) and state MIL (five items; 3a: $\alpha = .82$; 3b: $\alpha = .83$) scales were reliable in both the student sample and the community sample.

*Statistical Approach.* Using Amos version 29.0 (Arbuckle, 2019), a path model with full information maximum likelihood (FIML) estimation of missing data was used to evaluate the conceptual model (Figure 1). This conceptual model was derived from the hypotheses presented above, which were developed based on existing literature on live music experiences, CE, and wellbeing (e.g., Csíkszentmihályi, 1990; Gabriel et al., 2017; Keltner & Haidt, 2003; Pizarro et al., 2022; Wlodarczyk et al., 2020; Zumeta et al., 2016).

To examine the model's fit, the chi-square statistic comparing the model with a saturated model was evaluated. According to standard practices, a chi-square significance probability of $>0.05$ suggests adequate model fit. Direct and indirect effects were examined relying on a ($k = 2{,}000$) bias-corrected bootstrap technique to address non-normality in the product of coefficients (Tibshirani & Efron, 1993; Fritz & MacKinnon, 2007; Muthén & Muthén, 2017). Additionally, 95% asymmetric confidence intervals around the estimates were examined to determine the significance of direct and indirect effects. Observed means, standard deviations, and correlations among all variables can be found in Table 3.

The model yielded a good fit to the data, $\chi^2$ (1 *df*) = 0.23, $p = .633$[3]. Significant direct paths are modeled in Figure 2. Multigroup path analysis was used to estimate models that

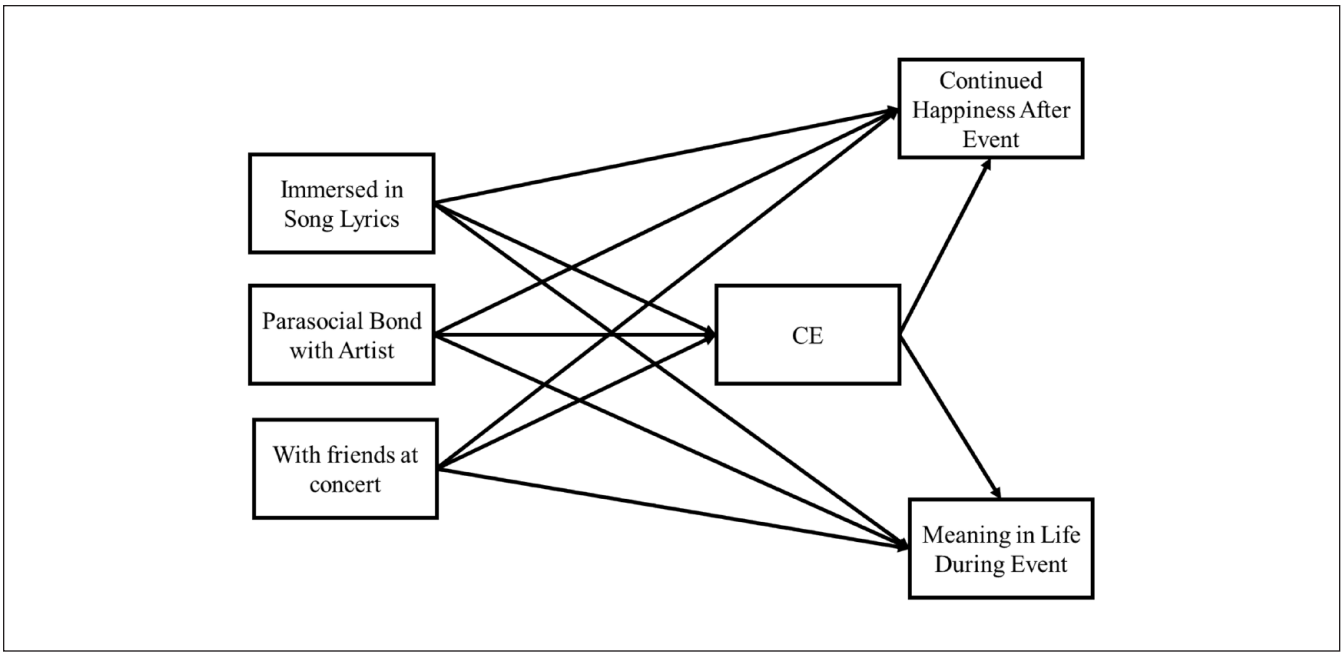


**Figure 1.** Conceptual model displaying all tested direct pathways in the model.

**Table 3.** Correlations Among All Measures in Study 3a and 3b.

| *M* *3a (3b)* | *SD* *3a (3b)* | Measure | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 4.81 (5.62) | 1.26 (0.99) | 1. Parasocial bonds | — | .55*** | .12* | .45*** | .44*** | .54*** |
| 5.20 (6.11) | 1.44 (0.92) | 2. Lyrical Immersion | .80*** | — | .03 | .61*** | .47*** | .58*** |
| 3.29 (2.99) | 1.00 (0.98) | 3. Being with friends | .13 | .16 | — | .07 | .19** | .17** |
| 4.97 (5.52) | 1.02 (0.84) | 4. Continued Happiness | .71*** | .72*** | .15 | — | .42*** | .56*** |
| 4.21 (4.86) | 1.33 (1.06) | 5. Meaning in Life | .62*** | .60*** | .06 | .52*** | — | .59*** |
| 4.60 (5.21) | 1.31 (1.02) | 6. State Collective Effervescence | .73*** | .79*** | .19* | .68*** | .75*** | — |

*Note.* Correlations in lower diagonal region show values for Study 3a data. Correlations in upper diagonal region show values for Study 3b data.
*$p < .05$, **$p < .01$, ***$p < .001$

constrained paths to be equal across samples (community sample and university sample) and found no significant sample differences, $\chi^2$ (11 *df*) = 15.55, $p = .159$. Therefore, the samples were combined, and these effects are discussed and modeled in Figure 2. Unstandardized parameter estimates and standard errors are provided in the text and standardized coefficients are presented in Figure 2.

## Results

### Analyses and Discussion

*Elements of Live Music and CE.* Our first hypothesis for this study was that elements of live music events would be related to CE. In support, each of the assessed elements of live music events were directly related to CE. Lyrical immersion (B = 0.48, SE. = 0.04, Z = 10.78, $p < .001$), parasocial bonds with the artist (B = 0.31, SE = 0.05, Z = 6.61, $p < .001$), and being with friends at the music event (B = 0.11, SE = 0.04, Z = 2.93, $p = .003$) were all directly related to greater feelings of CE.

*CE and Meaning in Life during the Event.* Our second hypothesis for this study was that elements of live music events and resulting feelings of CE would be related to meaning in life during the event. In support, we found that CE was directly related to greater MIL during the event (B = 0.54, SE = 0.05, Z = 10.27, $p < .001$).

Next, we assessed the relationships between each of the elements of live music, CE, and MIL. In addition to CE, the parasocial bond one had with the musical artist was also directly related to greater MIL (B = 0.15, SE = 0.05, Z = 2.92, $p = .003$).

Additionally, each of the assessed elements of live music events was related to greater MIL through CE. Lyrical

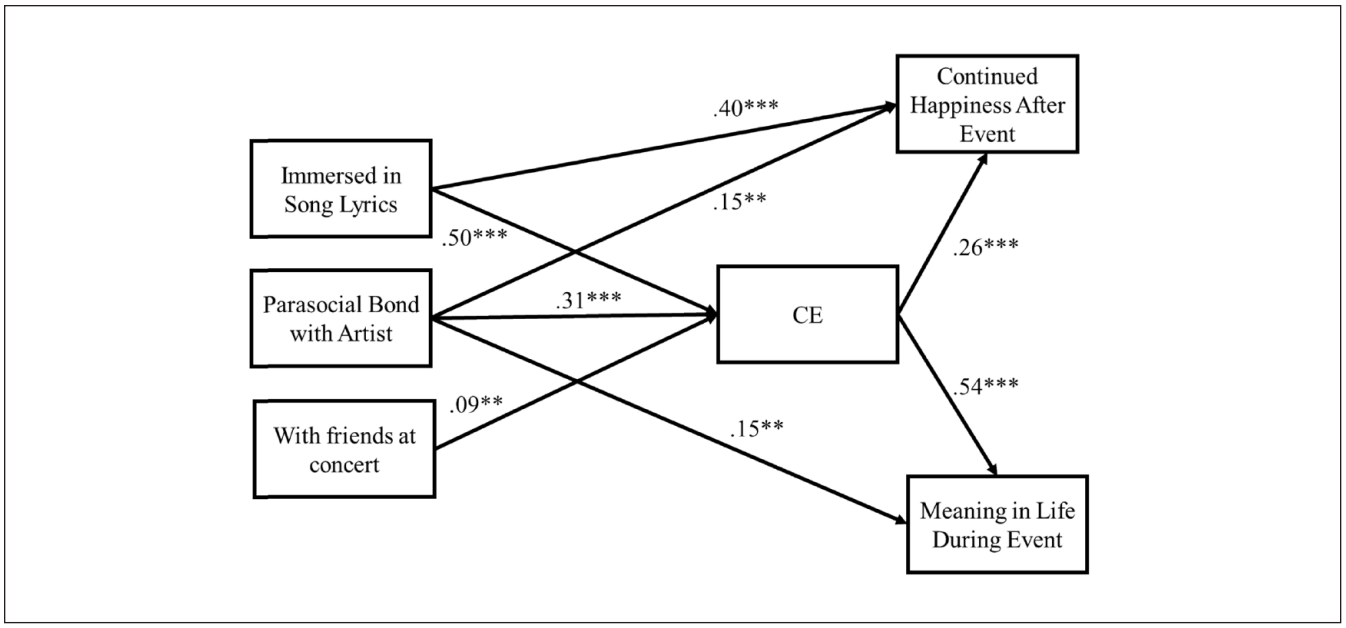


**Figure 2.** Fit model displaying all significant direct pathways with standardized beta coefficient estimates. $N = 422$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

immersion was indirectly related to greater MIL through CE (indirect effect = 0.26, SE = 0.04, $p < .001$, 95% CI [0.11, 0.34]), as were parasocial bonds with the artist (indirect effect = 0.17, SE = 0.03, $p < .001$, 95% CI [0.11, 0.24]), and being with friends at the event (indirect effect = 0.06, SE. = 0.02, $p < .001$, 95% CI [0.02, 0.10]). Therefore, all three of these variables led to MIL during an event due to the amount of CE that they generated.

*CE and Continued Happiness After the Event.* Our second hypothesis was also that elements of live music events and resulting feelings of CE would be related to continued feelings of happiness one week after the live music event. In support, CE was found to be directly related to greater continued happiness after the event (B = 0.21, SE = 0.04, Z = 5.24, $p < .001$).

Next, we assessed relationships between each of the elements of live music events, CE, and continued happiness. We found that both parasocial bonds with the artist (B = 0.12, SE = 0.04, Z = 2.93, $p = .003$) and lyrical immersion (B = 0.30, SE = 0.04, Z = 7.46, $p < .001$) also directly predicted continued happiness.

In addition, each of the assessed elements of live music events was related to greater happiness after the concert through CE. Lyrical immersion was indirectly related to greater happiness through CE (indirect effect = 0.10, SE = 0.02, $p < .001$, 95% CI [0.06, 0.15]), as were parasocial bonds with the artist (indirect effect = 0.06, SE = 0.02, $p < .001$, 95% CI [0.04, 0.10]), and being with friends at the event (indirect effect = 0.02, SE = 0.01, $p < .001$, 95% CI [0.01, 0.04]). Therefore, all of these variables led to continued happiness one week after the music event due to the amount of CE that they experienced.

### *Studies 3a and 3b Discussion*

Studies 3a and 3b replicated the findings of the first two studies that suggest that CE is an important part of live music events and can explain some of their positive outcomes. In addition, the study suggested that parasocial bonds with artists, lyrical immersion, and attending concerts with friends can all lead to positive outcomes via CE. Further, these results revealed that CE predicted continued happiness one week after the event. The experience of CE at live music events lingered, leaving participants feeling good for days. Overall, the findings of Studies 3a and 3b continue to support the importance of CE in contributing to lasting benefits following live music events.

## General Discussion

Across four studies using both university and community samples, we find support for the importance of CE in explaining both the short and long-term effects of attending live music events. In Study 1, we established the link between music and CE. Music is more likely to be present in events that people describe as eliciting CE compared to non-CE events. This suggests that elements of live music events are likely to lead to CE, and that CE and live music events are highly related.

We then explored whether CE explained the positive outcomes people report from attending live music events. CE was found to uniquely predict positive feelings of MIL and enjoyment over and above other constructs related to CE such as emotional synchrony, awe, and flow. In fact, CE was the only predictor of *both* enjoyment of the event and MIL.

The findings of Study 2 suggest that CE has a unique relationship to live music events even when accounting for related constructs. We suspect that the feelings of transcendence and connection inherent in experiences of CE make it a powerful elicitor of positive outcomes. Though other constructs have similar qualities to CE, they are limited in their ability to result in positive outcomes when compared with CE, perhaps because they lack both aspects of connection and transcendence present in CE. Additionally, when the predictive power of CE is accounted for, many of the other constructs did not predict positive outcomes and, in fact, in the case of awe, even negatively predicted MIL. Thus, the results of Studies 1 and 2 suggest that CE is an integral part of live music events and contributes to short-term positive outcomes of increased feelings of meaning and enjoyment over and above other related constructs. In addition, the studies increase understanding of CE by demonstrating how it not only differs from other related constructs but also has additional predictive power.

Studies 3a and 3b examined similar positive outcomes one week following the live music event to explore whether CE had an effect on wellbeing even after the event concluded. The results of these studies revealed that feeling CE was related to greater MIL during the event and continued happiness after the music event. Not only is CE related to wellbeing during live music events, but the positive effects from CE can last over a week after the event.

Furthermore, elements of individuals' experiences at the live music event were directly related to increased CE and increased wellbeing via CE. Parasocial bonds with the artist, lyrical immersion, and being with friends at the event all led to increased feelings of CE. This suggests that when people have bonds with the musical artist that they are watching, are particularly connected to and immersed in the lyrics of the music being performed, or are experiencing the event with close others, they are likely to feel an increased sense of general connectedness and an experience of the event transcending the ordinary. The indirect effects suggest that through their relationship to increased CE, common elements of live music events (i.e., parasocial bonds with the artist, lyrical immersion, presence of friends) are also related to the positive benefits of increased CE: greater MIL during the event and continued happiness one week after the event. This increases our understanding of what factors might be important for CE and how large group events can increase wellbeing.

Having a parasocial relationship with the artist was also directly related to happiness one week after the event and meaning during the event, suggesting that having a parasocial relationship, independent of experiences of CE, can also boost positive outcomes during live music events. This suggests that having a parasocial relationship with an artist can enhance one's experience with live music events and may help explain why these events are so enjoyable for fans. This may even suggest that musical artists who want to enhance the experience of their fans during their concerts should work to facilitate parasocial bonds prior to the live event, although future research is necessary to explore that possibility.

Lyrical immersion was also directly related to happiness one week after the event due, in part, to the experience of CE that the musical event elicited. This suggests a positive benefit to fully immersing oneself in the world created by the music and lyrics when attending live music events. Overall, this suggests that people should engage in live music events whenever possible, especially if they are able to attend shows with artists they feel a special bond with, or if they can attend with friends. Fully immersing oneself in the music and lyrics being sung while at these shows is also recommended as this also enhances happiness even after the event has passed. For those seeking an immersive experience that enhances overall wellbeing in the moment and in days to come, they should look no further than live music events.

It is worth mentioning that these common features of live music events (i.e., parasocial bonds with the artist, lyrical immersion, presence of friends) are not exclusive to live music events alone and may be experienced in other contexts (e.g., listening to an album with friends). The findings of this study suggest that CE may also be experienced in these other contexts and may enhance wellbeing. Future work should examine these additional contexts where someone might experience these social features common to live events and explore if these contexts similarly elicit CE and promote wellbeing. Additionally, future work could seek to examine the experience of listening to music alone versus in collectives. Past work suggests that music helps people feel connected to others through means such as CE and reminders of others (Gabriel & Paravati, 2021), and thus listening to music may contribute to increased wellbeing even when alone.

Future research may benefit from examining the relationship between CE and other related constructs. We argue that CE is a higher-order construct that, in part, explains the occurrence of other phenomena that involve experiences of oneness with peers such as inclusion of self in other (Aron & Aron, 1986), and identity fusion (Swann et al., 2012). Further, experiences such as shared attention (Shteynberg, 2015), i-sharing (Pinel et al., 2006), and shared experience bonding (Boothby et al., 2014) may be related to the same underlying factors that encourage feelings of CE (Rime & Páez, 2023). Future work could examine these relationships directly through experimental manipulation of shared experiences (e.g., live music events). That work could examine whether CE is a mechanism by which other processes occur or whether it occurs concurrently due to shared antecedents.

### *Limitations and Future Directions*

Two limitations of the research are both related to its retrospective (rather than experimental) nature. First, social features of live music events were measured before CE, and

thus recollection of these social features could have influenced responses to the CE scale. Second, experimental evidence would add to confidence about causality. Future work should manipulate various elements of live music events and examine CE and related outcomes to establish a causal link. However, the current correlational work does suggest strong relationships between these variables and suggests that, regardless of directionality, the presence of these features of live music are related to greater feelings of CE and more positive outcomes.

The current research also did not examine all possible pathways from live music to wellbeing as well as all possible aspects of a live music event that might lead to CE. However, based on prior research, the pathways that were examined in the current work were the most relevant to the best of our knowledge. Some of the elements and outcomes in the current work were not assessed using validated scales, as they have never been assessed in this way in past research; therefore, future work may wish to further validate the use of these measures (such as the state measure of meaning in life). Future research may want to examine additional elements of live music experiences such as one's involvement in the fandom surrounding the artist or genre or the quality of the music. Additionally, more pathways to wellbeing may be assessed, such as feelings of belongingness or deindividuation during the event. Another direction is to examine other outcomes of live music events. For example, live music events may be particularly well suited to increasing entitativity (Hamilton et al., 1998) or spiritual wellbeing. Live music during other mass events, such as protests and political demonstrations, may also lead to greater collective action through its relation to CE.

Although listening to pre-recorded music alone has been found to have numerous health benefits (e.g., Daykin et al., 2018), we suggest that the experience of CE that comes from being with other people at live music events is particularly important for enhanced wellbeing outcomes. But when attending live music events is unavailable (e.g., the event is too expensive or is not local), people may still pursue a "live music" experience when alone. For example, people may find alternate routes to experiencing live music such as viewing recorded events, listening to live albums, or attending live events virtually. Future research may want to directly compare listening alone, virtual live music, and actual live music. Additionally, conducting Study 3b with a community sample recruited in a naturalistic setting (i.e., a music festival) provides good ecological validity; however, it may have also biased our sample. For example, the type of person who attends live music events in the first place may be more likely to experience wellbeing from live music events than someone who does not regularly attend. In the current work, we found that attending live music events had a positive impact on happiness and meaning in life even a week after the event. It may be that this impact could last even longer if individuals engage with live music experiences frequently or reflect on them nostalgically after the event has passed (Naidu et al., 2023). Future work could examine the wellbeing of frequent live music attendees, the performers themselves, or even crew members of arenas and other concert venues.

## *Conclusion*

Although past research has found that music is highly tied to wellbeing, very little was known about how music led to wellbeing and the special role of live music events. The current research contributes new insights into the role that CE plays in explaining the positive outcomes of music events, both in the moment and in the days that follow the event. We find that live music events are not merely fun but can have lasting, meaningful impacts for those who attend. Through their relation to CE, live music events offer a unique experience of connection and enhance wellbeing. Thus, when the opportunity arises, people should jump at the chance to attend their favorite artists' concert, or to go with friends to see a local band, and immerse themselves in the experience. Attending these shows just might give a boost of connection, meaning, and happiness that is missing from ordinary life.


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### Supplemental material

Supplemental material is available online with this article.

### Notes

1. We report all manipulations, measures, and exclusions in these studies in the text or in Supplemental Materials.
2. The degrees of freedom in Study 1 results differ slightly across analyses due to missing data.
3. We also assessed the model including emotional synchrony as a predictor of CE and the outcome variables, as preregistered. The results of this model were almost identical with that in the current model. The full model with emotional synchrony is included in the Supplemental Materials. We chose not to include this model in the manuscript as emotional synchrony was examined in Study 2 as an alternate predictor to CE rather than as a

predictor of CE. Therefore, we felt that including it here as a predictor of CE would pose a conceptual inconsistency.

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