

Conscious Dance: Perceived Benefits and Psychological Well-Being of Participants

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Abstract

Background: Meta-analyses suggest that dance has potential to decrease psychological distress, increase trait mindfulness, and enhance quality of life. *Conscious dance* can be defined as unchoreographed, intentionally nonevaluative mindful movement commonly practiced in a group setting for purposes of authentic self-expression, self-discovery, interpersonal connectedness, and personal healing or growth.

Objective: To assess perceived effects of conscious dance practice (e.g., Ecstatic Dance, 5Rhythms) and examine associations between frequency/ duration of practice and psychological well-being among participants.

Methods: Self-identifying adult conscious dancers completed a survey ($N=1003$; mean age=47 years; 52% from the U.S; 78% White; 73% female).

Results: Conscious dancers with ≥ 5 years of practice had significantly higher trait mindfulness and life satisfaction compared to newer practitioners. More frequent practice (\geq once per week) was associated with higher trait mindfulness. A strong majority of participants endorsed experiences consistent with mindfulness (i.e., feeling “more present in my body”; 99% of the sample) and psychological flow (“I felt like I was ‘in the zone’ or ‘in the flow’ of things”; 93% of the sample) during conscious dance. Among participants endorsing any of five stress-related health conditions, the majority reported therapeutic effects (i.e., that conscious dance “helped them cope” with the condition). Therapeutic effects were most consistently reported by individuals with depression or anxiety (96% endorsement), followed by those with a trauma

history (95%), chronic pain (89%), and history of substance abuse or addiction (88%). For all conditions except addiction, therapeutic effects were associated with greater experiences of psychological flow during dance, and the magnitude of these effects was large (Cohen's *ds* range: 1.0-2.3).

Conclusion: Individuals who engage in conscious dance report that these practices help them to cope with stress-related health conditions. Participants reporting longer duration or greater frequency of practice scored higher on measures of psychological well-being. The feasibility and efficacy of conscious dance for improving well-being among individuals naïve to these approaches will be important to determine in future research.

Keywords: Ecstatic Dance, 5Rhythms, Meditation, Open Floor, Movement Medicine, Soul Motion, Contact Improv, Biodanza, Journey Dance, Azul, Nia, Dancing Mindfulness, Authentic Movement, Dancing Freedom, Trance Dance, Chakradance.

Introduction

Humans have used dance for purposes of expression¹, social bonding^{2,3}, and spiritual-emotional healing since prehistoric times.^{4,5} In recent decades, researchers have begun to study these effects empirically.⁶ Meta-analyses suggest that dance interventions have potential to reduce symptoms of anxiety and depression and enhance quality of life (QOL).⁷ In addition, available data suggest that dance practice increases trait mindfulness,^{7,8} possibly via enhanced embodied self-awareness.^{9,10} In fact, in a three-arm randomized controlled trial (RCT) of 97 adults with depression, assignment to Argentine tango dance classes significantly predicted increases in trait mindfulness, whereas assignment to mindfulness meditation classes did not.⁸

The term “conscious dance” is increasingly used to describe a category of dance practices involving free-form movement (usually to music) as well as self-reflection and/or meditation. Conscious dance can be defined as unchoreographed, intentionally nonevaluative mindful movement commonly practiced in a group setting for purposes of authentic self-expression, self-discovery, interpersonal connectedness, and personal healing or growth.¹¹⁻¹³ Although dozens of forms of conscious dance are practiced worldwide, common elements include an emphasis on present-moment awareness; spontaneous, barefoot movement; inspiring global music; minimal structure, and an attitude of playful curiosity and nonjudgmental acceptance.¹⁴ Participants are typically asked to abstain from alcohol and other substances throughout the practice and to refrain from talking on the dance floor. By contrast, singing, toning, and non-verbal vocal expressions may be permitted or encouraged. Conscious dance forms vary in the degree of facilitation provided as well as in size, with events ranging from a handful of participants to several hundred. Emotional safety of these practices is of

paramount importance,¹¹ and all components of the practice are voluntary.¹⁵ In some modalities, prayer hands at the heart are used to respectfully decline an invitation to (continue to) dance jointly by indicating “thank you; I prefer to dance alone (now)”.¹⁴

One of the first manifestations of conscious dance in Western society was 5Rhythms.^{12,13,16} Other popular forms of conscious dance include Ecstatic Dance^{14,17}, Soul Motion^{18,19}, Open Floor^{20,21}, Movement Medicine²², Biodanza²³, and Nia²⁴. Although most conscious dance forms do not claim the label of Dance/ Movement Therapy (DMT) because facilitators are not necessarily trained therapists,²⁵ these practices do typically meet the American Dance Therapy Association’s definition of DMT as “the psychotherapeutic use of movement and dance to support intellectual, emotional, and motor functions of the body”.^{18,26} As in DMT, many forms of conscious dance emphasize “the correlation between movement and emotion”,²⁶ and participants frequently cite psychological benefits as a motivation for practice.¹¹ In a qualitative study examining participants’ motivations for practicing 5Rhythms, the most commonly endorsed themes included freedom, psychological safety, mind-body connection, emotional expression, personal growth, spirituality, interpersonal connectedness, and experiential mood-related effects.¹¹ By contrast, common exercise motives such as appearance and health were conspicuously absent.¹¹ However, few quantitative studies have investigated the effects of conscious dance or the association between conscious dance practice and measures of psychological well-being.

One of the few RCTs published to date randomly assigned 121 undergraduate students experiencing psychological distress to either 4 weeks of Biodanza or a waitlist control.²³ Biodanza was found to significantly decrease depressive symptoms and perceived stress.

Another RCT randomly assigned 59 healthy adult women to either a 10-week 5Rhythms-based conscious dance class or a waitlist control.²⁷ Conscious dance significantly reduced depressive symptoms, increased positive affect, and decreased objectified body surveillance (imagining how one's body is perceived by others)²⁸ compared to waitlist. These results suggest that increased self-acceptance and decreased self-consciousness may play a role in the psychological benefits observed with conscious dance.

RCTs investigating the efficacy of DMT for improving psychological well-being have also found significant positive effects. In a systematic review and meta-analysis of RCTs conducted with individuals with depression, DMT was found to significantly reduce the severity of depressive symptoms.²⁹ Another RCT investigated the efficacy of DMT for improving psychological well-being among adults self-reporting stress. One hundred and sixty-two adults were assigned to either 10 weeks of DMT or a waitlist control.³⁰ DMT significantly improved QOL³¹ and decreased symptoms of depression, phobic anxiety, psychoticism, and interpersonal sensitivity compared to control.³⁰ Furthermore, DMT participants reported significant improvements in their use of adaptive strategies for coping with stress. Other research suggests that dance has potential to enhance creativity³²⁻³⁴, capacity for self-expression,³⁵ self-esteem,^{36,37} compassion,³⁸ belongingness,^{35,38,39} sense of purpose,³⁵ and subjective-well-being.³⁸

Researchers have also begun to investigate possible mechanisms, some identified in DMT research, by which conscious dance practices may increase psychological well-being.^{9,38} First, similarly to mindfulness,^{7,40} conscious dance invites an internal focus on body and sensory awareness, which may enhance capacity for affect awareness and emotion regulation.⁹ Second,

rhythmically synchronized movement has been shown to increase perceived emotional connectedness and decrease perceived isolation, which may in turn facilitate a range of benefits to well-being.⁹ Third, as an experiential approach, conscious dance may offer direct access to implicit body-based memories that are consciously inaccessible but nevertheless impact self-perception or functioning.⁹ Conscious dance may provide a safe space to experience these memories with less emotional arousal, increase explicit access to these memories, and/or allow the formation of new associations that promote healing.

A final potential mechanism by which conscious dance may enhance well-being is via flow.^{7,41} *Flow* (colloquially known as being “in the zone”) is a state of consciousness characterized by complete absorption in an intrinsically motivating activity, time distortion, high levels of confidence/ self-efficacy, and loss of self-consciousness.⁴² Experiences of flow are common during DMT⁴³ and other forms of dance,⁴⁴⁻⁴⁶ and have been hypothesized as a mechanism of change in music therapy.⁴⁷ Flow is associated with transient neural hypofrontality (i.e., decreased activation of the prefrontal cortex),⁴⁸ which is hypothesized to inhibit the functioning of the explicit information processing system and facilitate the operation of the implicit system at maximum skill and efficiency.⁴⁸ Excessive activity of the prefrontal cortex is thought to generate hypervigilance, hyper-awareness, and/ or self-consciousness,⁴⁹ and individuals with anxiety and depressive disorders have been shown to exhibit frontal lobe dysfunction.⁴⁹ It has been argued that transient neural hypofrontality and the accompanied suppression of analytical and meta-conscious processes may account for the anxiolytic and antidepressant effects of both flow⁴⁸ and physical exercise.^{48,49}

While the above-referenced studies are important in demonstrating the potential for psychological benefit from conscious dance in small RCTs, there is a paucity of research on the characteristics and motivations* of individuals who take part in conscious dance in real-world settings. The current study sought to address this gap. Specifically, we aimed to: 1) Describe levels of psychological well-being (i.e., trait mindfulness and life satisfaction) among conscious dancers; 2) Examine the relationship of frequency and duration of practice with psychological well-being; 3) Explore the extent to which participants report experiences of flow during conscious dance; 4) Assess additional perceived effects of conscious dance and the perceived duration of these effects; 5) Assess the extent to which participants with common stress-related health conditions report therapeutic effects (i.e., that conscious dance “helps them to cope” with their condition); and 6) Test whether those who report therapeutic effects experience greater degrees of flow during conscious dance compared to those who do not.

Method

Data were collected via an online survey platform (SurveyMonkey) between July and December of 2019. Recruitment materials and survey questions were in English.

Ethical considerations. All participants were provided with a complete written description of the study and indicated their informed consent to participate online. The complete study protocol was submitted to the Office of the Human Research Protection Program (OHRPP) at the University of California, Los Angeles, and was certified exempt from

* A qualitative paper more explicitly examining the motivations of conscious dancers using open-ended text data collected during the same study is forthcoming.

Internal Review Board review due to the minimal risk to participants (45 CFR 46.101, category 2).

Participants

Adult participants >18 years of age who endorsed having participated in conscious dance were eligible to participate. Participants were recruited via announcements at conscious dance events (e.g., Ecstatic Dance, 5Rhythms) and via flyers posted to conscious dance Facebook groups worldwide. Flyers contained a link to the survey as well as the contact information of the Principal Investigator (KTL).

Measures

Duration, Frequency and Form of Conscious Dance Practice

Within the survey, conscious dance was defined as “intentional, freeform, primarily nonverbal dance that takes place in a group setting.” To determine duration of practice, participants were asked, “Approximately how long have you been attending conscious dance events?” Response choices were: “More than 10 years”; “5-10 years”; “1-5 years”; “6 months to 1 year”; “3-6 months”; “less than 3 months”; “I have only been once or twice”. To determine frequency of practice, participants were asked, “Approximately how frequently do you attend conscious dance events?” Response choices were: “3+ times per week”; “2x per week”; “1x per week”; “2x per month”; “1x per month”; “1x every couple months”; “a few times per year”; “1x per year or less”; “I have only been once or twice”. Participants also indicated the form(s) of conscious dance in which they had participated.

Mental and Physical Health Conditions

Participants were instructed, “Please indicate whether you have any of the following conditions: chronic pain, depression, history of trauma, anxiety, history of addiction or substance abuse.” For each of the five conditions, response choices were “yes”, “no”, or “prefer not to answer”.

Measures of Psychological Well-Being

Trait Mindfulness. Trait mindfulness was assessed using the Mindful Attention Awareness Scale (MAAS).^{50,51} The MAAS is a 15-item scale designed to assess dispositional or trait mindfulness. Participants are instructed to indicate how frequently they have each of 15 experiences on a 6-point scale. Cronbach’s alpha (a measure of internal consistency) in the current study was 0.89.

Life Satisfaction. Life satisfaction was assessed using the 5-item Satisfaction with Life Scale (SWLS).^{52,53} Cronbach’s alpha in the current study was 0.88.

Experiences During and After Conscious Dance

Single Statement Endorsements. To further describe experiences of participants during and after conscious dance, participants were asked to indicate whether they experienced each of 21 psychological states during, after, or both during and after participation in conscious dance. The prompt for these items was “Does conscious dance lead you to feel any of the following?” Response options were “I don’t feel this way”, “I feel this way DURING conscious dance”, “I feel this way AFTER conscious dance”, and “I feel this way DURING AND AFTER conscious dance”. Items were based on the first author’s review of the literature and experience participating in conscious dance closing circles (a ritual gathering often held at the end of a conscious dance session in which participants are invited to reflect upon and share

their experiences). The full list of these items and their degree of endorsement is shown in Table 4. Following these 21 items, a single question (“How long do these effects typically last?”) was used to provide a broad estimate of the average duration of these effects. Response choices were: “less than an hour”; “a few hours”; “a few days”; “indefinitely”.

Flow State. A new measure, hence titled the Noncompetitive Flow State Scale (FSS-NC), was developed for the purpose of this study. Items were adapted from the Short Flow State Scale-2 (SFSS-2), a 9-item scale that has demonstrated good internal consistency in prior research.⁵⁴ As the SFSS-2 was designed for use with individuals engaged in competitive activities and tasks with a clear metric for evaluating performance (e.g., chess, choreographed dance, performing surgery), items were modified to increase relevance to the noncompetitive, non-evaluative nature of conscious dance. Modifications to the scale are detailed in Appendix A. After data were collected, a correlation matrix was used to test the assumption of linear relations between all items. One item, (“I had a feeling of total control over what I was doing”) had low Pearson correlations with the majority of the other items ($r < 0.3$ for 7 of the 8 items; see Appendix B). Of the administered flow items, this was the only item for which Cronbach’s alpha increased with the item’s removal (see Appendix B). As such, this item was removed. The full version of the modified 8-item FSS-NC is provided in Appendix C. Cronbach’s alpha was 0.84.

Perceived Therapeutic Effects

For each health condition endorsed by the participant (see *Mental and Physical Health Conditions* for a list of conditions assessed), individuals were asked to indicate how much they agreed with the statement, “Conscious dance helped me to cope with my condition”. Response

choices were: “strongly disagree”; “disagree”; “slightly disagree”; “slightly agree”; “agree”; “strongly agree”.

Statistical Analysis

All statistical analyses were conducted using SAS 9.4. A significance level of 0.05 was used for all inferences. As an index of test reliability, internal consistency of all measures was evaluated using Cronbach’s alpha (a statistic calculated from the pairwise correlations between items in a scale).⁵⁵ Demographic and other characteristics of survey respondents were described using mean (standard deviation) and frequencies (percentages) for continuous and categorical variables respectively. Due to a clerical error, participants were asked to indicate their age only if they were younger than 70 years old. We approximated a mean age based on the assumption that the mean age of the 40 participants who were ≥ 70 was 75. Note that if we assumed this mean age to be 80 instead of 75 years the estimated mean age of the entire sample would change only slightly (from 46.9 to 47.1 years). In analyses for which age was included as a covariate, the age of the 40 individuals who endorsed an age ≥ 70 was set to 75, as we believed that this approach would introduce less bias into the dataset than eliminating these participants from the analyses.

Based on the distribution of the measures, frequency and duration of conscious dance practice were each categorized into two groups. Frequency was categorized as ‘at least once per week’ vs. ‘less than once per week’; duration was categorized as ‘5 years or longer’ vs. ‘fewer than 5 years’. Mindfulness (MAAS), life satisfaction (SWLS) and flow (FSS-NC) scores were compared between these groups using unpaired t-tests. Because of research suggesting that mindfulness and life satisfaction appear to increase until roughly age 70,^{56,57} we also

examined whether mindfulness and life satisfaction were associated with frequency and duration using analyses of covariance (ANCOVAs) that controlled for age.

Among respondents who endorsed a chronic condition, independent t-tests were used to compare flow between those who agreed vs. disagreed with the statement, “Conscious dance helped me to cope with my condition”. Because of the large sample size, results can be statistically significant even when actual effect sizes are small. We therefore present estimated effect sizes (Cohen’s *ds*) in addition to the statistics and *p*-values to aid in the interpretation of the size of group differences. Effect sizes were interpreted using Cohen’s⁵⁸ guidelines (*ds* of 0.2 as “small”, 0.5 as “medium”, and 0.8 or greater as “large”).

Results

Sample Characteristics

Characteristics of the sample are provided in Table 1. Of the 1076 participants who initiated the survey, 1003 individuals (93%) completed it. The majority of participants were White (77.5%), female (72.6%), and highly educated, with 78.4% of the sample having a bachelor’s degree and 45.8% having a graduate degree. The mean age was 47 years (mode=48). The majority of participants resided in North America (61.4%) and Europe (30.4%), with the largest number of participants reporting residence in the United States (51.6%) and the United Kingdom (13.7%) (see Table 2).

Characteristics of Conscious Dance Practice

Duration and Frequency. The duration and frequency of conscious dance practice is presented in Table 3. The majority of participants reported that they had been participating in conscious dance for at least a year (84.0%) and that they participated with a frequency of at

least once per month (81.6%), with 54.5% of the sample reporting participating once per week or more.

Relation Between Duration and Frequency. Participants who were newer to conscious dance (i.e., who had been participating for fewer than five years) were equally likely to practice with a frequency of at least once per week (50.1%) vs. less than once per week (49.9%). By contrast, those who had been participating for more than 5 years were more likely to practice more frequently (58.6% practiced at least once per week vs. 41.4% practiced less than once per week; $\chi^2(1) = 6.2, p = .01$).

Type of Conscious Dance. The most frequently endorsed types of conscious dance practice were 5Rhythms (65.6%), Ecstatic Dance (63.6%), and Open Floor (14.1%) (see Table 3).

Psychological Well-Being of Participants

Trait Mindfulness. The mean trait mindfulness score of participants in our study was 4.27 (SD = 0.70). Individuals who reported participating in conscious dance for 5 years or longer (M=4.44, SD=0.62) had significantly higher mindfulness scores than those who had been practicing for fewer than 5 years (M=4.10, SD=0.72, $t(932)=7.86, d = 0.52, p<0.0001$).

Individuals who reported participating in conscious dance at least once per week had significantly higher levels of trait mindfulness (M = 4.35, SD=0.66) compared to those who participated twice per month or less (M = 4.22, SD=0.71, $t(850) = 2.72, d=0.19, p = 0.007$). Both these effects remained significant after controlling for age (duration: $F(1,925) = 39.91, p<0.0001$; frequency: $F(1, 845) = 5.73, p = .01$). The interaction term of frequency and duration of practice was not significantly associated with trait mindfulness ($F(1,803) = 0.8, p = 0.4$).

Life Satisfaction. Mean life satisfaction among our study participants was 25.49 (SD = 6.14). Participants who reported practicing for 5 years or longer (M=26.09, SD=5.85) had significantly higher life satisfaction than those who had been practicing for fewer than 5 years (M=24.91, SD=6.31, $t(932)=2.94$, $d=0.19$, $p=0.003$; controlling for age, $F(1,925) = 9.24$, $p = .002$). There was no significant difference in life satisfaction among individuals who reported participating in conscious dance at least once per week (M=25.47, SD=6.09) compared to those who practiced less frequently (M=25.73, SD=6.15). Further, the interaction term of frequency and duration of practice was not significantly associated with life satisfaction ($F(1,803) = 0.6$, $p = 0.4$).

Experiences During and After Conscious Dance

Single Statement Endorsements. The extent to which participants endorsed various experiences during, after, or both during and after conscious dance is portrayed in Table 4. Statements with over 95% total endorsement (i.e., either during, after, or both) included: “more present in my body”, “more present in the moment”, “better mood”, “relaxed”, “more free”, and “elated”. The three experiences most likely to be endorsed during vs. after conscious dance were “more present in the moment”, “more present in my body”, and “more free”, whereas the three experiences most likely to be endorsed after vs. during conscious dance were “relaxed”, “better mood”, and “greater sense of meaning/ purpose”. Across all experiences, the most frequently reported duration of effects was “a few days” (41.68%), followed by “a few hours” (31.76%) and “indefinitely” (23.97%). A minority of participants reported that these experiences last “less than an hour” (2.60%).

Flow State. Mean flow scores were 4.34 ($SD=0.52$). Individuals who reported participating in conscious dance for 5 years or longer ($M=4.40$, $SD=0.47$) had significantly higher flow scores than those who had been practicing for fewer than 5 years ($M=4.29$, $SD=0.55$, $t(840)=3.11$, $d = 0.22$, $p=.002$). Individuals who reported participating in conscious dance at least once per week had significantly higher levels of flow ($M = 4.41$, $SD=0.46$) compared to those who participated twice per month or less ($M = 4.30$, $SD=0.53$, $t(806) = 3.25$, $d=0.23$, $p = 0.001$). The interaction term of frequency and duration of practice was not significantly associated with flow scores ($F(1,803) = 0.02$, $p = 0.9$).

Perceived Therapeutic Effects

The extent to which participants reported that conscious dance helped them to cope with chronic stress-related mental and physical health conditions is portrayed in Figure 1. Of the participants who endorsed each condition, the percent who agreed that conscious dance helped them cope with that condition were as follows: depression, 96.3%; anxiety, 96.2%; trauma history, 94.9%; chronic pain, 89.4%; addiction history, 87.8%.

Relation Between Flow and Therapeutic Effects

Among participants who endorsed depression, anxiety, chronic pain, or a history of trauma, those who reported that conscious dance helped them to cope with their condition reported higher levels of flow during conscious dance compared with those who stated that conscious dance did not help them cope with their condition. Effect sizes were largest for depression (mean flow score = 4.37 ($SD=0.49$) vs. 3.38 ($SD=1.10$); $t(276)=5.06$, $d=1.94$, $p<0.0001$), followed by anxiety (means= 4.37 ($SD=0.49$) vs. 3.60 ($SD=0.91$); $t(434)= 5.58$, $d=1.52$, $p<0.0001$), history of trauma (means= 4.39 ($SD=0.49$) vs. 3.71 ($SD=0.95$); $t(482)=5.84$, $d=1.30$,

$p < 0.0001$), and chronic pain (means = 4.44 (SD = 0.46) vs. 3.99 (SD = 0.74); $t(237) = 4.08$, $d = 0.91$, $p < 0.0001$). This effect was not statistically significant among individuals with a history of addiction (means = 4.41 (SD = 0.48) vs. 4.24 (SD = 0.46); $t(194) = 1.63$, $d = 0.36$, $p = 0.106$).

Discussion

In this large cross-sectional study of self-identifying conscious dancers, longer duration of conscious dance practice was associated with greater psychological well-being in the form of greater life satisfaction and trait mindfulness. More frequent practice was associated with greater trait mindfulness. Of course, because the current study was cross-sectional, the directionality of the relation between conscious dance and psychological well-being cannot be determined. It is possible that individuals with higher life satisfaction are more motivated or able to engage in sustained conscious dance practice, and/ or that sustained conscious dance practice increases life satisfaction. Similarly, it is possible that individuals who are more mindful are more likely to engage in conscious dance, that conscious dance practice increases trait mindfulness, or some combination of the two. Results of an RCT of Argentine tango⁸ suggest that at least this modality of dance has potential to increase trait mindfulness. Although no such randomized studies have been conducted with conscious dance, we speculate that for some individuals, conscious dance may have an even greater potential to increase trait mindfulness compared to evaluative forms of dance due to the emphasis on present-moment focus and non-judgmental acceptance.⁵⁹ Future experimental studies will be important for determining causal relationships between conscious dance practices and components of psychological well-being.

In one sense, the finding that greater frequency of practice did not predict higher life satisfaction may be surprising. However, this finding makes sense if one considers that individuals with poor life satisfaction may be motivated to practice conscious dance more frequently compared to individuals who are more highly satisfied with their lives. This hypothesis – i.e., that distress or dysfunction may be a motivating factor for conscious dance practice – is supported by the large proportion (81%) of our participants who endorsed at least one of five common stress-related health conditions – most commonly “history of trauma”, anxiety, and depression (endorsed by 59%, 52%, and 35% of our sample, respectively). This finding is consistent with results of a study of individuals participating in a form of conscious dance called “No Lights, No Lycra” (NLNL) in which 50% of the sample endorsed a mental health condition diagnosed by a medical professional (predominantly depression and/or anxiety).⁶⁰ Of the participants in our study who endorsed any of five common stress-related health conditions, the vast majority agreed that conscious dance helped them to cope with their condition (percent agreement ranged from 96% for those with anxiety or depression to 88% for those with a history of addiction). These results are also similar to those of the NLNL study, in which 97% of participants agreed that NLNL improved their mental health.⁶⁰

It is worth noting that the trait mindfulness measure used in the current study (the MAAS⁵¹) predominantly assesses attention and awareness and omits other dimensions of the mindfulness construct⁶¹ such as nonreactivity, nonjudgment, and acceptance. However, responses to individual statements regarding experiences during conscious dance suggest that these later aspects of mindfulness may also be facilitated through conscious dance practice. Specifically, high percentages of participants reported enhanced ability to “let go of distressing

thoughts and images” (87%) and to “notice thoughts and feelings without judgement” (88%) with conscious dance practice. Other experiences consistent with mindfulness that were highly endorsed included greater awareness of senses, emotions, and actions (each endorsed by >87% of the sample). Interestingly, the two individual statement experiences most commonly endorsed during vs. after conscious dance are both consistent with the construct of mindfulness (“more present in the moment” and “more present in my body”; endorsed by 98% and 99% of the sample, respectively). In contrast, the three experiences most commonly endorsed after vs. during conscious dance reflected improved mood and sense of purpose (“relaxed”, 97%; “better mood”, 98%; and “greater sense of meaning/ purpose”). This provides support for the hypothesis that, as others have suggested,^{9,59} increased mindfulness (including an increased capacity for affective awareness⁶ and self-regulation⁶²) may be one mechanism by which conscious dance enhances mental health. Future studies are needed to examine how and under what conditions various aspects of mindfulness may be enhanced through conscious dance.

Participants also reported high levels of flow during conscious dance, with the average response to the flow statements (FSS-NC mean = 4.34) representing a degree of endorsement between “agree” and “strongly agree”. Greater experiences of flow during conscious dance were associated with both greater frequency and greater duration of practice. Furthermore, higher levels of flow were associated with reported therapeutic benefits among those with a stress-related health condition. Individuals who experience flow during conscious dance by definition find it highly rewarding; as such, it makes sense that these individuals would be motivated to attend conscious dance more frequently and for a greater number of years. In

addition, more frequent or sustained conscious dance practice may facilitate an individual's capacity to experience flow. Results of at least two trials^{63,64} suggest that mindfulness training can facilitate experiences of flow[†], potentially by enhancing self-regulation of attention,^{65,66} enhancing embodied self-awareness,^{10,62} or decreasing self-preoccupation (i.e., focus on the “narrative” or “cognitive” self)⁶². Both flow and mindfulness are associated with the temporary loss of the ego construct,^{48,67,68} and detachment from identification with a static sense of self⁶² or “ego-dissolution”^{69,70} has been proposed as a mechanism by which mindfulness⁶² and other non-ordinary states of consciousness^{71,72} improve mental health. Further research is needed to determine whether changes in self-referential processing and in brain structures that support self-representation⁷²⁻⁷⁶ may account for the potential of conscious dance to enhance well-being.

A limitation of the current study is that participants were self-selected rather than randomly selected from a sample of conscious dancers. Because the study did not offer monetary compensation, individuals with stronger viewpoints regarding the value of conscious dance may have been more motivated to volunteer their time. As such, results should be interpreted in terms of “what is possible” rather than what is “most likely” to occur for any particular individual who is naïve to these practices. In addition, it is possible that participants formed beliefs about how the researchers preferred them to respond; if so, these “demand characteristics” may have influenced the results. Finally, study findings represent participants' self-reported well-being and attitudes at a certain point in time, which may not necessarily

[†] Others have suggested that mindfulness and flow states can alternate throughout a given activity,⁶⁴ and this may be a common occurrence during conscious dance.⁴⁸

indicate a persistent state. RCTs with long-term follow up will be important for investigating the effects of conscious dance compared to other interventions over time.

The majority of individuals in our study who endorsed a history of trauma reported that conscious dance helped them to cope, raising the question of whether it might be appropriate for clinicians recommend these practices to individuals struggling to cope with a traumatic event. However, just as exposure therapy must be individually tailored to ensure the appropriate level of challenge,⁷⁷ so too must somatic and mindful movement approaches. First time attendance at a conscious dance event is likely to initially invite self-consciousness,¹⁶ which may be too challenging for some individuals to overcome. Individual factors that predict receptivity to – and potential to benefit from – conscious dance are unknown.

It is possible that the demographic make-up of the sample was influenced by the greater willingness of White, female, and highly educated individuals to participate in research.⁷⁸ However, the gender distribution and age range of our participants is similar to those reported in studies of 5Rhythms¹¹ and NLNL⁶⁰ (racial identity was not reported in either of these studies). Higher rates of participation by females vs. males are common in nationally representative surveys of dance in general⁷⁹. Further, higher prevalence of White, female, and more highly educated individuals has been observed in nationally representative surveys of yoga^{80,81}, which is similar to conscious dance in that it includes mindful movement.⁸² Future research should attempt to recruit more diverse samples in order to determine the generalizability of the current findings.

Another limitation is that the current sample was comprised predominantly of participants of two conscious dance practices, 5Rhythms and Ecstatic Dance. Different forms of

conscious dance have different components and philosophies,^{13,59,83} and how these differences affect participant experiences remains unknown. Differential effects of various conscious dance practices for improving overall wellness as well as symptoms of specific health conditions will be important to determine. In addition, individual characteristics that predict which individuals are most likely to benefit from (which forms of) conscious dance remains an important question for future research. Finally, whether certain forms of conscious dance are more feasible or acceptable to various demographic populations warrants future study.

Strengths of the current study include the large sample size, as small sample sizes have consistently been cited as a limitation of research on DMT⁶ and dance in general⁸⁴. The current study also offers preliminary validation of a measure specifically designed to assess flow during engagement in non-competitive activities (the FSS-NC). Internal reliability for the scale, which was modified for purposes of this study from a flow state scale designed for competitive athletes, was good. However, one limitation is that flow was assessed with respect to “a recent time you participated” in conscious dance rather than a specific session. The strategy participants used to choose a particular dance session upon which to reflect is unknown. It is also possible that participants relied upon an aggregate memory of a “typical” conscious dance session rather than recalling an individual session. Similarly, when reporting duration of effects, participants were asked, “how long do these effects *typically* last?” The method by which participants formed a mental model of a typical session is unclear and may have affected the results. Future studies may wish to assess psychological states in more immediate proximity to a specified conscious dance session to reduce the potential for recall bias.

In sum, the current findings suggest that individuals who engage in conscious dance report that these practices help them to cope with a range of stress-related health conditions. Participants with a longer duration or greater frequency of practice reported higher levels of psychological well-being. The feasibility and efficacy of conscious dance for improving well-being among individuals naïve to these approaches will be important to determine. Studies using active control groups are needed to assess how conscious dance compares to other approaches for improving health outcomes in individuals with stress-related disorders.

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Table 1
Sample Characteristics

	N(%)
Age (mean; mode)**	47; 48
Gender	
Female	728 (72.6%)
Male	247 (24.6%)
Other	20 (2.0%)
Missing	8 (0.8%)
Race	
White	777 (77.5%)
Multiracial/ Other	140 (14.0%)
Asian	23 (2.3%)
Black	10 (1.0%)
Pacific Islander	4 (0.4%)
Native American or Alaska Native	2 (0.2%)
Missing	47 (4.7%)
Ethnicity	
Non-Latino	909 (90.6%)
Latino	70 (7.0%)
Missing	24 (2.4%)
Relationship Status	
Married or Living With Partner	415 (41.4%)
Single	307 (30.6%)
Divorced	160 (16.0%)
Separated	61 (6.1%)
Widowed	11 (1.1%)
Other	20 (2.0%)
Missing	29 (2.9%)
Education	
Less Than High School	3 (0.3%)
High School Graduate or Equivalent	40 (4.0%)
Some College, No Degree	82 (8.2%)
Trade/ Technical/ Vocational Training	41 (4.1%)
Associate Degree (2-Year College)	44 (4.4%)
Bachelor's Degree (4-Year College)	327 (32.6%)
Master's or Professional Degree	381 (38.0%)
Doctorate Degree	78 (7.8%)

Missing	7 (0.7%)
<hr/>	
Health Conditions (N responded)	
<hr/>	
Chronic Pain (N=867)	255 (29.4%)
Depression (N=864)	298 (34.5%)
History of Trauma (N=864)	511 (59.1%)
Anxiety (N=872)	451 (51.7%)
Substance Abuse History (N=866)	205 (23.7%)
Endorsed ≥ 1 Condition (N responded to ≥ 1 condition = 899)	730 (81.2%)

Note. Total sample N=1003 unless otherwise indicated. **Due to a clerical error, participants were asked to indicate their age only if they were younger than 70 years old. For this reason we are unable to calculate a standard deviation for this variable. Instead we report the mode age of all participants as well as an approximately estimated mean based on the assumption that the mean age of the 40 participants who were ≥ 70 was 75. Note that if we assumed this mean age to be 80 instead of 75 the estimated mean would change only slightly (from 46.9 to 47.1).

Table 2
Participant Location

	N(%)
Continent	
North America	616 (61.4%)
Europe	305 (30.4%)
Australia (Oceania)	48 (4.8%)
Asia	19 (1.9%)
South America	2 (0.2%)
Africa	1 (0.1%)
Missing	12 (1.2%)
Countries With N>10 Participants	
United States	518 (51.6%)
United Kingdom	137 (13.7%)
Canada	91 (9.1%)
Germany	40 (4.0%)
Australia	34 (3.4%)
Netherlands	20 (2.0%)
Finland	16 (1.6%)
New Zealand	14 (1.4%)
Belgium	12 (1.2%)

Table 3

Duration, Frequency, and Type of Practice

	N(%)
Duration of Practice (N=934)	
Only Attended 1-2 Times	31 (3.3%)
< 3 Months	21 (2.2%)
3-6 Months	31 (3.3%)
6 Months - 1 Year	66 (7.1%)
1-5 Years	307 (32.9%)
5-10 Years	191 (20.4%)
> 10 Years	287 (30.7%)
Frequency (N=852)	
Only Attended 1-2 Times	3 (0.4%)
Once Per Year or Less	11 (1.3%)
A Few Times Per Year	54 (6.3%)
1x Every Couple Months	89 (10.4%)
1x Per Month	83 (9.7%)
2x Per Month	148 (17.4%)
1x Per Week	287 (33.7%)
2x Per Week	146 (17.1%)
≥3x Per Week	31 (3.6%)
Types of Practice With N>10 Participants	
5Rhythms	658 (65.6%)
Ecstatic Dance	638 (63.6%)
Open Floor	141 (14.1%)
Movement Medicine	107 (10.7%)
Soul Motion	71 (7.1%)
Contact Improvisation	66 (6.6%)
Biodanza	23 (2.3%)
Journey Dance	22 (2.2%)
Azul	19 (1.9%)
Nia	16 (1.6%)
Dancing Mindfulness	14 (1.4%)
Authentic Movement	12 (1.2%)
Dancing Freedom	11 (1.1%)
Other	229 (22.8%)

Table 4

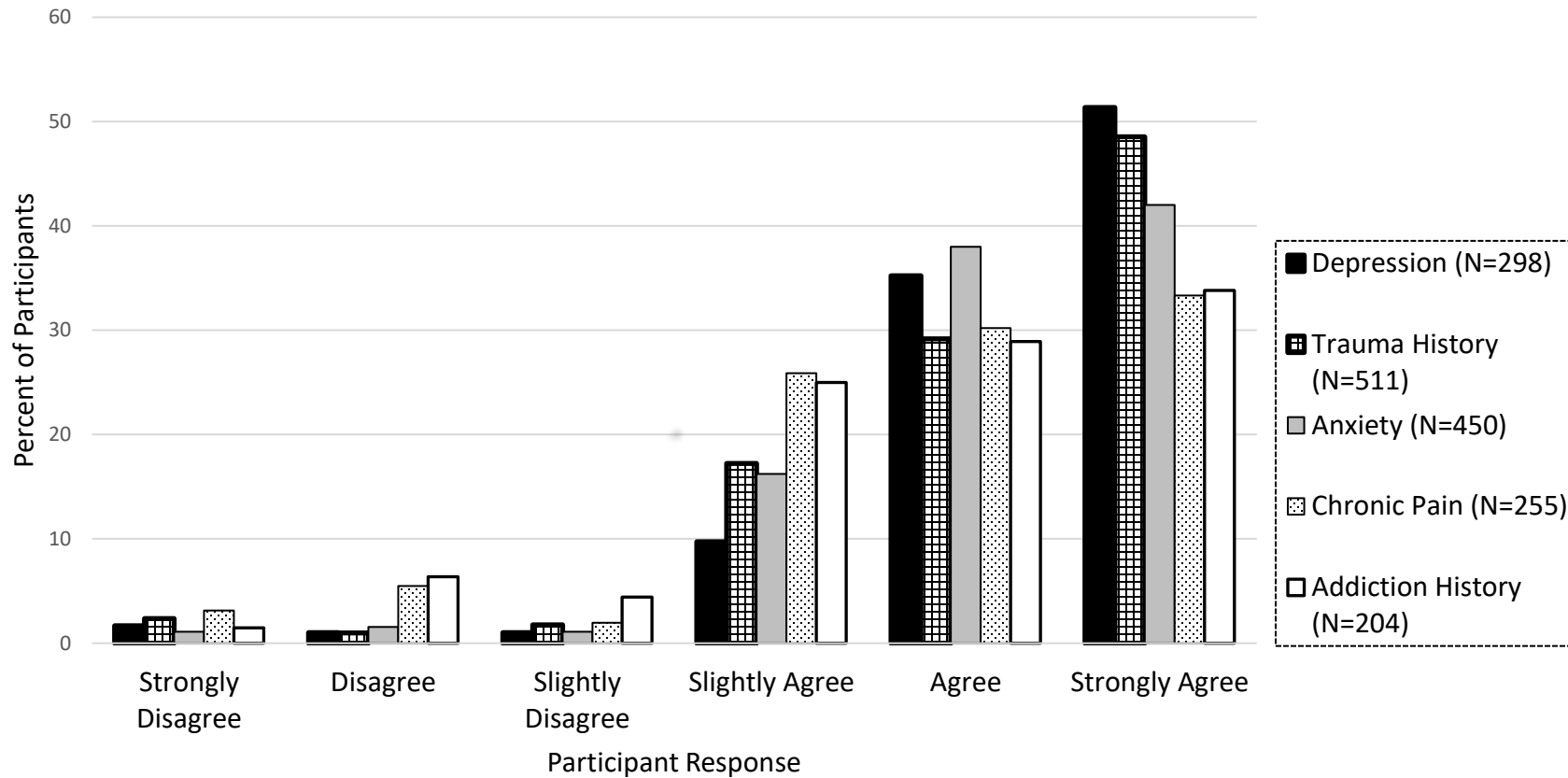
Experiences Endorsed During and After Conscious Dance

		No	Yes	Yes (During)	Yes (After)	Yes (During and After)	
↔ More Often Experienced After	↔ More Often Experienced During	More present in the moment	13 (1.53%)	836 (98.47%)	176 (20.73%)	13 (1.53%)	647 (76.21%)
	More present in my body	9 (1.06%)	840 (98.94%)	133 (15.67%)	13 (1.53%)	694 (81.74%)	
	More free	30 (3.53%)	819 (96.47%)	108 (12.72%)	20 (2.36%)	691 (81.39%)	
	More aware of my senses (sights, sounds, sensations)	69 (8.13%)	780 (91.87%)	161 (18.96%)	32 (3.77%)	587 (69.14%)	
	More free to express my emotions	65 (7.66%)	784 (92.34%)	138 (16.25%)	39 (4.59%)	607 (71.5%)	
	Less lonely	119 (14.02%)	730 (85.98%)	130 (15.31%)	38 (4.48%)	562 (66.2%)	
	More able to let go of distressing thoughts or images	110 (12.96%)	739 (87.04%)	166 (19.55%)	52 (6.12%)	521 (61.37%)	
	More aware of my current emotions	46 (5.42%)	803 (94.58%)	145 (17.08%)	47 (5.54%)	611 (71.97%)	
	Elated	33 (3.92%)	808 (96.08%)	139 (16.53%)	50 (5.95%)	619 (73.6%)	
	Spiritually uplifted	75 (8.83%)	774 (91.17%)	99 (11.66%)	41 (4.83%)	634 (74.68%)	
	More aware of my current actions	112 (13.19%)	737 (86.81%)	138 (16.25%)	64 (7.54%)	535 (63.02%)	
	More able to notice thoughts and feelings without judgement	105 (12.37%)	744 (87.63%)	113 (13.31%)	65 (7.66%)	566 (66.67%)	
	More creative	87 (10.3%)	758 (89.70%)	117 (13.85%)	78 (9.23%)	563 (66.63%)	
	Inspired	44 (5.22%)	799 (94.78%)	110 (13.05%)	88 (10.44%)	601 (71.29%)	
	More compassion for myself	68 (8.01%)	781 (91.99%)	83 (9.78%)	74 (8.72%)	624 (73.5%)	
	More compassion for others	84 (9.92%)	763 (90.08%)	74 (8.74%)	81 (9.56%)	608 (71.78%)	
	More confident	52 (6.14%)	795 (93.86%)	79 (9.33%)	89 (10.51%)	627 (74.03%)	
	A deeper understanding of myself	71 (8.39%)	775 (91.61%)	63 (7.45%)	86 (10.17%)	626 (74%)	
	Greater sense of meaning/ purpose	166 (19.58%)	682 (80.42%)	55 (6.49%)	104 (12.26%)	523 (61.67%)	
	Better mood	17 (2.01%)	829 (97.99%)	37 (4.37%)	106 (12.53%)	686 (81.09%)	
Relaxed	28 (3.31%)	818 (96.69%)	35 (4.14%)	282 (33.33%)	501 (59.22%)		

Note. Prompt was, "Does conscious dance lead you to feel any of the following?" Line represents a "during vs. after" ratio approximately equal to 1, i.e., below the line, the percentage of participants endorsing the experience during conscious dance was less than the percentage of participants endorsing the experience after conscious dance.

Figure 1

Reported Therapeutic Effects of Conscious Dance



Note. Participant responses indicate degree of agreement with the statement, "Conscious dance has helped me to cope with my [health condition]". Responses are presented by health condition (N represents the total number of participants who endorsed the condition).

Appendix A

Line-by-line comparison of the Short Flow State Scale-2 (SFSS-2) to the Noncompetitive Flow State Scale (FSS-NC).

Item	Original (SFSS-2)	FSS-NC	Percent Endorsed
1	I felt I was competent enough to meet the demands of the situation.	I felt competent.	85.12%
2	I did things spontaneously and automatically without having to think.	I acted spontaneously without having to think.	88.43%
3	I had a strong sense of what I wanted to do.	I had a strong sense of how I wanted to move.	73.52%
4	I was completely focused on the task at hand.	I was completely focused on the present moment.	82.20%
5	I had a feeling of total control over what I was doing.	I had a feeling of total control over what I was doing. ³	51.0%
6	I was not worried about what others may have been thinking of me.	I was less bothered than usual by what others might think of me.	86.05%
7	The way time passed seemed to be different from normal.	The way time passed seemed different from usual.	75.32%
8	I found the experience extremely rewarding.	I found the experience extremely rewarding.	96.34%
9	I had a good idea about how well I was doing while I was involved in the task/activity.	I felt like I was "in the zone" or "in the flow" of things.	92.69%

Note. “Percent endorsed” refers to the percentage of participants who responded either “agree” or “strongly agree” in the current study.

³ This item was omitted from the final version of the scale (see Appendix C). Please refer to the measures section for a description of the criteria that were met that led to the removal of this item.

Appendix B

Pearson correlation coefficients between all administered flow state items.

	Item 1	Item 2	Item 3	Item 4	Item 5*	Item 6	Item 7	Item 8	Item 9
Item 1	1.00	0.47	0.36	0.39	0.25	0.34	0.28	0.33	0.41
Item 2	0.47	1.00	0.35	0.48	0.21	0.43	0.38	0.45	0.45
Item 3	0.36	0.35	1.00	0.37	0.38	0.28	0.27	0.25	0.29
Item 4	0.39	0.48	0.37	1.00	0.30	0.36	0.38	0.40	0.48
Item 5*	0.25	0.21	0.38	0.29	1.00	0.26	0.17	0.15	0.23
Item 6	0.34	0.43	0.28	0.36	0.26	1.00	0.42	0.41	0.43
Item 7	0.28	0.38	0.27	0.38	0.17	0.42	1.00	0.43	0.43
Item 8	0.33	0.45	0.25	0.40	0.15	0.41	0.43	1.00	0.62
Item 9	0.41	0.45	0.29	0.48	0.23	0.43	0.43	0.62	1.00

*Omitted from final FSC-NC scale.

Analysis of individual flow state items.

	Correlation With Total	Alpha if Deleted
Item 1	0.53	0.82
Item 2	0.62	0.81
Item 3	0.48	0.82
Item 4	0.60	0.81
Item 5*	0.36	0.84
Item 6	0.56	0.82
Item 7	0.52	0.82
Item 8	0.58	0.81
Item 9	0.64	0.81

Note. "Correlation With Total" refers to the Pearson correlation coefficient between each administered item and the total scale score. "Alpha if Deleted" refers to the Cronbach's alpha of the scale if the item were to be deleted. Cronbach's alpha of the preliminary 9-item FSC-NC was 0.83. With the removal of item 5, Cronbach's alpha of the final FSC-NC scale was 0.84.

Appendix C

The Noncompetitive Flow State Scale (FSS-NC)

The following questions relate to thoughts and feelings you may have experienced while taking part in _____. Please think back to a recent time you participated in _____ and answer the following questions with regard to that experience.

There are no right or wrong answers; simply indicate the response choice that best matches your experience.

While participating in _____...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I felt competent.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. I acted spontaneously without having to think.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. I had a strong sense of how I wanted to move.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. I was completely focused on the present moment.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. I was less bothered than usual by what others might think of me.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. The way time passed seemed different from usual.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
7. I found the experience extremely rewarding.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
8. I felt like I was "in the zone" or "in the flow" of things.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

Note. The authors grant permission for this scale to be used for research purposes. Instructions for researchers: fill in the blanks in the prompt (“_____”) with the activity under investigation (e.g., conscious dance). Scoring instructions: Sum the individual responses and divide by 8 to determine a total score.