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Extreme rituals in a BDSM context: the physiological and psychological effects of the 'Dance of Souls'

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ABSTRACT

Participation in extreme rituals (e.g., fire-walking, body-piercing) has been documented throughout history. Motivations for such physically intense activities include religious devotion, sensation-seeking and social bonding. The present study aims to explore an extreme ritual within the context of bondage/discipline, dominance/submission and sadism/masochism (BDSM): the 'Dance of Souls', a 160-person ritual involving temporary piercings with weights or hooks attached and dancing to music provided by drummers. Through hormonal assays, behavioural observations and questionnaires administered before, during and after the Dance, we examine the physiological and psychological effects of the Dance, and the themes of spirituality, connectedness, transformation, release and community reported by dancers. From before to during the Dance, participants showed increases in physiological stress (measured by the hormone cortisol), self-reported sexual arousal, self-other overlap and decreases in psychological stress and negative affect. Results suggest that this group of BDSM practitioners engage in the Dance for a variety of reasons, including experiencing spirituality, deepening interpersonal connections, reducing stress and achieving altered states of consciousness.

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Early psychiatry viewed bondage/discipline, dominance/submission and sadism/masochism (BDSM) as deviant sexual practices, first mentioned by Krafft-Ebing (1965) in his *Psychopathia Sexualis*, and then interpreted by Freud as a method of expressing repressed desires (Weinberg 1994). Many modern researchers, in contrast, tend to view BDSM as a fairly common sexual interest (Faccio, Casini, and Ciolletta 2014; Joyal, Cossette, and Lapierre 2015) performed by psychologically healthy individuals (Connolly 2006) with favourable psychological characteristics (Wismeijer and Van Assen 2013). Mainstream depictions of BDSM often focus on the sexual aspects of its practice, and the majority of research on BDSM has studied

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BDSM in this context. However, despite common depictions in popular culture media, the practice of BDSM is not always sexual. For example, Wiseman's (1996) definition of BDSM includes the purpose of 'erotic arousal', but also 'personal growth' (10), Baumeister (1997) proposed a theory of masochism as escape from self and Newmahr (2010) suggested that sadomasochism is a form of 'serious leisure'.

The present study sought to explore a setting where BDSM might be practised in a non-sexual context. To that end, we collected a range of quantitative and qualitative data at the 'Dance of Souls', a hook-pull/ball-dance held at the annual Southwest Leather Conference (SWLC) in Phoenix, Arizona. The Dance of Souls is an extreme ritual that involves temporary piercings where either weights (e.g., bells, fruit) are attached to the piercings or hooks are placed into the piercings with ropes attached to the hooks to allow pulling against the piercings. The participants then dance to music provided by drummers.

Historically and presently, many people engage in extreme ritual practices (e.g., fire-walking, body-piercing; Catlin 1867; Fischer et al. 2014). Motivations to engage in these rituals include religious devotion, sensation-seeking and social bonding (Fischer et al. 2014; Xygalatas, Schjødt et al. 2013). Extreme rituals are characterised by physically demanding tasks performed within a social context, usually with fellow practitioners or interested observers. Research has documented several effects of ritual participation, including physiological synchrony with related observers (Konvalinka et al. 2011), autobiographical memory deficits (Xygalatas, Schjødt et al. 2013) and increases in prosocial behaviour (Xygalatas, Mitkidis et al. 2013).

Konvalinka et al. (2011) investigated the effects of a fire-walking ritual on those engaging in the ritual and those observing it. Konvalinka et al. measured the heart rates of the observers and participants, then compared video footage and heart rate readings. They found that related observers' heart rates synchronised with the participants' as they were walking over the hot coals. This indicates that participation and observation of an extreme ritual may invoke a type of arousal-related empathy that can strengthen bonds between individuals who go through and observe the experience.

Xygalatas, Mitkidis et al. (2013) explored how autobiographical memory is altered by engaging in an extreme ritual. Participants' physiological arousal was measured via heart rate prior to and during a fire-walking event. After participants completed the ritual, they were asked to recall their level of experienced arousal. Although the objective heart rate data showed an increase in arousal from before to during the ritual, participants reported a decrease in experienced arousal. Xygalatas, Schjødt et al. (2013) suggested that this inconsistency between objective and subjective data was due to the cultural norm of suppressing emotion during the event.

The Dance of Souls

As discussed above, the Dance of Souls is an annual event at the SWLC. The Dance shares elements of the Plains Native American Sundance (also known as the *O-Kee-Pa* ceremony [Catlin 1867]) and the Hindu Thaipusam festival of the Tamil communities (Musafar 2002; Pfaff and Simons 1973). In these traditions, devotees pierce their flesh, using body stress to induce ecstatic states.

The introduction of hook pulls/ball dances to the sadomasochistic and body modification communities is often attributed to Fakir Musafar. In 1999, Musafar and his partner, Cleo Dubois, taught a two-day workshop culminating in a ball dance at the Arizona Power Exchange. The first hook pull/ball dance hosted by the SWLC was held in 2004. In 2006, Elwood Reid, a protégé of Musafar, became the leader of the hook pull/ball dance at SWLC.

We sought to expand knowledge of extreme rituals through a multi-method investigation of the Dance of Souls. Consistent with previous research that assessed both objective and subjective measures of arousal in ritual participants (Konvalinka et al. 2013), we measured physiological stress through the hormone cortisol (via saliva samples) and psychological stress through self-report measures of stress, positive affect and negative affect. To investigate effects of the ritual on social bonding, we measured participants' reported self-other overlap and also analysed qualitative data from open-ended questions regarding motivations for and benefits of engaging in the Dance. To examine participants' conceptualisation of the Dance, we asked them how sexual, sadomasochistic and spiritual they found the Dance to be. We planned to examine cognitive changes during the Dance as well, but due to problems with the cognitive test that we used (the Wisconsin Card Sorting Test showed a large proportion of errors and discrepant results in the within-subject and between-subjects analyses), the results were uninterpretable. Finally, we recorded behavioural observations throughout the event.

We anticipated that the Dance of Souls might offer insights into some of the non-sexual manifestations of BDSM. Further, we anticipated that prior research on the effects of BDSM activities might inform predictions regarding the effects of the Dance of Souls. In contrast to prior studies of explicitly religious rituals (e.g., Xygalatas et al. 2013) or annual community rituals (e.g., Fischer et al. 2014; Konvalinka et al. 2011), the Dance of Souls takes place as the capstone of a conference that caters specifically to the leather/BDSM community. Within this community, the aspect of pain may take on a different meaning.

Hypotheses

Observed behaviours

Based on our expectation that this event would be considered BDSM activity separate from sexuality, we predicted that we would observe sadomasochistic activities but not overtly sexual activities.

The effects of the Dance on participants

Based on Sagarin et al.'s (2009) finding that cortisol increased in bottoms (BDSM participants who are bound, receiving stimulation, following orders, etc.) during BDSM scenes, and consistent with previous research on extreme rituals (e.g., Konvalinka et al. 2011; Xygalatas, Mitkidis et al. 2013), we predicted that cortisol levels would increase but that self-reported psychological stress would decrease from before to during the Dance. Based on Sagarin et al.'s (2009) finding that self-other overlap increased during BDSM scenes, we predicted that self-other overlap would increase from before to during the Dance. Based on anecdotal accounts from past Dance participants that described the Dance as an enjoyable experience, we also predicted that positive affect would increase and negative affect would decrease from before to during the Dance.

Participants' conceptualisation of the Dance

Again, due to our expectation that the Dance was a BDSM activity separate from sexuality, we predicted that participants would rate the Dance more sadomasochistic than sexual. We did not have a specific prediction regarding participants' ratings of the Dance as spiritual.

Methods

Participants

Participants were attendees at the 2012 SWLC who had signed up for the Dance of Souls (not all conference attendees participated in the Dance of Souls). Out of the approximately 160 participants in the Dance of Souls, 67 individuals contributed at least one measure to the study.

All demographic questions were open-ended. Responses were independently coded by two researchers (discrepancies resolved through discussion). The sample contained 33 women, 26 men and 3 transgendered individuals (5 participants did not report gender identity). The mean age was 49.16 ($SD = 10.34$). Most participants identified as Caucasian ($n = 57$); 4 reported being bi-racial and 5 indicated other (e.g., 'Spanish gypsy'). Sexual identities included heterosexual ($n = 19$), homosexual ($n = 11$), heteroflexible ($n = 10$) and bisexual ($n = 12$). Participants' BDSM roles were relatively evenly split among tops ($n = 25$), bottoms ($n = 21$) and switches ($n = 16$). Most participants reported their religious affiliation as being outside mainstream monotheistic religion; the modal response was 'spiritual' ($n = 12$).

Procedure

During the conference, the researchers set up a table in a well-trafficked area to invite individuals to enroll in the study. Interested individuals were given an informed consent form to read, and if they agreed to participate, they chose a unique ID to track their participation throughout the study. It was emphasised that participants were under no obligation to complete all of the measures. Participants were then given the pre-Dance survey.

At the beginning of the Dance, a table was set up in the room where the Dance was being held. Participants standing in line to be pierced were asked to contribute saliva samples for cortisol testing. A researcher would give a vial to the participant and instruct the participant to remove the swab, hold it under their tongue for one minute, deposit it back into the vial, and write their ID on the vial. Vials were then stored on ice in a cooler.

After the piercing was concluded, the data collection table was moved to the side of the Dance area. Throughout the Dance, researchers collected further saliva samples and administered during-Dance surveys.

The post-Dance survey was available on paper immediately following the Dance and online three months later when the conference organisers sent an email to all attendees with a link to the survey.

Materials

Pre-Dance survey

The pre-Dance survey began with demographic questions, including gender, sexual orientation, age, race/ethnicity, religion/spirituality and BDSM/leather role(s). Participants were asked to identify the role(s) they were planning on fulfilling during the Dance (*Dancer with hooks*, *Dancer with weights*, *Unpierced dancer*, *Observer*, *Drummer*, *Piercer* or *Dance leader*).

They were also asked if they had participated before in a similar event and which role(s) they played. Two open-ended questions asked: 'Why are you participating in the Dance of Souls?' 'What do you hope to gain from the experience?'

Participants were then asked to rate the extent to which they would use the word 'we' to describe their relationship with other people in the Dance (1 = *I definitely would not use the word 'we' to describe my relationship* and 7 = *I definitely would use the word 'we' to describe my relationship*). Following this was Aron, Aron and Smollan's (1992) Inclusion of Other in Self (IOS) scale. Participants were shown seven sets of two circles in various degrees of overlap; one circle represents the self and the second circle represents other(s). Participants were asked to choose which set of overlapping circles best describes their relationship at the present moment with other people in the Dance. The pre-Dance survey concluded with the Positive and Negative Affect Scale (PANAS; Watson, Clark, and Tellegen 1988). The PANAS asked participants to rate the extent to which they felt 20 emotions at the present moment on a scale of 1 (*very slightly or not at all*) to 5 (*extremely*). Two additional feelings were included: 'sexually aroused' and 'stressed'.

During-Dance survey

The during-Dance survey began with the PANAS, 'sexually aroused' and 'stressed'. Participants were then asked in an open-ended format what they were doing just before starting the survey and their perception of the challenge of that activity and their skill level in that activity on a scale of 1 (*none*) to 5 (*very high*). These questions were designed to assess 'flow' (Csikszentimihályi 1990). The last question asked participants to share any current thoughts or feelings in an open-ended format.

Post-Dance survey

The post-Dance survey first asked participants to identify which role(s) they took on during the Dance. If they were a dancer with hooks or weights, they were asked how many weights or hooks they used. Participants were then asked to describe their activities during the Dance. Next, participants were asked in an open-ended format, 'How do you feel about the Dance?' 'Did it go well?' 'Did it go poorly?'

Participants were then asked 'How much did you *lose yourself* during the Dance?' (1 = *not at all* and 5 = *very much*), 'How spiritual was the Dance for you?', 'How sexual was the Dance for you?' and, finally, 'How sadomasochistic was the Dance for you?', all on a scale of 1 (*not at all*) to 5 (*extremely*). Following this was the scale assessing participants' use of the word 'we' to describe their relationship with others at the Dance, the IOS and retrospective versions of the PANAS and the 'sexually aroused' and 'stressed' questions. Finally, demographic questions were included for participants who had not completed a pre-Dance survey.

Saliva samples

Saliva sample assays were performed using immunoassay kits purchased from Salimetrics, LLC.

All saliva samples were stored on wet ice during the collection procedures and then at -65 °C for later analysis. Immediately prior to assaying, samples were thawed and

centrifuged (1500 x g at 3000 rpm for 15 min) to separate saliva from any other matter. Each sample was analysed for cortisol immediately, without freezing the sample again. Each sample, standard or assay diluent, was pipetted (25 μ l) into plates pre-coated with antibodies for cortisol. The standard for cortisol ranged from 0.012 μ g/dl (0.33 nmol/l) to 3.0 μ g/dl (82.77 nmol/l), with an average 2.62% inter-assay coefficient of variation for the cortisol controls. All samples were assayed in duplicate: $r(49) = 0.95$, $p < .001$. The immunoassays were conducted in accordance with the directions from the Salimetrics, LLC hormone kits. Briefly, the conjugate was added to each well with the sample, standard or assay diluent. After 60 minutes, the plate was rinsed and 200 μ l of tetramethylbenzidine solution was added. The reaction was stopped after 30 minutes with sulfuric acid and the plate read with a BioRad E1A Reader Model 2550 within 10 minutes at wavelength 450 nm.

Results

Preparation of data

There were four administrations of survey materials. Any time prior to the Dance, participants could complete the pre-Dance survey. The during-Dance survey was available only during the Dance. After the Dance, paper post-Dance surveys were available to participants. Three months later, all Dance participants were sent an email with a link to an online version of the post-Dance survey. Some participants completed the post-Dance survey for the first time online while others completed the post-Dance survey for a second time. We attempted to measure levels of positive affect, negative affect, psychological stress and sexual arousal that occurred during the Dance in two ways. Items measuring these constructs appeared on the during-Dance survey and retrospectively on the Post-Dance survey. No significant differences were found in the scores for participants who reported positive affect, negative affect, psychological stress and sexual arousal in real time and retrospectively (all $ps > .09$). Thus, the during-Dance and post-Dance items for affect, psychological stress and sexual arousal were averaged into one during-Dance variable set.

Because many participants completed only a subset of the measures, analyses were performed both within-subject and between-subjects. In most cases, the within-subject and between-subjects analyses led to similar results. To avoid redundancy, the results of the within-subject analyses will be presented and any substantive differences between the results of the within-subject and between-subjects analyses will be noted.

Observed behaviours

Dance participants received temporary piercings from experienced volunteers in sanitary conditions, and had the option to receive hooked piercings in their chest and/or back, or to receive filament piercings on which weighted objects (e.g., bells, gemstones) were hung. Music was provided by a drumming group, and pierced and non-pierced dancers were invited to move to the music. Participants were in various states of undress; the majority of dancers who had received hooks were topless. Some hooked dancers connected their ropes in pairs or in groups as large as eight to pull against each other. Participants expressed a variety of emotions, yelling, grunting and crying at different intervals. No overt signs of

Table 1. Within-subjects means for pre-Dance, during-Dance and post-Dance measures.

Variable	Pre-Dance Mean (SD)	During-Dance Mean (SD)	Post-Dance Mean (SD)	<i>n</i>	<i>p</i>
Sexual arousal	2.24 (0.94)	2.78 (1.11)	-	33	.001
'We'	5.54 (1.5)	-	5.56 (1.39)	23	.929
Self/other overlap	3.7 (1.49)	-	4.87 (1.55)	22	.002
Positive affect	39.06 (6.72)	40.44 (6.34)	-	33	.175
Negative affect	13.45 (5.28)	11.17 (1.63)	-	32	.014
Stress	1.6 (1.11)	1.15 (0.42)	-	32	.022
Cortisol	.18 (0.15)	.46 (0.55)	-	12	.064

Note: The variation in sample size is due to the fact that not all participants completed all of the measures.

sexual arousal were observed. The dancing lasted approximately three hours, after which participants began to have their piercings removed.¹

The effects of the Dance on participants

Table 1 displays the mean levels of sexual arousal, positive affect, negative affect, self-reported stress and cortisol before and during the Dance as well as the mean levels of 'we'ness and self-other overlap before and after the Dance. Table 2 displays the correlations between these variables as well as participants' conceptualisation of the Dance as spiritual, sexual and sadomasochistic. Pre/during and pre/post correlations were significant for sexual arousal, 'we'ness, self-other overlap and positive affect. Thus, for example, participants who were higher in sexual arousal before the Dance tended to remain higher in sexual arousal during the Dance.

Sexual arousal

Participants reported a significant increase in sexual arousal from before the Dance ($M = 2.24$, $SD = 0.94$) to during the Dance ($M = 2.78$, $SD = 1.11$), $t(33) = -3.75$, $p = .001$. Additionally, there was a significant positive correlation between post-Dance ratings of how sexual and sadomasochistic the Dance was and sexual arousal both before and during the Dance (all $ps < .05$).

'We' relationship, self-other overlap

There was not a significant difference between participants' use of the word 'we' to describe their relationship to others pre-Dance ($M = 5.54$, $SD = 1.50$) to post-Dance ($M = 5.56$, $SD = 1.39$), $t(23) = -0.09$, $p = .93$. Participants did, however, report a significant increase in self-other overlap pre-Dance ($M = 3.7$, $SD = 1.49$) to post-Dance ($M = 4.87$, $SD = 1.55$), $t(22) = -3.57$, $p = .002$.

Positive and negative affect

Contrary to our hypothesis, participants did not report a significant increase in positive affect from pre-Dance ($M = 39.06$, $SD = 6.72$) to during-Dance ($M = 40.44$, $SD = 6.34$), $t(33) = -1.39$, $p = .175$.

Negative affect, however, decreased significantly from pre-Dance ($M = 13.45$, $SD = 5.28$) to during-Dance ($M = 11.17$, $SD = 1.63$), $t(32) = 2.59$, $p = .014$. Thus, even though levels of

Table 2. Correlations for self-report measures.

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. How spiritual	–														
2. How sexual	–.26	–													
3. How sadomasochistic (SM)	–.20	.28	–												
4. Sexual arousal pre-Dance	–.09	.49*	.65**	–											
5. Sexual arousal during-Dance	–.20	.76**	.35*	.69**	–										
6. 'We' pre-Dance	.32	–.14	.10	.01	.02	–									
7. 'We' post-Dance	.48**	.01	–.28	–.32	.01	.69**	–								
8. Self/other overlap pre-Dance	.53**	.17	.15	.16	.16	.62**	.30	–							
9. Self/other overlap post-Dance	.42**	.11	.03	–.10	.09	.70**	.59**	.46**	–						
10. Positive affect pre-Dance	.29	–.50*	–.35	.21	.04	.15	.04	.33*	–.30	–					
11. Positive affect during-Dance	.23	.08	–.07	.26	.25	.11	.26	.24	.13	.61**	–				
12. Negative affect pre-Dance	.03	.20	–.06	–.18	–.10	–.24	–.29	–.13	.09	–.41**	.08	–			
13. Negative affect during-Dance	.01	–.13	.06	–.08	–.29*	–.26	–.19	–.21	–.12	–.29	–.06	.28	–		
14. Stressed pre-Dance	.08	.26	–.18	–.19	–.06	–.32*	–.17	–.18	.14	–.37**	.15	.74**	.50**	–	
15. Stressed during-Dance	.12	–.26	–.15	–.17	–.20	.01	–.05	.02	.07	–.02	–.01	.05	.51**	.26	–

*Indicates significance at the .05 level.

**Indicates significance at the .001 level.

negative affect were fairly low going into the Dance, participants still reported feeling less negative affect during the Dance. Positive affect pre-Dance was significantly negatively correlated to pre-Dance negative affect, $r(50) = -.41, p = .003$. In addition, during-Dance negative affect was significantly negatively correlated with sexual arousal during-Dance, $r(53) = -.29, p = .03$.

Psychological stress

Participants reported a reduction in self-reported stress pre-Dance ($M = 1.60, SD = 1.11$) to during-Dance ($M = 1.15, SD = 0.42$), $t(32) = 2.41, p = .022$. There was also a significant negative correlation between participants' ratings of feeling stressed and the use of the word 'we' to describe their relationship to others pre-Dance, $r = -.32, p = .021$. Additionally, a feeling of pre-Dance stress was significantly related to feelings of positive and negative affect pre-Dance, $r = -.37, p = .007$, and $r = .74, p < .001$, respectively. Taken together these results indicate that those who felt more stressed going into the Dance also felt less positive affect, more negative affect and less connected to others before the Dance. This trend also continued into the Dance with significant correlations between during-Dance negative affect and pre-Dance stress, $r = .50, p = .003$ and during-Dance stress, $r = .51, p < .001$.

Physiological stress

Although self-report measures of feeling stressed decreased pre-Dance to during-Dance, there was a marginally significant increase in cortisol pre-Dance ($M = 0.18, SD = 0.15$) to during-Dance ($M = 0.46, SD = 0.55$), $t(12) = -2.04, p = .064$. A between-subjects analysis of cortisol, which enabled us to include participants who provided only one saliva sample, revealed a significant increase in cortisol pre-Dance ($M = 0.20, SD = 0.14$) to during-Dance ($M = 0.46, SD = 0.52$), $F(1, 45) = 6.96, p = .011$. During-Dance cortisol correlated negatively with during-Dance positive affect, $r(12) = -.70, p = .011$, and positively with during-Dance negative affect, $r(12) = .61, p = .037$.

Flow

Jackson, Eklund and Martin (2010) identified nine facets of flow including challenge-skill balance. On the during-Dance survey, participants indicated the level of challenge of their most recent activity and their skill level on that activity. High endorsement (4s and 5s) on both items was interpreted as flow. According to these criteria, relatively few participants (16%) were in a state of flow. However, anecdotal responses from participants suggested that challenge-skill balance was less central to their experience of the Dance than other (unmeasured) facets of flow (e.g., loss of self-consciousness, transformation of time, autotelic experience). Thus, although we observed little evidence of challenge-skill balance, more general conclusions regarding flow would benefit from assessing multiple facets of flow. Furthermore, because participants completed the during-Dance survey when they were taking a break from the Dance, it is likely that they were not in a state of flow while they were filling out the survey.

Participants' conceptualisations of the Dance

Sexual, sadomasochistic, spiritual

After the Dance was over, participants were asked how sexual, sadomasochistic and spiritual they found the Dance to be (see Figure 1). Participants reported that they found the Dance significantly more spiritual ($M = 3.85$, $SD = 1.17$) than sexual ($M = 2.30$, $SD = 1.14$) or sadomasochistic ($M = 2.59$, $SD = 1.22$), $t(39) = 4.32$, $p = .001$, and $t(39) = 5.37$, $p < .001$, respectively. There was no significant difference between ratings of the Dance as sexual versus sadomasochistic, $t(39) = -1.28$, $p = .21$.

Ratings of 'we' post-Dance and self-other overlap pre- and post-Dance were significantly positively correlated with ratings of how spiritual participants found the Dance (all $ps < .001$).

Open-ended responses

Coding

Two questions from the pre-Dance survey ('Why are you participating in the Dance of Souls?' and 'What do you hope to gain from the experience?') and comments from the during-Dance and post-Dance surveys ('Please write down any current thoughts or feelings you would like to share') were coded.

The open-ended data were analysed using inductive analysis (Braun and Clark 2006). Inductive analysis is a 'process of coding the data *without* trying to fit [them] into a pre-existing coding frame' (83, emphasis original). Thus, the data were analysed for any common themes that emerged during reading. First, seven graduate students, led by one trained in qualitative coding, read through all of the responses. After a group discussion, a coding scheme was created and agreed upon by all seven coders. The coding scheme consisted of 17 codes that the members of the group felt encapsulated the themes mentioned within the responses. These codes were: altered consciousness; celebration; connectedness to others; energy; future expectations; generalised affect; growth; knowledge; met expectations; negative affect; positive affect; release; service; sexuality; spirituality; transformation;

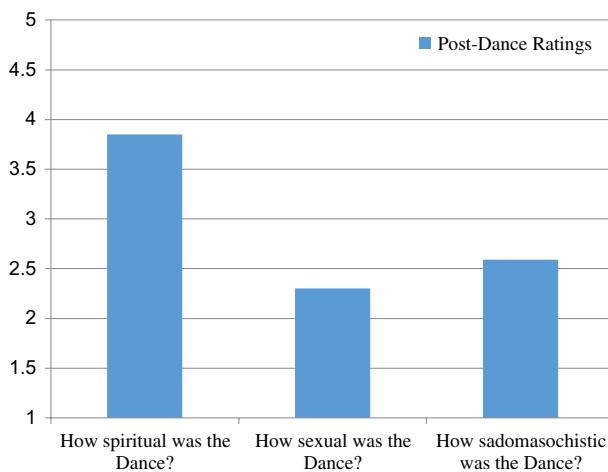


Figure 1. Spiritual, sexual and sadomasochistic ratings of the Dance.

and unmet expectations. Next, each coder read all the responses and noted whether a response mentioned each of the codes (yes/no). Another group discussion followed and any coding disagreements were resolved; thus, inter-rater reliability was not calculated due to final convergence on the categorisations.

Content themes

Figure 2 shows the number of times each theme was mentioned across all three open-ended questions. The top three mentioned themes were: spirituality, connectedness to others and altered consciousness. Regarding spirituality, this seems to align with the results from the quantitative analysis where participants rated the Dance as more spiritual than sexual or sadomasochistic. The qualitative coding also demonstrated that people saw the Dance as an opportunity to bond with others; this is consistent with the increase in self-other overlap pre- to post-Dance ratings from the surveys. Importantly, one of the least-mentioned themes was sexuality and, again, this is consistent with the quantitative ratings.

Pre-Dance responses

On the pre-Dance survey, the most frequently mentioned theme was spirituality; many participants described how the Dance was a way to commune with higher powers and experience a spiritual journey. The other most commonly mentioned themes were connectedness to others and release. One participant mentioned each of these themes: 'For the ecstatic experience, which is always spiritually cleansing and renewing for me, and the chance to share this with my chosen family/tribe². Another participant further described how the Dance could be a bonding experience as well as cathartic: 'It is a wonderful way to exchange energy not just with my owner but with my tribe. It is transcendental and amazing. It is also a great way to release the negative.' Even though many participants desired, and anticipated, their Dance experience to be spiritual, one participant humorously described how this might not always happen: 'I have had visions and deep spiritual experiences. Or not. But it's fun anyway.'

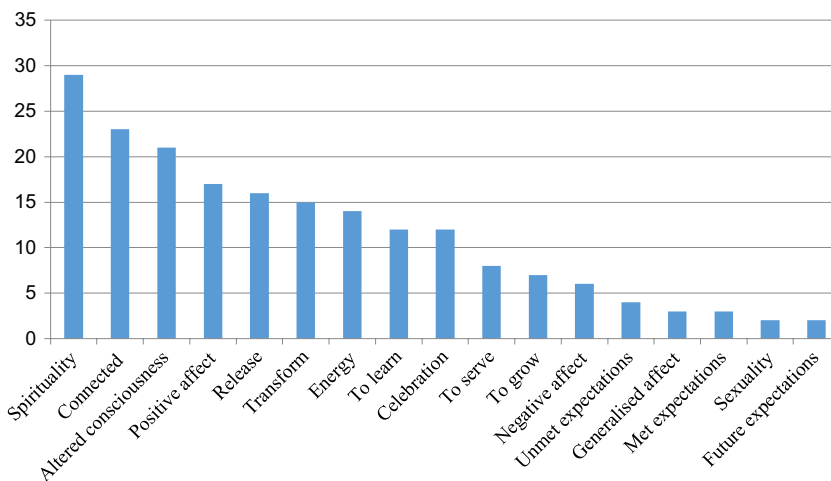


Figure 2. Frequency of coding themes for open-ended responses.

During-Dance responses

The most frequently mentioned themes from the during-Dance survey were altered consciousness and positive affect. Two participants reported 'Connection through the drums and the tribe and the shared energy that overrides any pain and opens my heart and mind to a focus beyond the physical' and 'I am in an amazing happy place. Serene yet joyous'.

Post-Dance responses

After the Dance was over, the most frequently mentioned themes were connectedness to others and altered consciousness. One participant eloquently described how the experiences of other affected them: 'Observed energetic releases of others, saw emotions stir in many; tears, anger, screaming, laughter, pure joy. Many had variety of different experiences. I got to share in all of them, and feel their release.' Another participant talked about how the Dance created feelings of connectedness and an altered state of mind:

All throughout the dance, I felt very present and connected with everyone else there, but also recognised the work I was doing was my own work and needed my attention. I also felt closer to the spirits of those who have walked this earth before us and the Universe's energy abuzz inside me. It was beautiful and powerful.

Discussion

The goal of this study was to examine an extreme ritual within a BDSM context. To this end, we examined the activities, effects and conceptualisations of the Dance of Souls, a ritual in which BDSM practitioners received temporary piercings with weights or hooks attached and danced to music provided by drummers. We used mixed methods to determine whether the observed activities and their effects aligned with previous research on extreme rituals in religious and community contexts. First, we observed the behaviours and compared them to prototypical sexual and BDSM behaviours (please see supplemental materials for this discussion). Second, we tested whether the Dance of Souls had similar effects on participants as observed in past research on extreme rituals and BDSM scenes. Third, we asked participants how they conceptualised their behaviours.

Observed behaviours

We posited that participants in the Dance would demonstrate more sadomasochistic behaviour than sexual behaviour, and the behavioural observations supported this hypothesis. Community definitions of BDSM maintain that sex and sexuality are not necessary elements of BDSM behaviour. Our behavioural observations did not provide evidence for physical sexual arousal (i.e., penile erections) and no overt sexual acts were observed. Thus, we interpreted the behaviours of participants to indicate that people participated in the Dance primarily for non-sexual purposes. This might be due to the original intent of the ritual and the norms and expectations that Musafar imparted when he and those inspired by him brought the Dance to the SWLC. Some other common behaviour throughout the Dance included frequent touching, rubbing and talking between Dancers; participants were clearly providing physical and emotional support to one another as they went through the experience. Some BDSM community members purport that the desire to feel close to others is a

central purpose behind BDSM behaviour. It appeared to us that the Dance brought people together, both physically and psychologically.

Effects of the Dance

We predicted that participants' cortisol levels would increase from before to during the Dance, and this was supported, consistent with the results from Sagarin et al. (2009) and with Konvalinka et al.'s (2011) findings that extreme rituals can increase physiological arousal. However, although physiological stress (as measured by changes in cortisol before to during the Dance) increased, psychological stress decreased. We suggest two explanations for this seeming paradox.

First, the change in cortisol may stem from the physical pain that participants were undergoing. Thus, although participants, particularly those who have a high pain tolerance, may not have experienced the temporary piercings as particularly painful, their bodies registered the sensations as pain. Second, the experience of the Dance itself could have moderated the link between physiological and psychological stress by reducing the negative emotions that might have otherwise accompanied the physical pain. Consistent with this explanation, participants reported a reduction in negative affect from before to during the Dance. We suggest further that this dissociation between a physiological marker of stress (i.e., cortisol) and the psychological experience of stress may be evidence of an altered state of consciousness.

The fact that participants perceived the Dance as lowering their psychological stress suggests another potential motivation for participation in these types of activities: stress reduction. In his Theory of Masochism as Escape from Self, Baumeister (1997) identified stress reduction as a primary motivation for masochism. And although the majority of Dancers did not self-identify as masochists, the painful activities of the Dance were accompanied by reductions in self-reported stress and negative affect – results that align well with Baumeister's (1997) theory. This is particularly interesting while also considering that positive affect did not increase from before to during the Dance. Taken together, one interpretation of these results is that the Dance did not make people feel better, but rather, it helped them feel less bad. Consistent with this is research examining the relationship between anxiety and ritual behaviour (Liénard and Boyer 2006) including studies that find increased ritual behaviour in reaction to anxiety-provoking situations (Lang et al. 2015) and reduced anxiety among ritual performers in high stress situations (Sosis and Handwerker 2011). It is also possible that some participants entered dissociative psychological states brought on by the pain they experienced from the piercings.

However, we also must be cautious in interpreting the cortisol results, due to the small within-subject sample size and due to the nature of cortisol. Because cortisol levels fluctuate throughout the day, it is possible that the time of day is responsible for the changes prior to and during the Dance. Also, the changes could be the result of movement. While we have seen similar effects in other examinations of extreme rituals and BDSM scenes (e.g., Sagarin, Lee, and Klement 2015), there are many potential confounds in the present study.

We also predicted that self-other overlap would increase from before to during the Dance, and we found support for this hypothesis, again consistent with Sagarin et al. (2009) and Xygalatas, Mitkidis et al.'s (2013) findings that extreme rituals can increase social bonding and prosocial behaviour. This result paralleled our behavioural observations in that there was a difference between participant interactions pre- to post-Dance. Prior to the Dance, many

participants engaged in before care in dyads or small groups. After the Dance, participants laughed and talked within a larger group, particularly at the scheduled dinner following the Dance. It seems likely that the physical and psychological support we observed participants providing for each other throughout the Dance helped people feel closer to one another.

Finally, we also investigated how sexual arousal changed from pre-Dance to during-Dance. As our goal was to examine an extreme ritual within a BDSM context we did not initially predict changes in sexual arousal, but participants did report a significant increase in sexual arousal from before to during the Dance. It is important to point out, however, that the during-Dance level of sexual arousal was still below the scale midpoint. Furthermore, as noted earlier, we did not observe any signs of overt physical sexual arousal.

Conceptualisations of the Dance

Our third hypothesis predicted that participants would conceptualise the Dance as more sadomasochistic than sexual. Although this was somewhat supported (in that participants rated the Dance as non-significantly less sexual than sadomasochistic), the primary conceptualisation was neither sexual nor sadomasochistic; it was spiritual. The primacy of this conceptualisation appeared in both the closed-ended questions (in which participants rated the Dance as significantly more spiritual than sadomasochistic or sexual) and the open-ended questions (in which spirituality emerged as the most frequently mentioned theme). This suggests that many participants interpreted the Dance as primarily a spiritual experience. One reason for this might have to do with the influence of Musafar on the Dance of Souls. The expectations of participating in such a ritual might be also impacted by the promotional conference materials. A follow-up study at another regional BDSM conference might be helpful to investigate whether the spiritual component is universal or region-specific.

The Dance as a spiritual experience

Although the scientific literature has not focused on sadomasochism as a spiritual experience, the BDSM community literature has long recognised the spiritual aspects of BDSM activities. In *The New Bottoming Book*, for example, Easton and Hardy (2001) observe:

Today we are also seeing the emergence of S/M [Sadomasochism] often referred to in this context as 'Sex Magic' – as a spiritual practice. The combination of ritual with S/M, and the use of strong sensation and sometimes opening the skin to achieve transcendent states, have led to a potent combination of S/M practice with spiritual seeking. (8)

Likewise, in *Ties that Bind*, Baldwin (1993) also discusses SM as a spiritual experience:

It is not outrageous to suggest the possibility that those of us who pursue ecstatic spiritual or mystical experiences through SM/leather/fetish actions may be the early forerunners of a new spiritual tradition. (239)

It seems likely that contextual factors play an important role in shaping how participants experience an event such as the Dance of Souls and, in this case, the extent to which the event is seen as spiritual. The Dance of Souls takes place at a BDSM/Leather conference known for its strong spiritual focus. It seems plausible that this spiritual focus infused participants' interpretation of the Dance. Alternatively, given the historical roots of hook-pulls in Native American and Hindu spiritual traditions, it is also possible that such rituals are more likely than other activities to be interpreted within a spiritual framework.

The Dance as a means of achieving altered states

The qualitative reports from participants also indicated that seeking and achieving an altered state of consciousness was another motivation for participating in the Dance. In fact, an altered state of consciousness was the third most frequently mentioned theme from the qualitative data; participants reported feeling high, seeing visions and feeling connected to a higher power. Reports of altered states also coincided with reports of spirituality, suggesting connections between extreme meditations or ecstatic visions that have been recorded in religious texts, Native American sun-dance rituals, Hindu Thaipusam festivals and rituals such as the Dance of Souls (Jilek 1982; Xygalatas 2013). In *Urban Aboriginals: A Celebration of Leathersexuality*, Mains (1984) noted that body piercing can be ‘a journey marked by fetish and mana, shaman, ritual and trance’ (9).

The Dance as a way to connect with others

The second most frequently mentioned theme within the qualitative data was connectedness to others. This result nicely paralleled our behavioural observations as well as participants’ ratings of significant increases in self-other overlap from before to during the Dance. It is worth noting that in Sagarin et al. (2009), participants rated self-other overlap with their scene partner, whereas in this study participants rated the degree of overlap with other people in the Dance. This suggests that self-other overlap can be expanded to a community and that people can feel increased psychological closeness with a group of individuals. In fact, many people used the word ‘tribe’ in their open-ended responses. One participant reported that the Dance was ‘now more about others, not myself’, while another said they ‘connected deeply during dancing with several people’. In a community that is often stigmatised by the mainstream, connection to others could be a motivation for continued membership. Being a part of the BDSM community in a larger context, and participating the Dance of Souls, could be a way to express that membership and dedication to the community, as well as a chance to bond with fellow members.

The Dance as a method of reducing stress

Finally, the reductions in negative affect and self-reported stress suggest that the Dance also functioned as a method of reducing stress and, potentially, as a means of escaping the self (Baumeister 1997). These effects are perhaps best illustrated by the open-ended report of one dancer:

The experience was quite calming. The degree of pain I allowed myself to have physically allowed my hyper-analytic brain to focus/center on the present. With the exception of knitting and crochet, pain this intense is the only way I can truly fall into this state of peace/have a quiet mind.

Conclusion

Through observational, self-report and physiological data, we documented the ‘Dance of Souls’, an extreme ritual conducted within a BDSM context. To the extent that the Dance of Souls represents an instance of sadomasochism outside a sexual context, our data challenge the prevailing academic perspective that links sadomasochism inextricably with sexuality,

and they provide insight into a number of non-sexual motivations for extreme rituals and sadomasochistic activity including experiencing spiritual journeys, achieving altered states of consciousness, reducing stress and feeling closer and more connected to others.

Future directions

The current study was designed to examine the experiences of individuals participating in one occurrence of the Dance of Souls. Thus, our conclusions are necessarily restricted to this group of participants during this particular Dance. Future research might investigate other communities and their experiences with extreme rituals, such as individuals in the body modification community or other BDSM communities that are not influenced by Fakir Musafar's philosophy. In addition, although we assumed that the rules and norms of the SWLC (which prohibit illegal or recreational drug use and which discourage inebriation) ensured that very few, if any, Dance participants were under the influence of mind-altering substances, future studies should assess this.

Notes

1. A fuller description of the behaviour observations can be found in the [supplemental data](#) for this paper.
2. In this context, 'tribe' refers to a cohesive group of BDSM practitioners (e.g., a 'leather family').

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