

Qualitative Analysis of Modern Dancers' Post-Injury Psychological Experiences

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Athletic injuries often trigger psychological distress, including frustration, depression, and anger (e.g., Tracey, 2003). Like sport athletes, dancers face injury risks due to the physicality of dancing (e.g., Jacobs et al., 2017; Skvarla & Clement, 2019). There is limited research on psychological responses to dance-related injuries; particularly absent in the extant literature are the experiences of injured modern dancers (Thomas & Tarr, 2009). Studies are needed on this population, given differences in training, choreography, and culture in modern dance compared to other dance forms (Clabaugh & Morling, 2004). The purpose of the present study was to qualitatively explore post-injury psychological experiences of adult modern dancers. Participants included eight modern dancers (seven women, one man; $M_{\text{age}} = 30.5$ years; 75% White; $M = 23.6$ years of modern dance training) who suffered a recent serious injury (≥ 6 weeks recovery). Semi-structured, individual interviews were coded line-by-line using thematic analysis (Braun & Clarke, 2006). Analysis resulted in six themes: *Emotional Upheaval and Reactivity*, *Stress-Inducing External Factors*, *Challenges Presented by Physical Pain*, *Mental Disruptions and Eventual Cognitive Shifts*, *Coping through Redirection of Energy*, and *Buffering Effects of Positive Social Support*. The dancers' reported interpersonal trust/support, loss of independence, and growth were similar to previously studied sport athletes' reports (e.g., Kampman et al., 2015). A novel theme in the current study was the influence of COVID-19 on reactions to injury. Overall, findings indicate that injuries are complex events that not only involve a mechanical disturbance to the physical body but also initiate profound psychological experiences.

Keywords: social support, surgery, athletic injury, emotional, semi-structured interview

Dancers face inherent risks for injury due to the artistry and physicality of dancing, and injury prevalence and musculoskeletal pain have been reportedly high in dancers of varying levels (e.g., Hincapié et al., 2008; Jacobs et al., 2017; Kotler et al., 2017; Skvarla & Clement, 2019). Psychologically, dancers' experiences with injury may include various emotional responses, such as a loss of self-identity (e.g., Air, 2013; Reel et al., 2018), yet research on psychological responses to dance-related injuries remains limited. It is possible that dancers' psychological responses to injury are similar to other types of sport athletes. In addition to a decrease in physical function, athletes who suffer from serious injuries often experience emotional distress or maladaptive coping,

such as non-adherence to rehabilitation or excessive alcohol consumption (Wiese-Bjornstal et al., 1998). Individual differences in injury perceptions may also influence one's psychological responses to injury.

In recognition of the various psychological responses to injury, Wiese-Bjornstal et al. (1998) developed the integrated model of psychological response to sport injury and rehabilitation process (from now on, referred to as the integrated model). According to the model, personal and situational factors influence an athlete's cognitive appraisals of an injury, which then influence their emotional responses and ultimately affect the athlete's behavior related to the injury, ability to cope, and recovery outcomes (Wiese-Bjornstal et al., 1998). For example, if an individual perceives an injury as a threat to one's athletic career (cognitive appraisal), fear and hopelessness may ensue (emotional response), perhaps followed by non-adherence to rehabilitation (behavior). The lack of adherence to rehabilitation, in turn, may lead to negative healing outcomes and reinforce the belief that the injury is a threat (Wiese-Bjornstal et al., 1998).

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Although many sport athletes may appraise an injury as a negative event, others may have less adverse responses. For example, Wiese-Bjornstal et al. (1998) found that individuals with positive mood state profiles prior to injury, as opposed to those with negative mood state profiles, had more positive responses following an injury occurrence. In support of the integrated model, Bianco et al. (1999) found that cognitive, emotional, and behavioral responses resulted following an injury, and both appraisal and coping were ever-evolving processes affected by rehabilitation progressions. Moreover, sport athletes may have varying levels of cognitive, emotional, and behavioral responses based on individual circumstances (Wiese-Bjornstal et al., 1998). In short, factors such as type of injury and individual personality differences, in addition to social and sporting environments, can influence how individuals perceive their injuries and, subsequently, how the injuries affect the individuals' emotional reactions and behaviors.

Common emotional reactions to sport injury include grief (e.g., Tunick et al., 1996), distress (e.g., de Munter et al., 2020), depression (e.g., Gervis et al., 2020), fear of reinjury (e.g., Bianco, 2001; Hsu et al., 2017; Lee et al., 2020), and in some cases, optimism (e.g., Macchi & Crossman, 1996; Rabinowitz & Arnett, 2018) and gratitude (e.g., Beaton & Thorburn, 2019; Tracey, 2003). Behavioral responses to athletic injury are often conceptualized and assessed by one's coping behavior. Coping refers to the emotional, physical, and cognitive responses directed at reducing burdens that are associated with daily struggles and general life stress (DeNelsky & Boat, 1986; Lazarus & Folkman, 1984). Further, coping skills (e.g., cognitive restructuring and stress management) may help protect people from psychological harm following challenging life experiences (Pearlin & Schooler, 1978).

The integrated model (Wiese-Bjornstal et al., 1998) is a framework for assessing not only differences in overall response to injury but also in changes over time in personal cognitive appraisals, emotional responses, and recovery outcomes during various phases of rehabilitation. Athletic trainers have conceptualized three phases of physiological injury rehabilitation: the acute injury phase (injury onset), the repair phase (recovery phase), and the remodeling phase (return-to-sport phase; Prentice & Arnheim, 2011). Researchers have used these three phases to identify trends in psychosocial responses to injury during each phase (Clement et al., 2015). Although researchers have studied the phases of rehabilitation in relation to different types of sport athletes, fewer studies have been conducted on dancers' injuries, and most do

not follow a phased approach to rehabilitation (e.g., Macchi & Crossman, 1996; Reel et al., 2018). Due to the limited research on injured dancers, it is unknown whether dancers follow similar phases of rehabilitation as sport athletes.

Regarding athletic injury, much of the research has been conducted on elite athletes from a variety of sports (e.g., Arvinen-Barrow et al., 2019; Clement et al., 2015; Tripp et al., 2007). Responses to injury depend on several individual (e.g., personality characteristics), sport-specific (e.g., sporting environments), and situational (e.g., access to social support) factors, and thus, it is unclear whether modern dancers will have similar psychosocial responses to injury compared to athletes representing different sports. Within the general population, individuals faced with stressors often turn to others for support (Dooley et al., 2020). Similarly, social support has been found to be an integral piece of injured athletes' coping experiences (e.g., Bianco, 2001; Goddard et al., 2021; Mitchell et al., 2014). Although similar to other types of athletes in many regards, dancers are a unique type of artistic athlete (Hincapié et al., 2008) who are judged and viewed on more subjective movement qualities, technical abilities, and style rather than the more objective scoring systems used in several other sports (Hughes et al., 2019). Additionally, Krasnow et al. (1994) stated that due to modern dancers' high risk for injury and relatively limited financial and emotional resources, they may not receive adequate attention when injured. Ojofeitimi and Bronner (2011) argued that modern dance companies are often strained by the financial costs of injury. Modern dancers' injury experiences may also be unique because they often do not have access to athletic trainers or adequate funding (Krasnow et al., 1994).

Literature on Injuries Among Dancers

Although there has been some prior research on dancers' post-injury psychological experiences (e.g., Air, 2013; Encarnacion et al., 2000; Macchi & Crossman, 1996; Mainwaring & Finney, 2017; Markula, 2015; Patterson et al., 1998; Reel et al., 2018), much of the research focuses on ballet dancers, or mixed samples of ballet and modern/contemporary dancers, and dates back several years. For example, Macchi and Crossman (1996) interviewed injured professional ballet dancers and found that negative emotions including fear, distress, depression, and anger, slowly transitioned into higher levels of optimism and excitement as rehabilitation progressed. Encarnacion et al. (2000) focused on ballet dancers' coping styles in response

to pain, finding that professional-level dancers were more likely to be prepared to experience pain and thus coped differently than academy-level dancers. Within a competitive ballet environment, Patterson et al. (1998) found that in addition to physical factors, psychosocial factors (e.g., social support) impacted injury vulnerability in ballet dancers. In another sample of injured professional dancers (10 ballet dancers, three modern dancers), Reel et al. (2018) found that dancers reduced their nutritional intake during injury recovery and felt anxiety and uncertainty about future dance involvement. Dancers' coping responses included exercising other parts of the body, involvement in alternative interests, focusing on other aspects of artistry, and seeking social support (Reel et al., 2018). In a study of contemporary dancers (i.e., a style similar to modern dance), many of the 14 injured female contemporary dancers blamed themselves for their injuries and continued to dance despite injury (Markula, 2015). Overall, researchers investigating ballet and contemporary dancers' injury experiences have found a variety of emotions and coping responses in participants depending on the level and style of dancer, recovery phase, and other individual circumstances.

Because few researchers have directly investigated modern dancers' experiences with injury (Thomas & Tarr, 2009), expanding the literature to this population could identify possible unique characteristics of modern dancers compared to sport athletes and ballet dancers. Although many advanced modern dancers have training in ballet, there are distinct differences between the dance forms in terms of training, choreography, and culture (Clabaugh & Morling, 2004). Modern dance is slightly less formally structured than classical ballet and more focused on dancers' personal movement interpretation with an emphasis on improvisation and the body's response to gravity and fewer constraints related to form and position (Mazo, 2000). Additionally, because research has often focused on professional dancers (e.g., Macchi & Crossman, 1996; Reel et al., 2018), studying multiple levels of modern dancers in the present study is important for understanding a wider scope of experiences.

Purpose of the Present Study

The purpose of the present study was to explore the post-injury experiences of adult modern dancers who had a history of a serious injury (to a part of the body other than the head)¹ within the last five years. Given the lack of research on modern dancers' experiences,

a qualitative study design allowed for an open-ended investigation of cognitive, emotional, and behavioral experiences from injury onset through the rehabilitation and recovery process.

Historically, physical health has tended to be the focus, and psychological health may be overlooked within dance injury experiences (Mainwaring & Finney, 2017). Learning more about dancers' psychological experiences could inform dance educators, certified mental performance consultants, medical professionals, and mental health professionals on how to better support their students and clientele. Moreover, results could help guide professionals in providing effective techniques to support injured dancers beyond solely recommending physical rehabilitation.

Method

Participants

The present sample consisted of eight participants ($M_{age} = 30.5$ years; $SD = 10.9$ years), all of whom were adult modern dancers (seven identified as women, one identified as a man), with 23.6 average years of modern dance training ($SD = 4.79$ years). Participants identified as Black/African American ($n = 1$), Asian/Chinese American ($n = 1$), and White ($n = 6$). Participants ranged in dance training and performance levels from college ($n = 3$; dancers who took classes and performed at universities), community ($n = 2$; dancers who took classes and performed in community settings as volunteers), and professional ($n = 3$; dancers whose primary source of income came from dancing). Participants had a range in the types of modern dance training, including Limon technique, Graham technique, and Horton technique. Types of injuries included muscle sprains, broken bones, nerve damage, torn ligaments, and dislocated joints. The average length of time since the injury onset was 2.9 years ($SD = 1.3$ years), and the average length of time in rehabilitation was 4.4 months (minimum = 2 months; maximum = 10 months). Of the total sample, eight reportedly received both medical treatment and physical therapy for their injuries, and four received surgeries (including two receiving an additional surgery due to complications). Four dancers' injury experiences overlapped with the timing of the COVID-19 pandemic.

¹ Due to the specific psychological effects that head injuries have on individuals (e.g., Prien et al., 2018), either focusing solely on head injuries, or excluding head injuries altogether, is an important consideration for researchers to make when assessing athletic injury experiences.

Data Collection Measures

The principal researcher conducted a pilot interview with an injured modern dancer (a known personal contact of the researcher, who thus could not be used as a participant in the current study). No adjustments were made to the interview guide following the pilot interview. Participants completed one-on-one interviews with the principal researcher over Zoom. The interviewer used a semi-structured interview guide that began with the open-ended prompt: "Walk me through your injury and recovery experiences, starting from the initial onset of your injury through your recovery process." Next, the interviewer asked participants about the psychological experiences that they recalled during the injury and recovery process, prompting for their thoughts, emotions, behaviors, and coping techniques. These topic areas were selected as prompts based on Wiese-Bjornstal et al.'s (1998) integrated model. Finally, the interviewer prompted participants to describe any social support they received during the injury and recovery experience; this topic area was included due to previous research indicating that social support plays a role in injury appraisals and coping responses (e.g., Bianco, 2001; Goddard et al., 2021; Mitchell et al., 2014). To increase trustworthiness and avoid priming participants' responses, the interviewer asked open-ended, non-leading questions and follow-up questions.

Procedure

Prior to beginning data collection, the researchers obtained Institutional Review Board approval. The principal researcher has training and experience as a dancer but has not personally experienced a serious injury. The principal researcher recruited participants through convenience sampling via emails to contacts in various dance communities; however, apart from the pilot participant, no close contacts of the principal researcher participated in the study. Participant interviews were scheduled on a first-come, first-served basis. Participants who enrolled in the study were asked to share the study's information with other dancers. Thus, researchers also used snowball sampling. In addition, recruitment emails were sent to university dance departments, and social media posts with recruitment materials were posted to online dance research platforms via Facebook. The principal researcher called all interested participants and screened them to assess whether they fit inclusion criteria, which were that all participants must (a) be over the age of 18, (b) have been actively participating in modern dance training and/or performance during the time of injury, (c) have had any injury (except those to

the head) that was severe enough to take them out of regular dance training or performance for a minimum of six weeks (Clement et al., 2015), and (d) have been fully recovered or medically cleared to return to dance by the time of the study. Participants verbally provided their informed consent to participate. Zoom interviews lasted an average of 33 minutes and 6 seconds, with a range of 23 minutes and 30 seconds to 49 minutes and 5 seconds in length, and all interviews were verbally recorded using a separate audio recording device. All participants received a \$15.00 electronic gift card after participating in the study. Although some researchers recommend sending participants their transcripts for review to enhance trustworthiness and reduce the power differential between researcher and interviewee (e.g., Rowlands, 2021), the present researchers elected not to send transcripts for several reasons. First, other scholars claim that sending transcripts may do little to improve the quality of analysis (Hagens et al., 2009; Thomas, 2017). Next, the recording quality was very high, and thus, correcting mistakes was not necessary. Finally, the lead interviewer was an active member of the modern dance community, which enhanced rapport and likely reduced participants' sense of power differences.

Data Analysis

Data collection and analysis included both deductive and inductive elements. Interview questions were created deductively in that researchers used Wiese-Bjornstal et al.'s (1998) model as a framework to develop questions that would target typical aspects of injury experiences. Although Wiese-Bjornstal et al.'s (1998) model guided question development, the researchers did not actively align codes to concepts or language used in the model, nor did they organize themes according to this theory. Instead, researchers used the six steps of Braun and Clarke's (2006) thematic analysis procedures, which enable researchers to identify patterned meaning in data. Researchers took a bottom-up approach to coding by attempting to bracket any deductive theoretical information so as to be open to novel information shared by participants. Researchers employed an essentialist/realist epistemology, assuming a generally unidirectional relationship between meaning and the participants' reports, with the understanding that the meaning and interpretations participants attached to their experiences were created through social frameworks and conditioning (Braun & Clarke, 2006). As such, the researchers subscribed to a subjectivist ontology that assumes participants' reports reflect a subjective meaning-making process rather than an objective reality.

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The principal researcher audio-recorded and manually transcribed interviews verbatim, removing only filler words such as “ah,” “so,” “like,” and “um.” Transcriptions were coded line-by-line by hand and sorted into patterned responses (Braun & Clarke, 2006). The principal, second, and third researchers met to discuss coding decisions and organize the patterned responses (i.e., subthemes) into themes. Coding disputes were discussed until consensus was achieved between the three researchers. Titles of themes were created based on the patterned meaning of the participants’ responses

(Braun & Clarke, 2006). Similar themes were grouped under a higher-order category to organize the analysis. There was evidence of data saturation in that there were no new themes identified in the final participant’s interview, indicating that the sample size was adequate (Braun & Clarke, 2021).

Results

Data analysis resulted in six themes, four subthemes, and 26 codes (see Table 1). Results are described below, organized by themes.

Table 1. Coding Structure for the Data

Themes	Subthemes	Codes
Emotional Upheaval and Reactivity		Disappointment (<i>n</i> = 3) Sadness/Grief (<i>n</i> = 4) Frustration/Annoyance (<i>n</i> = 5) Anger (<i>n</i> = 3) Anxiety (<i>n</i> = 5) Fear (<i>n</i> = 5) Embarrassment (<i>n</i> = 2)
Stress-Inducing External Factors		COVID-19 Pandemic Influence (<i>n</i> = 3) Financial/Work Shifts (<i>n</i> = 3) Delayed Diagnosis Experiences (<i>n</i> = 6)
Challenges Presented by Physical Pain		Pain (<i>n</i> = 7)
Mental Disruptions and Eventual Cognitive Shifts	Uncertainty	Shock (<i>n</i> = 3) Doubt in Recovery Process (<i>n</i> = 3) Questioning Career Identity (<i>n</i> = 3)
	Loss	Loss of Independence (<i>n</i> = 3) Loss of Identity as Dancer (<i>n</i> = 3)
	Coming to Terms	Acceptance of Severity (<i>n</i> = 2) Confidence in Recovery Process (<i>n</i> = 4) Gratitude (<i>n</i> = 4)
	Growth	Growth (<i>n</i> = 6)
Coping Through Redirection of Energy		Movement Engagement (<i>n</i> = 8) Quiet Activity Engagement (<i>n</i> = 5) Compensatory Behavior (<i>n</i> = 5) Motivation for Recovery (<i>n</i> = 4)
Buffering Effects of Positive Social Support		Interpersonal Trust/Support (<i>n</i> = 8) Interpersonal Protection (<i>n</i> = 5)

Emotional Upheaval and Reactivity

Dancers discussed several negative emotional reactions throughout the course of their injury and recovery experiences. Three dancers reported fear of re-injury. For example, Participant 4 stated, "The anxiety never really went away. Even when I got back onstage, there was just that little bit of me that was paranoid that I was going to reinjure something." Another prominent fear was about surgery. Participant 7 mentioned, "My biggest fear was probably someone cutting into me majorly." Dancers also expressed being angry about various aspects of the injury experience. For example, Participant 6 stated, "I was just angry. I was just irritated that my body did this." Five dancers expressed feeling frustrated, particularly about recovery progress and feeling restless to get back into dancing. Additionally, one reported "a lot of frustration at my insurance and the things you have to jump through just to get basic care" (P2). Some dancers also shared feelings of disappointment related to missed dance opportunities.

Other negative mood states were sadness, grief, and embarrassment. The sadness often surrounded missing out on dance experiences, and grief was expressed in recognition of the non-linear recovery process. For example, Participant 7 stated, "Just like any crisis, I suppose, you go through those stages of grieving – you can't just say it's 'this step, this step, this step' – you know?" Further, two dancers reported feeling embarrassment, including Participant 6, who stated, "At first, I was completely embarrassed because it was this brand-new [dance] company." Furthermore, dancers' emotions were triggered by a variety of stimuli. Despite the negative mood states that dancers experienced, all eight dancers reported receiving no professional emotional support during their injury experiences (e.g., mental health counseling, certified mental performance consultant [CMPC] services, etc.).

Stress-Inducing External Factors

Stress-inducing external factors included factors outside of the dancers' internal processing systems yet deeply impacted the dancers' overall injury and recovery experiences. Medical care and quality of medical care, for example, were factors outside of the dancers' control that influenced their paths toward recovery. Interestingly, six dancers indicated having to wait a long time to receive an official diagnosis. Two dancers reportedly received an incorrect initial diagnosis, and one reported receiving an incorrect injury severity diagnosis. Several participants stated that they realized the injury was severe at the onset, prior to official diagnosis.

All dancers were interviewed during the early phases of the COVID-19 pandemic, yet given the timing of four of the dancers' injuries, COVID-19 was noted as a specific external disruption by three of those four dancers. Despite the inherent hardships that individuals faced during the early stages of COVID-19, Participant 1 mentioned that coping with the injury was easier due to the timing of the pandemic and stated, "I think that the biggest blessing, dare I say because I hate COVID more than anything – but not having the pressure of everyone around me dancing – that's been, I would say, the biggest blessing in all of this." Three dancers mentioned the external disruption of financial/work concerns, including having limited funds for medical treatment, concerns about losing income, and missing out on what was happening at work due to injury.

Challenges Presented by Physical Pain

Seven participants reported a recognition of unique pain experiences during their injury and/or recovery process. Three participants stated that being a dancer involved training to 'tough it out' during dance overall. Participant 1 stated, "It's really different to go into something expecting pain, and it's almost like I've conditioned myself to expect pain" and went on to share:

Wow, I feel like I'm making up even a little bit of this pain just because it's what is expected. And I don't want to fully admit that I'm able to do things without pain because what if it comes back? Or what if I'm actually in pain and I'm just telling myself that I'm not? So, I think that the expectation of pain, even post-injury, is a lot.

Other dancers reported recognizing strong pain at injury onset or pain intense enough to hinder the ability to walk or sleep. Interestingly, only one participant reported feeling no pain during the injury.

Mental Disruptions and Eventual Cognitive Shifts

The theme of Mental Disruptions and Eventual Cognitive Shifts included four subthemes: *Uncertainty*, *Loss*, *Coming to Terms*, and *Growth*.

Uncertainty

At various points throughout the initial injury and recovery process, dancers expressed a sense of disorientation, uncertainty, and confusion regarding either the injury itself or factors related to being injured. For example, Participant 2 mentioned feeling "Mostly just confusion [at injury onset]," and Participant 3 shared that "right after my injury, I went into a major state of shock." Dancers also questioned the recovery process or

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their capacity to fully come back to dance; for example, Participant 6 stated, "I don't know – I started worrying a lot about the future and how I will dance in adulthood."

Dancers also expressed uncertainty about their dance career decisions and/or the effect that the injury would have on future success as a dancer. Participant 1 demonstrated confusion in both not knowing if they could recover and what it would mean for their career:

My thoughts on dancing at that point were along the lines of 'my heart's not in it right now,' and 'I don't know if I'm going to have it in me to fully come back from this surgery,' because I knew it would take a lot of work and a lot of me caring about dance enough to come back from it, which is funny because I also don't really know what else I would do with my life.

Loss

Dancers experienced significant loss during their injuries, which, for many, were related to their temporary loss of independence due to their injury and loss of their identity as dancers. For example, Participant 1 stated:

There were probably three weeks of me needing help to do anything, and I'm [usually] super independent . . . it was crazy, humiliating, and painful too . . . And literally not being able to do anything by myself was kind of crushing for me because I don't like having to rely on people.

Participant 4 stated:

I didn't know what my identity was. Like what was I supposed to be doing, and who am I if I can't [be] a dancer . . . not coming from a place of survival, but coming from a place of 'what is my self-worth? What is my identity?'

Coming to Terms

Despite their reported uncertainty, dancers also later expressed coming to terms with aspects of the injury. This process took some time, and many recalled the point at which they finally accepted the severity of the injury. For example, Participant 3 stated, "Eventually, I was able to get to a place where I knew that this was happening for a reason." Participant 7 acknowledged that dancing would never be the same and ultimately found a new level of acceptance in simple movements; this dancer ultimately shared a more philosophical viewpoint related to the experience:

[Dance] is an amazing blend of things that really becomes a part of who you are. To see that start to get taken away, in a way, it's almost like having a preliminary view of what it's going to be like to get really old and eventually die.

For some dancers, coming to terms included feeling confident in the recovery process or a sense of gratitude.

Participant 4 shared their inner dialogue, which included saying, "Keep doing what you're used to doing – your body's going to bounce back." Relatedly, Participant 5 stated, "I had moments of hope and 'I can still do this.'" Another expressed "a lot of gratitude for my body that was healing" (P7).

Growth

Growth was common as part of the recovery journey, whether in terms of learning and discovering something new or developing an increased awareness. A few dancers mentioned having naturally high body awareness prior to the injury, which enabled them to develop new awareness of their injury. Others mentioned discovering the importance of taking time to heal fully before returning to dance to avoid relapse. Further, dancers expressed learning lessons, gaining a new perspective on their capabilities, or a new outlook on dance in general. Participant 2 stated, "I'm learning about my body, and every time I come back from an injury, I come back stronger." Another dancer shared, "I didn't realize that that small imbalance in my ankle again was a chain reaction to the rest of my body. I think the injury is really what started my interest in really paying attention to the body" (P3). Participant 7 stated, "In a way [being taken out of dance] is almost a good learning experience even though it's harder than hell – what a weird epiphany that actually be able to get fixed and start to work harder."

Coping through Redirection of Energy

Dancers reported several behavioral coping mechanisms through redirection of energy; some were primarily adaptive, and in some cases, others were maladaptive redirections of energy. All dancers channeled energy into staying involved in dance in some way and/or engaging in alternative physical activity. One dancer discussed, "Showing up when I can even if it means I'm sitting on the side, and I can still be the rehearsal director or edit the dance or be involved in other ways" (P2), and Participant 8 stated, "I turned to yoga a lot instead of dance because it was a lot of the jumping aspect of dance that I felt like I couldn't do."

More than half of the dancers also redirect energy toward quiet activity engagement, which included reading, journaling/writing, meditation, TV watching, sleeping more than usual, relaxation, and taking time for oneself. For example, Participant 5 reported:

I did a lot of Netflix binging, which was still pretty cool because I did not have a lot of time to relax [pre-injury], so that did actually help to just sit and chill and do something I want to do without having anybody asking me for stuff.

Four participants mentioned feeling motivated and directing energy into their recovery process and injury experiences. For example, Participant 3 reported feeling motivated to go to physical therapy and stated, “[I would say to myself]: ‘I have to do this,’ so I actually was able to shorten my healing time by a couple of weeks, which was super cool.”

Some of the redirection of energy involved dancers engaging in compensatory behavior, which in some cases appeared to be maladaptive, including pushing oneself to come back to dance too soon or engaging in self-harm. These behaviors were either new or past behaviors that returned. Participant 7 stated that they would “knock a few beers back because you know – a little anesthesia goes a long way.” Participant 4 shared:

I think a big coping mechanism for me was to – since I couldn’t control this [injury], I think my disordered eating really came out – like if I couldn’t control this injury dance thing, I was going to control what I was eating.

Buffering Effects of Positive Social Support

Relationship buffers included dancers’ reactions that surrounded topics of relying on, needing, or protecting other people in their lives during their injury experiences. All dancers described social support as a factor that strongly influenced their ability to cope with the injury. Moreover, they highlighted support and encouragement from friends, family, romantic partners, and dance colleagues. In addition, several participants felt trust in their medical professionals. Three dancers stated the importance of having support systems, including friends who have also gone through an injury experience. Participant 1 stated, “I think it’s really important to have people who understand the way that your body works, and also the way that dance works – that are your support systems.” Another shared feeling particularly supported by “friends who had been injured too. Because friends who haven’t been injured, they just don’t get it. It’s nothing on them; it’s just they haven’t been there” (P2).

In addition to social support, relationship buffers also included protecting others. Interpersonal protections included having personal awareness of how one’s own injury affected other people and/or an effort to avoid or minimize that effect. For example, Participant 5 stated, “I tried not to show any emotion,” and Participant 1 said, “I didn’t want to feel like a burden to them.”

Discussion

The purpose of the present study was to explore modern dancers’ post-injury psychological experiences. Ultimately, the researchers’ goal was to develop a more

comprehensive understanding of the injury experiences of modern dancers and assess the results in relation to past research on other types of sport athletes and ballet/contemporary dancers. In the present study, dancers’ responses resulted in six themes related to overall injury and recovery experiences, some of which were similar to previous findings on sport athletes (e.g., Gervis et al., 2020; Hsu et al., 2017; Lee et al., 2020) and in some cases, ballet dancers (e.g., Bianco, 2001; Johnston & Carroll, 1998; Macchi & Crossman, 1996; Tracey, 2003), while others were unique to the modern dancers in the current study.

Comparison of Current Findings with Theoretical Models of Injury

Previous researchers have taken different approaches as far as the structure of the interviews; several injury researchers have followed or found a phased approach to recovery, specifically assessing athletes’ responses during each stage of recovery: initial injury, recovery, and return to sport stages (e.g., Clement et al., 2015; Prentice & Arnheim, 2011). The researchers of the present study, however, did not find that participants’ psychological experiences were aligned with the three sport injury stages. Rather, the dancers in the present study shared their memories overall from injury onset through recovery and did not naturally delineate between different stages of their recovery. The fact that dancers did not mentally characterize their reactions and experiences as falling within different phases/stages of recovery may indicate a difference between injured dancers and sport athletes due to the inherent structural differences between dance and sport. Specifically, the phases of athletic injury may be more concrete for sport athletes given that athletes who *return to sport* return to the same game or competition structure and activity (e.g., track and field throwers return to throwing, softball players return to batting). When dancers are seriously injured, they often do not return to the same performance or dance piece, so the *return to sport* stage may not be applicable or an accurate mental framework for dancers; they may return, but the dance pieces may be vastly different than those they completed prior to injury.

According to Wiese-Bjornstal et al.’s (1998) integrated model, personal and situational factors influence an athlete’s cognitive appraisals, emotional responses, and behavioral outcomes of injury. Analysis of the present study resulted in six themes that fit within the integrated model and were organized into similar categories of cognitions (mental disruptions and eventual cognitive shifts), emotions (emotional upheaval and reactivity), and behaviors (coping through redirection of energy).

However, three additional themes could fit in the remaining categories of personal (challenges presented by physical pain) and situational factors (buffering effects of positive social support; stress-inducing external factors), albeit with different phrasing. Dancers reported some personal and situational factors that seemed to influence their reactions to injury (e.g., external disruptions such as financial concerns); however, not all such factors were the causes of cognitive, emotional, and behavioral reactions. More specifically, unlike Wiese-Bjornstal et al.'s (1998) model, dancers' different reactions did not have a clear delineation of cognitions leading to emotions leading to behaviors. Some of the dancers' reactions vacillated between two opposing responses (e.g., experiences included feeling a rotation of confidence or doubt that healing was possible). Commentary on thematic categories is detailed in the following sections.

Emotional Upheaval and Reactivity

Several of the emotional factors described in the present study have similarly been reported by sport athlete participants (e.g., Bianco, 2001; Gervis et al., 2020; Lee et al., 2020; Tracey, 2003), and in some cases, by dancers (e.g., Markula, 2015; Reel et al., 2018). Several negative mood states were threaded throughout athletes' and dancers' responses. For example, sport athletes reported a "fear of vulnerability" (Tracey, 2003) and a fear of reinjury (e.g., Bianco, 2001; Hsu et al., 2017; Lee et al., 2020), which was reported by dancers in the present study. Notably, emotional reactions were not always tied to a specific cognition or thought process. At times, when prompting for emotional reactions, some participants merely labeled an emotion without connecting that emotion to a particular cognition or resulting behavior, such as a general sense of sadness or grief. Perhaps these emotions were shared in that way due to the prompting, or perhaps given the expressive nature of dance in contrast to other types of sports, emotions may be experienced without a clear prompting from thoughts or situations.

Due to the prevalence of reportedly negative mood states, including grief, it is worth noting that models of grief have been developed and discussed in relation to injured athletes. For example, Kübler-Ross (1969) theorized a model on five stages of grieving, including denial, anger, bargaining, depression, and acceptance. The model was initially theorized in terms of the grieving process associated with death and dying; however, since then, it has also been conceptualized in terms of grieving the athletic injury experience (e.g., Van der Poel & Nel, 2011). Similarly, Tunick et al. (1996) developed

a model influenced by Kübler-Ross (1969), focusing more specifically on injured and disabled athletes. The five stages in Tunick et al.'s (1996) grief response model include shock, realization, mourning, acknowledgment, and coping. Despite the order of the stages in both models, individuals may experience the stages in different orders or, perhaps, only experience some of the five stages (Kübler-Ross, 1969; Tunick et al., 1996). In the present study, the dancers reported several responses that related to the stages of grieving from both models, including shock, anger, acceptance, sadness/grief, acceptance of severity, and various behavioral responses and redirections of energy (i.e., related to coping). Moreover, the dancers in the present study expressed emotional reactions and other injury responses that aligned in part with both grief response models and some contrasting emotional reactions (e.g., gratitude). Thus, neither model tells the whole story of the dancers' post-injury experiences. Based on the researcher's findings, facing the adversity of an injury leads to highly complex emotional responses in modern dancers, which do not follow one consistent linear pattern.

Within the present study, all dancers reported receiving professional medical services (e.g., medical doctor visits, physical therapy, etc.) for their injuries. Despite emotional factors consisting primarily of negative mood states, participants did not, however, seek out emotional services from professional providers. Interestingly, several participants mentioned that they wished they had sought out or received such services. There was not a clear reason as to why participants did not seek such support; it could be that they were unaware that mental health counselors or CMPCs could be a useful avenue of support for dancers who are recovering from injury. Further, perhaps participants felt as though the emotional support offered by friends and family was sufficient, the social culture or stigma in the dance world may have discouraged seeking out support, or possibly financial resources were limiting factors (Krasnow et al., 1994). According to Pollitt and Hutt (2021), up to 60% of dancers who have experienced injury throughout their dance careers meet the criteria to be referred to a clinical psychologist. Further, given the fear and anxiety reported relating to surgery, practitioners could refer injured clients to perioperative hypnosis, given its efficacy on reducing pre and post-operative anxiety and pain (e.g., Langlois et al., 2022; Pestana-Santos, 2021; Prabowo, 2021). In the present study, the findings regarding modern dancers' emotional reactions and lack of professional emotional support can be a call to CMPCs to include outreach to this population of dancers.

Stress-Inducing External Factors

One unique characteristic of the present study was the timing of the interviews in relation to the COVID-19 pandemic. Three of the four participants who suffered an injury during the pandemic reported notable differences in experiences compared to those who were injured prior to the pandemic. Due to COVID-19 being the first global pandemic since sport psychology literature has developed, pandemic influences are not present in prior athletic injury-related research findings (i.e., studies that took place prior to the start of COVID-19). COVID-19 has reportedly affected collegiate athletes' emotional responses to athletic career transitions (Barcza-Renner et al., 2022). The effects of COVID-19 on participants in the present study thus parallel and support Barcza-Renner et al.'s (2022) findings. One dancer in the present study reported feeling blessed by the timing of the pandemic with their injury, and another stated that the pandemic negatively affected access to certain injury treatments. Moreover, the influences of COVID-19 affected the dancers in unique ways. Further, given dancers' inherent lack of control over certain medical support factors, the commonly reported delayed diagnosis experiences were categorized within stress-inducing external factors. Delayed diagnosis experiences were similarly reported by Tracey (2003) in their study on sport athletes. It appears that factors that disrupt events, such as a global pandemic or a delayed diagnosis, can influence reactions to injuries, and thus, CMPCs may want to include questions about any disruptions or delays when helping a client through injury.

Challenges Presented by Physical Pain

Pain experiences during injury reportedly had psychological effects on some dancers in the present study. Because of the subjectivity of pain with athletic injury due to the physical and psychological factors involved (Minev et al., 2017), pain has different effects on each individual. Anderson and Hanrahan (2008) discussed how dancers are often pushed to major physical limits and may not notice pain intensifying due to the typical experience of feeling pain as a dancer. Similarly, a few of the dancers in the present study reportedly had naturally high pain tolerances and, in some cases, conditioned themselves to expect pain during their injury experiences. On the other hand, other dancers reported feeling pain to the point of debilitation and the worst pain of their lives due to their injuries. Perhaps the heightened body awareness that dancers reported across some primary themes is related to the reports that pain was such a central component to their injury experiences. Because it was not specifically assessed,

it was not clear whether the dancers' pain reached the level of pain catastrophizing that has been found in previous athletic and dance studies (e.g., Anderson & Hanrahan, 2008; Tripp et al., 2007). Overall, the inherent subjectivity of pain and individual differences in pain appraisals (e.g., Clement et al., 2015; Minev et al., 2017) likely influenced the dancers' pain experiences.

Mental Disruptions and Eventual Cognitive Shifts

Dancers shared several cognitive experiences, such as loss. One perception of loss reported in the current study parallels findings from previous studies. Tracey (2003) discussed loss of independence as well as loss of identity as a response to athletic injury within a sample of sport athletes. The current study's theme of uncertainty aligned with a previous qualitative study in which researchers reported that dancers with eating disorders felt uncertainty about future dance involvement (Reel et al., 2018). According to Mehling et al. (2011), it appears that dancers often minimize signs of injury, which may relate to uncertainty at injury onset. Similarly, downplaying the seriousness of injury was reported by Tracey (2003), which appears to reflect dancers' doubt in the recovery process. In sum, the modern dancers in the present study reported similar cognitive experiences to those of sport athletes and dancers in prior studies, reinforcing the notion that injuries can influence loss, particularly in one's self-identity (e.g., Air, 2013; Reel et al., 2018) and loss of independence, as well as uncertainty in many aspects related to injury (Reel et al., 2018).

Despite the doubt in recovery process and questioning both career identity and self-identity as a dancer, most dancers in the present study expressed coming to terms with their injuries and growth as a result of their injury experiences. Relatedly, Macchi and Crossman (1996) found that injured professional ballet dancers ultimately transitioned from fear, depression, and anger to higher levels of optimism and excitement as recovery progressed. The dancers in the present study, in contrast, did not express such linear recovery paths, as some dancers simultaneously experienced grief and growth. Moreover, the dancers' experiences were multifaceted and layered with complex cognitive, emotional, behavioral, and physiological responses.

Several dancers in the present study shared specific lessons they learned from the injury and recovery process, which relates to previous findings on sport athletes who reported personal discovery and learning (e.g., to not take things for granted) as a result of injury (e.g., Tracey, 2003). Broadly, stress-related growth has

been described as physical or psychological growth after facing a trauma or stressful event (Tedeschi & Calhoun, 2004). Stress-related growth has recently gained further acknowledgment within athletic injury research (e.g., Kampman et al., 2015; Roy-Davis et al., 2017; Wadey et al., 2011). Research on stress-related growth in terms of dance injuries, on the other hand, is limited. The findings of the present study indicate that dancers and sport athletes may have similar growth experiences when it comes to injury; however, the growth expressed by the dancers tended to relate more with body awareness, such as a peaked interest in studying human anatomy, in contrast with the personal, professional, and psychological growth indicated in sport athletes' experiences (e.g., Tracey, 2003). It could be that modern dancers perceive body awareness as more of a focus within their performance, so they specifically recalled the new information about their body awareness during their injury experiences. Further research is needed in order to more thoroughly assess dancers' growth after injury.

Coping Through Redirection of Energy

Dancers' behavioral responses to injury, which took the form of various redirections of energy, share both similarities and differences with sport athletes and dancers in previous studies. Specifically, despite some levels of deterred motivation in dancers in the present study, all dancers reported an adaptive coping behavior of adhering to physical therapy, which contrasts Clement et al.'s (2013) reporting that sport athletes varied from high to low rehabilitation adherence. Another adaptive behavioral response was seeking social support, which has commonly been found among others (e.g., Goddard et al., 2021; Mitchell et al., 2014). Further, some dancers' compensatory coping behaviors, such as disordered eating and alcohol consumption, were seemingly more maladaptive in nature, which appear to be consistent with Reel et al.'s (2018) findings on professional dancers who restricted caloric intake as a response to injury. Overall, modern dancers reported similar behavioral responses to injured athletes and other dancers; however, the purpose of the behaviors for the current sample of dancers seemed to emphasize a redirection of the pent-up energy that accumulated due to not being able to dance.

Buffering Effects of Positive Social Support

Within the present study, the influence of relationship buffers on the overall injury experience supported previous research findings (e.g., Goddard et al., 2021; Tracey, 2003). All dancers in the present study reported interpersonal trust/support, with a focus on social

support from family, friends, romantic partners, and dance colleagues. A common report both in the present study and in previous studies was feeling gratitude for others' support (Bianco, 2001; Tracey, 2003). Several researchers have discussed social support in terms of athletic injury coping (e.g., Goddard et al., 2021; Mitchell et al., 2014). On the other hand, dancers also noted interpersonal protection, which included reports of feeling concerned about sharing the details of the injury with others. Tracey (2003) similarly reported that sport athlete participants stated feeling concerned about coaches' responses to the news of an injury diagnosis, in fear of losing playing time or losing a spot on a team. In contrast, in the present study, the concerns around sharing details about one's injury were reported as an effort to avoid burdening or inconveniencing others rather than a worry about being replaced. For the most part, the dancers in the present study described having trusting relationships with dance colleagues and choreographers. They perhaps were less fearful of losing a spot in companies and dance engagements due to the strong foundation in relationships.

Strengths and Limitations

Due to the qualitative study design with a small sample size, there were similarities and differences among participants; participants differed in age, type and severity of injury, and need for surgery, yet 87.5% and 75% of participants identified as female and White, respectively. For further understanding of injury experiences of modern dancers, future research would benefit from targeting a sample with more diversity in social, cultural, and gender identities. Further, the impact of COVID-19 affected 50% of participants, and thus, the injury experiences of those dancers were inherently different than those whose injuries took place prior to COVID-19. Nevertheless, given the structure and design of the study, there were strengths in addition to the limitations. One strength was the inclusion of modern dancers at different training levels (e.g., college, community, professional), as previous dance injury research tended to focus primarily on professional-level dancers. Additionally, the open-ended interview structure allowed dancers to openly share comprehensive accounts of their injury experiences, and using Zoom as the platform for the interviews offered an opportunity for the principal researcher to observe body language and ensure the dancers were understanding the context of each question.

Future researchers investigating modern dancers' injury experiences may consider studying a sample including a more diverse and underrepresented

population of dancers, as well as differences between dancers with chronic injuries versus acute injuries. Future researchers may also benefit from investigating differences in pain perception and expectations, experiences, and tolerance of pain depending on dance training level. Finally, researchers may consider further investigation on stress-related growth following an injury. Practitioners may benefit from facilitating a more transformative healing process when working with injured athletes and dancers, focusing on growth as a result of the injury experience (Wadey et al., 2019). If practitioners focus on growth following an injury, there may be the potential for an enhancement in dancers' levels of understanding and awareness, acceptance, less hesitation in seeking social support, and perhaps successful return-to-dance experiences.


Conclusion

As one of the first studies to qualitatively explore modern dancers' post-injury psychological experiences, the present investigation helped provide a framework for future modern dance research. While the Wiese-Bjornstal et al. (1998) integrated model was a helpful guiding framework for the present study, the dancers' responses did not directly fit the pattern of personal and situational factors influencing cognitive appraisals, emotional responses, and behavioral outcomes following an injury. Similarly, some of the dancers' injury responses aligned with Tunick et al. (1996) and Kübler-Ross's (1969) grief response models, yet neither model tells the full story of the dancers' experiences. Further, in contrast with Clement et al.'s (2015) findings, the dancers did not have clearly delineated phases of recovery. Themes included emotional upheaval and reactivity, stress-inducing external factors, challenges presented by physical pain, mental disruptions and eventual cognitive shifts, coping through redirection of energy, and buffering effects of positive social support. Overall, there were both similarities in findings between the dancers in the present study and sport athletes in previous studies (e.g., fear, anxiety) and differences (e.g., the nature of the interpersonal protections).

Injuries are complex events that not only influence the physical body but also initiate profound psychological experiences. The present study provides a starting point for research on the unique experiences of modern dancers. The results can help inform suggestions that practitioners can consider supporting injured dancers more effectively, such as providing resources for professional mental health services and encouraging transformative healing processes.

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