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"Yo, I Like Your Walk-Up Song": Music Integration in Professional Baseball Gamedays

Seth Swary, MA

Dissertation submitted to the College of Physical Activity and Sport Sciences at West Virginia University

in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Sport, Exercise, and Performance Psychology

Sam Zizzi, Ed.D., Co-Chair Jack Watson II, Ph.D., Co-Chair Jesse Michel, Ph.D. Ashley Coker-Cranney, Ph.D. Ed Jacobs, Ph.D.

College of Physical Activity and Sport Sciences Department of Sport, Exercise, and Performance Psychology

> Morgantown, West Virginia July 2020

Keywords: sport psychology, emotion regulation, baseball, sport performance, performance enhancement, qualitative

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Abstract

"Yo, I Like Your Walk-Up Song": Music Integration in Professional Baseball Gamedays

Seth Swary, MA

During competition, athletes are consistently regulating their own emotions (Friesen et al., 2013a) and the emotions of their teammates (Tamminen et al., 2016). Athletes have identified music as a strategy used for both intrapersonal (Lane, Davis, & Devonport, 2011) and interpersonal emotion regulation (Friesen et al., 2015), while also using music for association/dissociation, enhancing performance, facilitating flow, and improving their qualitative experiences (Gabana et al., 2019). Though theories have been proposed on athletes' individual (Bishop, Karageorghis, & Loizou, 2007) and group music use (Karageorghis et al., 2018), they are yet to be widely applied to other sports. Further examination is thus still needed to better understand the group-level uses of music and the lived experiences of athletes listening to music, and to further develop theories. Researchers in the present study utilized a descriptive phenomenological psychological method (Giorgi, Giorgi, & Morley, 2017), interviewing nine professional baseball players on how they experience music on a gameday. Results are divided into sections focusing on individual, team, and stadium listening, then compared to theories on emotion regulation (Campo et al., 2017; Gross, 1998), music in sport (Bishop, Karageorghis, & Loizou, 2007; Karageorghis et al., 2018), and relevant theories in the field of sport psychology (e.g., Martin, Moritz, & Hall, 1999). Implications for athletes, coaches, sport psychology professionals, and professional baseball organizations are discussed.

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I quickly realized this section would be the hardest to write of the document as I fear that it will never be good enough to capture my gratitude for all of those who have helped me along the way. This document is a culmination of a journey that has taken me across the country and united me with people from around the world, and I am incredibly thankful for everyone along the journey. Here goes nothing...

To my family – though you may not understand what I do or why, you have loved me and supported me nonetheless. Thank you!

To those I met at OWU – thank you for showing me a new way to look at the world and helping me to grow as a person.

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All of this is to say, though I still don't know much, the one thing I know is that I am loved.

"When you are loved, you can do anything in creation. When you are loved, there's no need at all to understand what's happening, because everything happens within you."

-Paulo Coelho, The Alchemist

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"Yo, I Like Your Walk-Up Song": Music Integration in Professional Baseball Gamedays

Introduction

Emotions are a prevalent aspect of the sport experience as athletes prepare themselves for practice and competition, and to cope with the stress associated with pressures to perform.

Athletes, then, are constantly experiencing various emotions and engaging in strategies to regulate their own emotions (Lane, Davis, & Devonport, 2011) and those of their teammates (Friesen et al., 2013b). One's ability to recognize and understand emotions, express emotions, and regulate emotions is also referred to as emotional intelligence (EI; Mayer & Salovey, 1997). Athletes with higher scores on measurements of EI report more pleasant emotions prior to competition (Lane et al., 2010) and use psychological skills more frequently (see Laborde, Dosseville, & Allen, 2016 for a review). In regard to objective measures of athletic performance, research indicated that EI has a moderate influence (7-23%) on pitching performance (Zizzi, Deaner, & Hirschorn, 2003), total games played by professional hockey players (Perlini & Halverson, 2006), and cricket team performance (Crombie, Lombard, & Noakes, 2009).

Emotion Regulation in Sport

Emotion regulation, one aspect of emotional intelligence, has hedonic (i.e., increase pleasant emotions/decrease unpleasant emotions) and instrumental (i.e., facilitate the pursuit of a goal) functions (Tamir, Mitchell, & Gross, 2008). Instrumental emotion regulation may be particularly relevant to sport performance given the individualized relationship between emotions and performance, as conceptualized in the Individual Zones of Optimal Functioning model (IZOF; Hanin, 2000). IZOF posits that athletes regulate emotions to facilitate successful performance more so than to maximize pleasant moods. In a recent study examining the instrumental emotion regulation strategies of athletes, Lane and colleagues (2011) found that

athletes' choices about increasing anger and/or anxiety was influenced by their meta-beliefs about the impact of emotions on performance. Additionally, the use of effective emotion regulation strategies led to winning 54-100% of the following points in a small study of table tennis players (χ^2 =3.99-37.59; Martinent et al., 2015) and helped to prevent choking under pressure in a putting task regardless of arousal level (η^2 =0.41; Balk et al., 2013). While emotion regulation has been a common topic in the field of sport, exercise, and performance psychology (SEPP) in recent years, most researchers have focused on intrapersonal regulation (i.e., regulating own emotions; see Campo et al., 2017). A recent shift in the literature has occurred, however, in which researchers have recognized the impact of social and interpersonal processes, such as talking to teammates and communal coping, on emotion regulation (Friesen et al., 2013a; 2013b; 2015; Tamminen & Crocker, 2013; Tamminen et al., 2016).

The process model of emotion regulation (PMER; Gross, 1998) has been commonly used in other areas of psychology but has received less attention in the context of sports (Campo et al., 2017). According to the model, individuals are proposed to regulate emotions through situation selection, situation modification, attentional deployment, cognitive change, and/or response modulation. The first four of these five "families" of emotion regulation strategies are considered antecedent-focused, in that they take place in preparation for the emotional response, while the last family is response-focused, occurring after the emotional response to alter specific emotions being experienced (Gross, 1998). In a recent two-part study on rugby players' use of emotion regulation strategies, Campo and colleagues (2017) found support for each of the five families proposed in the process model. Additionally, within each of the families, strategies were further divided into self-regulation and interpersonal regulation, which can again be separated into co-regulation and extrinsic regulation. An examination of participants' motives for regulating

emotion were revealed to be egoistic (for personal benefit), altruistic (for the benefit of a teammate), or both. These results, along with findings from Friesen et al. (2013a) that athletes' personal emotions informed their decision-making, emphasize the importance of the individual's own emotional states and meta-beliefs on his/her decisions about regulating the emotions of teammates. One strategy cited by athletes in the study that fits within several families in the PMER was music listening.

Music for Emotion Regulation in Sport

Athletes report commonly experiencing prevalent emotional reactions to music (Laukka & Quick, 2011), and researchers in sport psychology have already identified music as an effective intrapersonal (Bishop, Karageorghis, & Loizou, 2007; Elliott, Polman, & Taylor, 2014; Lane, Davis, & Devonport, 2011) and interpersonal emotion regulation strategy (Friesen et al., 2015). In a recent study by Middleton, Ruiz, and Robazza (2017), a 5-week intervention tying music selection with psychoeducation about the IZOF model (Hanin, 2000) helped to improve swimmers' perceived ability to regulate their preperformance states and had a positive impact on the perceived effectiveness of their preperformance routines. Further, Gabana and colleagues (2019) found that professional golfers use music as an associative and dissociative mechanism, as well as to regulate their energy/arousal levels, regulate mood, enhance mental performance states, facilitate flow, and improve their qualitative experience. Golfers reported listening to music with others and alone, and commonly did so during their pre-performance routines and while practicing. Terry and colleagues (2020) sought to quantify the effects of music in the contexts of exercise and sport in a meta-analysis, finding that music significantly influences affective responses (g=0.48), ratings of perceived exertion (g=0.22), and overall performance (g=0.31).

Similar to the trends seen in the sport emotion regulation literature, the bulk of research on the impact of music in athletic domains has been focused on the intrapersonal impact on athletes in individual sports. Bishop et al. (2007) proposed a theory of music use through interviews with tennis players and stated that aspects such as the athlete's extra-musical associations with the song, family and peer influences, film soundtracks/music videos, acoustical properties, and level of identification with the lyrics or the artist determine an athlete's pool of emotive music from which to choose. The athlete's selection of a song is then mediated by situational and emotional content/intensity factors. After the athlete selects a song, the actual emotional intensity experienced is mediated by the time between listening and performance, the way in which it is delivered (e.g., headphones, sound system), and modifiable musical properties (e.g., tempo, intensity).

The latest grounded theory, proposed by Karageorghis and colleagues (2018) through interviews with soccer players, extends the previous theory of music use to the group level. In their theory, Karageorghis et al. suggest that music components and extra-musical associations determine a team's pool of emotive music, with the selection mediated by group factors (music selector, group cohesion, team atmosphere), task-related factors, and personal factors. Each of these aspects then influence the effects of music on group cohesion, team performance gains, and group psychological benefits (e.g., opponent intimidation, residual effects).

While a solid theoretical founding exists for music as an individual performance enhancement technique (e.g., Gabana et al., 2019) and intrapersonal emotion regulation strategy (e.g., Bishop et al., 2007) in sport, additional research is still needed to better understand the impact of music on group performance and for interpersonal emotion regulation. For example, are the benefits to team sport athletes limited to emotional regulation or do these athletes endorse

other uses? Further, the group music use theory proposed by Karageorghis and colleagues (2018) has yet to be applied to athletes participating in a team sport other than soccer and additional research is still needed to understand *how* music use is experienced at the group level. The aim of the present research, then, was to explore the experience of athletes selecting and using music in the context of a team sport and how they experience music individually and as a team for regulating emotions, enhancing performance, and influencing other team factors (e.g., team cohesion).

Methods

Research Design and Sampling Approach

A descriptive phenomenological approach (Giorgi, Giorgi, & Morley, 2017) was used to understand players' lived experiences and meanings associated with music throughout a typical gameday. The researchers purposively sampled professional baseball players as the sport offers a unique context in which baseball is a team sport but consists of a series of individual performances. Further, music is played before and throughout games, including the unique aspect of walk-up songs in which a player selects the song he wants to be played throughout the stadium immediately prior to his performance. The researchers interviewed a total of 9 participants, fitting within the 8-12 range generally considered appropriate for phenomenological studies (Creswell, 2013). While initially hoping to achieve maximum variation (Patton, 2002) with participant demographics, time limits and the COVID-19 pandemic led to the authors shifting focus primarily to convenience. Participants identified as White (n = 8) and Hispanic (n = 1), ranged in age from 19 to 26 (M = 23.5), and had an average of 2.4 years' experience playing at the collegiate level and 3.0 years' experience playing professional baseball. Four of the participants were assigned to the AA level of their organization at the time of data collection,

two were assigned to Class A-Advanced ("High A"), one in Class A ("Low A"), one in Class A short season, and one at the Rookie level. Participants represented a variety of positions including first baseman (n = 2), catcher (n = 1), relief pitcher (n = 5), and starting pitcher (n = 1).

Philosophical Assumptions

The researchers approached the study from a constructivist paradigm, accepting the assumptions of a relativist ontology (i.e., existence of multiple realities that are locally and specifically constructed individually) and a transactional/subjectivist epistemology (i.e., the researcher and participant work together to co-construct knowledge; Guba & Lincoln, 2005). This paradigm aligns strongly with the approach of the descriptive phenomenological psychological method as described by Giorgi, Giorgi, and Morley (2017), in which researchers aim to reduce participants' experience with a specific phenomenon down to its core meaning or *essence* from a psychological perspective. Further, the researchers employed strategies outlined by Bevan (2014) to conduct a descriptive phenomenological interview, allowing the researchers to explore the phenomenon of music listening from multiple realities and co-construct knowledge by actively participating in interviews.

Procedures

Following approval by the West Virginia University institutional review board, the authors recruited participants through connections with coaches and team mental skills consultants, who served as gatekeepers for this study, on professional baseball teams. The first author contacted mental skills coaches of four different professional baseball organizations and a position coach from a fifth organization, with only one contact declining participation. The coaches and mental skills consultants of the four organizations who agreed to help were sent an email providing a brief overview of the study, information on what participation would entail,

and contact information for the first author. Contacts then forwarded the information to players within their respective organizations and interested players contacted the first author to schedule an interview to be conducted via Zoom. One contact from the first organization declined participation, while four players each from two of the organizations and two players from the fourth contacted the first author to be interviewed. One player did not complete data collection after scheduling the interview. As the interviews took place virtually, participants provided verbal consent in lieu of signed documentation to take part in the study.

In line with descriptive phenomenological interviewing proposed by Bevan (2014), the interviewers asked descriptive and structural questions to address the themes of contextualization (i.e., understanding the phenomenon in its naturally experienced context), apprehending the phenomenon (i.e., understanding the typical attitude/approach to the phenomenon), and clarifying the phenomenon (i.e., imagining how the experience of the phenomenon would change in various contexts/circumstances). In line with the constructivist paradigm, Bevan (2014) argued that one question alone is insufficient for capturing the multiple ways of expressing one's experience and interviewers must be prepared to ask additional descriptive questions. The interviewers thus asked each participant the same open-ended question (i.e., "Tell me about your experience with music on a baseball gameday.") to provide contextual information and identify potential areas for further inquiry, with follow-up probes being used to achieve deeper descriptions, structure, quality, and clarity of the participants' experience (e.g., "Tell me what would happen if you were not able to listen to music in the way that you typically do," "Tell me about the effect(s) you think music has on your team as a group."). While a general list of potential probe questions was developed to assist in the consistency of the research (Bevan, 2014), probe questions were only used if first prompted by the participant and questions were

adapted for each individual conversation. Interviews ranged from 24 to 50 minutes in length (*M* = 33 minutes), were audio-recorded, and were transcribed verbatim by the first author and an undergraduate research assistant. During transcription, all names were replaced with pseudonyms and identifying information was removed to protect participants' confidentiality.

Data Analysis

Analysis of the transcripts followed the five-step analysis outlined by Giorgi and colleagues (2017) for descriptive phenomenological psychological studies. A primary research team, consisting of two students and two recent graduates of a doctoral program for Sport, Exercise, and Performance Psychology (SEPP), took a collaborative approach to analysis as the relativist ontology recognizes multiple realities, thus multiple perspectives of the text were sought. The first step included the four members of the primary research team reading the entire transcripts in order to gain an overall sense of the description, followed by the second step in which the primary research team assumed the attitude of phenomenological psychological reduction (i.e., "view the lived experiences as manifestations of the lived meanings and values expressed by concrete human subjects," Giorgi et al., 2017, p. 181). Once the phenomenological psychological reduction was assumed, the third step consisted of the researchers, while rereading transcripts, separating the experience into meaning units by marking slashes when he/she subjectively experienced a shift in meaning. Meaning units were then copied into analysis spreadsheets, with each cell representing a unique meaning unit. All data were included in this stage to avoid favoring of some data over others. Within the fourth step, the researchers transformed the meaning units identified in step three in phenomenologically and psychologically sensitive ways in order to generalize the meaning for comparison with the other descriptions. Some transformations took place once while others occurred several times

depending on the psychological richness of the unit, and each transformation was presented in the analysis spreadsheets to allow others to follow clearly. Lastly, the researchers reviewed the final transformations in the fifth step to determine key meanings and what is essential to the description of the phenomenon. An example of this process would be Randy's statement regarding the American and Latino/Hispanic athletes playing music in the clubhouse that, "I think that's... good for both sides and they're kind of bringing and we are kind of sharing some of our [music] with them. And at the end of the day that doesn't do nothing but help us grow as teammates I feel like" being identified as an initial meaning unit. This unit was first transformed to, "He thinks music in the clubhouse is good to share culture amongst teammates and helps them to grow as teammates," and then again to, "Music can be used for sharing culture and increasing team cohesion."

Each member of the primary group completed the steps separately over a span of eight weeks, meeting for weekly debriefs to discuss thoughts on and questions about the data.

Following the fifth step, the primary team then discussed the essential factors identified in each individual interview and compared the findings across interviews and members. An SEPP faculty member served as a critical friend following the fourth step, and an additional SEPP faculty member served as a final critical friend for the fifth step. As emphasized in the descriptive phenomenological psychological approach (Giorgi et al., 2017), the authors then compared the final data to that of existing theoretical models of athlete music use (Karageorghis et al., 2018), general models of emotion regulation (Gross, 1998), and emotion regulation in sport (Campo et al., 2017). Suitability of this approach to analysis was gleaned from similar data analyses used in recent publications in the field of sport psychology (e.g., Coker-Cranney et al., 2017; Grindstaff, Wrisberg, & Ross, 2010; Wadey et al., 2013).

Research Quality and Rigor

As the researchers adopted a constructivist paradigm, a standardized list of criteria (e.g., Tracy, 2010) for judging the quality of qualitative inquiries was not applicable (see Smith & McGannon, 2017). Instead, constructivist researchers have been encouraged to select criteria relevant to the purpose and context of the study (Smith & McGannon, 2017). The researchers in the present study worked to ensure rigor and quality through several strategies including the creation of self-reflexive statements, conducting a pilot interview, maintaining analytic memos, and the use of critical friends. Prior to analysis, each member of the primary research team created a self-reflexive statement to assist in bracketing, assuming the scientific phenomenological reduction (Giorgi et al., 2017), and to increase dependability in the research through transparency. To further increase dependability and transparency, each of the steps taken in analysis were recorded and saved (including each transformation) while all members of the primary research team kept analytic memos following each step. Many of the memos described initial reactions to and thoughts about the text, which assisted the research team in bracketing those thoughts and reactions before returning to the data to explore alternative interpretations. To address confirmability, the researchers conducted a pilot interview prior to the study with a collegiate club baseball player and employed the use of critical friends throughout analysis. The inclusion of critical friends acknowledged the possibility of other interpretations of the data and allowed for challenges to interpretations and opportunities for dialogue (Smith & McGannon, 2017).

During analysis, the investigators remained open and responsive to the process while employing verification strategies as identified by Morse and colleagues (2002). The researchers selected a descriptive psychological phenomenological method to best align with questions

regarding players' experience with music (i.e., methodological coherence) and interviewed professional baseball players with unique and extensive experience with music (i.e., appropriate sample). Data was concurrently collected and analyzed, while ideas that emerged during analysis were recorded for verification in later interviews (e.g., thinking theoretically). Lastly, proposed theories were used for comparison and new findings helped to further develop said theories.

Results

Participants described music being integral throughout their gameday experiences. The results were thus divided into three sections representing the levels at which music was used by participants: individually, with the team, and in the stadium. Certain aspects of the music experience (e.g., music in routines, process of selecting music, the purpose of music, the impact of music, and walk-up songs) permeated through every level of use, though they were altered slightly with each level. These levels were not static, but rather overlapped with one another as demonstrated in Figure 1.

[Insert Figure 1 here]

Individual Listening

At the individual level, players described listening to music in their vehicles on the way to and from the stadium (e.g., it "kind of starts like earlier in the day almost. You know, driving to the park." -Sam; "On the road... I like to listen to music when we all get on the bus and we are on our way to the field." -Luis) and through headphones on the bus and in the clubhouse/locker room. Participants described choosing music for themselves based on personal preferences, expressing a range of preferences and tastes in music, while also being generally flexible in the type of music to which they listened. Personal music preferences were typically developed through *identification with the music* through such facets as their memories and associations with

certain music, experiences, and cultural backgrounds. Ken conveyed his preference for country music in saying, "my town is like 1,500 people, I mean super small town. A lot of dirt roads, a lot of mountains, like I'm a country boy, and, uh, that music relaxes me, man."

Selection. Players were able to exercise *autonomy* in their music selections when listening individually, though not always intentionally choosing particular songs. Participants explained the importance of *timing* in that their music use earlier in the day was typically focused on *entertainment* and served more as "background noise," with selections being less intentional (e.g., listening to the radio, putting personal music on shuffle). This music was primarily used as a way of improving the qualitative experience earlier in the day. Music selections then become more intentional and purposeful as the game neared with the overall goal shifting to that of *enhancing individual performance*. To do so, players selected music they felt would help them with such skills as regulating energy/arousal, regulating emotions, and allocating attention.

Purpose. The reason most frequently cited reason for music use was energy/arousal management. Players expressed that music helped them both to decrease and increase energy/arousal levels depending on their individual needs. Using music for energy/arousal regulation was most commonly used immediately prior to performance, with the direction of regulation depending on the players' perceptions of what will help them best perform. Lee expressed experiencing a decrease in energy/arousal while listening to music, saying, "I will be listening to music for probably about an hour or so... before we have to get out on the field, and I just kinda let that lead me into the game... kind of step out on the field in a relaxed, calm state and just be ready for the game at that point." Other participants like Dan, however, used music at the same point to increase arousal/energy, noting that he wants to have so much energy that he, "feel[s] like [he] could run through a wall when [he's] listening to music."

Players also conveyed using music for *emotion regulation*, most frequently in decreasing feelings of stress and anxiety and increasing feelings of happiness, calmness, inspiration, and confidence. Three participants discussed regulating their emotions by listening to music that triggers memories associated with the desired emotion. Ken mentioned using music to help him tap in to his "happy place," while Ron summarized this aspect in saying:

Certain songs can trigger nostalgia or, you know, past events in our life where this song reminds us of it... there's a song that, it's one of my favorite songs, and I'll listen to it before games all the time because it reminds me of when... I was trying to get a scholarship for college. And this same song was always playing... whenever I was working out or hitting at this sports facility. And at this particular time in my life, I was trying to get back into baseball and... so every time this song would pop up in my playlist or whatever, it reminds me of that time in my life. And it's truly inspiring because... I think of the song at the point in time to where I was introduced to the song, and now here I am listening to that same song and I'm in my dream scenario, right?

Regarding emotion regulation at the individual level, participants primarily referred to using music to elicit a certain emotion rather than match what they are feeling at the time.

Another reason identified by participants for using music was to assist in *attention management*. Participants described using music to help in directing attention to the task at hand (e.g., "leading up to the game, like if I need... if I'm way checked-out, music will kind of check you back in." -Eric), as well as using it as a form of distraction. Ken discussed this form of music use for lifting weights, saying:

That music, it just helps me get in the weight room, get my stuff done. I'm listening to... the pump up music and it kind of just takes my mind away from, "Damnit, I've got to go

back into the weight room again man, this is going to suck and I know my body is going to feel like hell while I'm going through this workout." But like when I have that music blasting in the background, it... kind of helps me forget about all that it helps me, uh, like kind of drown out those thoughts.

Similar to distracting from fatigue to complete difficult workouts, participants expressed using music to alleviate boredom and get through what can, at times, be repetitive, mundane schedules.

Music use was not the same throughout players' experiences, but rather all participants described their experience with selecting music on a gameday as a *learning process*. Players expressed changing the music they listen to on gamedays through previous experiences and reflection on associated performance. Lee summarized this learning process from his experience, stating:

And I found the higher tempo... more, you know, like hard rap, that kind of stuff, kinda had me a little more on edge and I would get more upset about mistakes instead of just kind of letting them go. Especially since it was just the bullpen, and then I would kind of bring that into my game and if I made a bad pitch or something, I would get really frustrated instead of just focusing on the next pitch and letting it fall by the wayside. And I found when I listen to, you know slower more relaxed music... kind of put me in that mindset.

Reflections on how the individual performed after listening to certain music was most often identified as the reason for adapting their song selections.

Routine. This learning process, along with the impact of music on energy/arousal regulation, emotion regulation, and attention management, helped players integrate music into their *pre-performance routines*. Ron stated that he believes "95% of players have some sort of

music involved with their daily routine... especially at the field," a testimonial that was supported by other participants. Max provided an example of his own routine, describing it as, "an hour of music that's like whatever first. Then, as we get closer, it's more and more serious of music. Then, it's just like the last seven minutes is Through the Fire and Flames just because that song is seven minutes long." While all participants discussed music listening in general as part of their routines, a few other participants also mentioned their routine including a particular selection of songs, exemplified by Sam saying that he, "had... 5-10 songs [he] would listen to before... like, almost pretty much the exact same playlist [he] would listen to before each game." Similarly, Lee explains that he will, "go through streaks where [he]'ll... have a specific 5 to 8 songs" to which he listens while doing dry runs (a warm-up used by pitchers in which they throw pitches while simulating in-game situations).

Participants explained that the music within their pre-performance routines helped to trigger a "performance mindset." Sam spoke to pre-performance routines, noting, "It's almost like [Pavlov's dog]... your mom rings the dinner bell... It's time for me to get my mindset ready... It's time to be focused. And for the next... 3 or 4 hours I was pretty much locked in." He went on to explain the consistency of using his routine, saying:

With the music, I was able to listen to it and like almost trick my mind into thinking like it didn't matter where I was, I was in the same place, you know? It's still going to be a game at 7 o'clock, or like 5 o'clock, no matter what. If I could listen to some of the songs on the playlist, it's like some familiar almost feel to every day where I know what's going to happen.

Players discussed using routines to increase the consistency of their performance, with the accessibility and ease of music being particularly helpful in creating a routine for both home and away games.

If they were not able to have music, most participants simply discussed *finding* alternatives to replace music in their routines that, though difficult or potentially less effective, would still help them achieve the desired objective. Lee summarized identifying an alternative, saying:

I honestly think I would have to sit in the field and meditate. Because it puts... you at ease, you know, it kind of relaxes you and gives you... like a focused mindlessness. And like... reaching a level... of sereneness or something like that, like I said I would have to go sit by myself and like you know? Like I said meditate, some type of yoga or something, just 'cause you have to find something to change that mindset to get you focus into the game and like music is a huge component in that.

While not necessary for their performance or experience, participants explained that music acts as a quick, accessible, and effective vehicle that can be utilized for various purposes.

Team Listening

Routine. Participants described team-level music listening in the clubhouse/locker room via a sound system. Music is a constant in the clubhouse from the perspective of the participants, as Ken stated that, "music is always on in the club house. Always, always," and Lee reported that, "in the clubhouse we usually... they're usually playing, you know, some kind of music very loud." Players conveyed music again playing in the clubhouse after games. Music playing in the clubhouse is such a consistent part of the experience that Tom noted, "the locker room and stuff

would be really just kind of weird if there was, like, nothing in the background playing. Like that would just be strange. The quiet, yeah, that'd be strange."

Selection. Within the team, participants explained that there is normally a group of 2-3 individuals who rotate having control of the music played over the speaker in the clubhouse, however all players are still able to have some input. As explained by Eric, "you are in a locker room full of outspoken humans. Like, it will happen, someone will yell, 'Who the hell is on the aux? Change this,' or whatever it is, so. You'll get that every now and then." Participants expressed experiencing a more significant impact of music when they are personally able to be involved in the selection process. Players listening individually were choosing songs based on their personal needs and preferences, while they aimed for more neutral music that would make everyone happy when choosing for the group. Dan, who identified as being one of the individuals responsible for choosing music in the clubhouse for his team, spoke to group music selection in saying, "It is more of a neutral taste that I play with everybody mixed in with a little bit of what I listen to because I'm in in charge, so, I'm going to play what I like, too."

The role of *music selector for the group* becomes solidified as the season continues depending on which individuals are successful in meeting the needs of the team. This role is typically filled by an older team member who is generally well-liked by teammates. As explained by Tom:

I think you have to have like a little bit of a... I don't know like a swagger. Like you have to be someone... everybody like pretty much likes, you know. And it's not like gonna be like the guy that like only a few people like. Or like, some people just don't really like to hang out with or something, you know. They're not gonna like let them, 'cause like

you're controlling for everyone. So, it's gotta be... it's pretty much someone that like everybody's like cool with and like okay with him being in charge, I guess.

Participants conveyed this role as an important role on the team particularly due to the aspect of having control over part of the experience of teammates.

Purpose. Similar to individual listening, participants cited music serving as a way of enhancing team performance through regulating the energy/arousal levels and emotions of the group. Participants described music for team energy/arousal regulation in similar pattern as individually, using calmer, more relaxed music earlier and increase the volume and tempo of the music closer to the beginning of the game. Max spoke to this experience following his team's daily practice, stating the music being played is, "just relaxing. We just got off the field, um, nothing too crazy too, you know? Something that's not going to get our energy going too much. Then, as game time gets closer and closer, some higher energy stuff." Many of the participants additionally discussed the use of music in the clubhouse for team emotion regulation. Dan explained music "that gets everyone in the right mood, it really has an effect on just your feelings." This music can also indirectly affect some participants through their teammates. Ron explained that, "even if you're not, you know, a particular fan of a certain genre of music that's playing on the loudspeaker, let's say there's a group of guys on the team that are, and they start rocking out to it. Now, okay, you can start rolling with it... It's contagious." Sam spoke to these factors for enhancing team performance, summarizing:

When everyone's kind of listening to the same song and you have like... a good vibe throughout the locker room it's... it's like everyone's kind of bonding to the same thing. You're kind of all going the same direction... the more people you can get going in the

same direction on the team, like kind of the better you're gonna be in the end. Like whether you win or lose it's one thing, but definitely it gives you a better chance to win.

Music was not perceived by the participants as an advantage in and of itself, but rather a tool that could help to improve chances of winning through these strategies.

Participants also identified music in the locker room as salient for the purpose of improving team chemistry, explaining that music helped to make it easier to interact with one another, allowed teammates to share their respective cultures, and provided insight into teammates' personalities. Tom mentioned bonding with teammates by discussing music in the clubhouse, stating it, "has positive effects because everyone kind of talks about that music. Like, 'Oh my gosh, this guy's playing this again.' Or like, 'Oh, I love whenever he's on the aux, he's got some good music.""

Several participants specifically identified music in the clubhouse creating shared experiences that could serve as a bridge for players of different races, cultures, and nationalities to bond as a group. Lee stated the music, "made it easier to socialize with each other, especially... With the language barrier and that kind of thing. Um, just having something loud on in the background makes it a little bit easier to talk to each other, you know? Guys are dancing and that kind of thing, it makes it... more happy and, um, inviting environment I would say." Ken also spoke this piece, summarizing:

And I mean they a lot of [my Latino teammates] don't understand English, a lot of the American players don't understand Spanish. So, we kind of... came to an agreement this year, every Latino song we have to play an American song and it's back and forth and back and forth... but also I think... that's good for both sides and they're kind of bringing

their culture onto us and we are kind of sharing some of ours with them. And at the end of the day, that doesn't do nothing but help us grow as teammates I feel like.

Another distinction participants learned through group music listening regarding the influence of culture was the different preferences between international Hispanic/Latino players and those from the United States. Hispanic and Latino players were identified as typically listening to more energetic, high-tempo music, and typically did so at a louder volume.

Rather than selecting music to elicit certain emotions or energy/arousal levels, participants noted that music after the game was aimed at matching the mood of the team and "setting a tone" for the clubhouse. This selection was largely dependent on the team's performance outcome. Eric described this factor, noting, "it's really based on what you do out there on the field. Lose, low... you know, low music puts you in that mood of just saying, 'We'll get them next time' kind of deal. Same thing goes for when you win, it's just, 'Alright, we won, we can do whatever we want basically, so let's crank it up!"

Stadium Listening

Selection and Routine. While on the field, participants described listening to music via the stadium's sound system. Listening to music on the stadium's sound system occurs during the players' practices and warm-ups (e.g., batting practice) prior to the game, as well as throughout the game itself. The vast majority of this music is selected by the organization's staff, with the exception of players' walk-up/walk-out songs. The interviewees explained that, between innings, music is played throughout the stadium and is commonly tied with promotional material and advertisements, and a similar selection of songs are used by different stadiums and at all levels. Participants noted the routine nature of these playlists as stadiums will typically use the same songs at the same points throughout the game (e.g., "Take Me Out to the Ballgame" after the 7th

inning). Many of these songs then become associated with playing and watching baseball in stadiums, tend to be family-friendly, and are used as a way of making the game more enjoyable for fans. Ken spoke to this aspect of the experience, saying:

I know in-between innings... they'll usually play music kinda for the crowd. After, like... while the pitcher is throwing his seven or eight warm up pitches and the infield is taking grounders and stuff waiting for the other team to come hit, that is when you hear the stadium has just a just a fan playlist. And, um, it's usually got some modern stuff, a lot of throwback, like a lot of 80's and just baseball ballpark music. I feel like every stadium has that and I... have probably heard that around ball parks so much since I was a little kid... I feel like that is kind of a must at baseball games is to kind of have just these baseball songs, like just old-school stuff. That's what I have always heard growing up around ball fields.

While these songs are not chosen by the players, participants described being able to use the music for similar purposes as when listening by themselves and with their teams.

Impact. Several participants explained that music helped them *flow with the game* of baseball and *allocate their attention* as needed. Ron summarized this piece of the experience, explaining:

With baseball it's a very... there's a lot of lapses in action or rest I guess you could say. It's a very, 'run as fast as you can and then stop because now you have to wait for the next play to happen,' you know what I mean? So... there is a lot of down time on the field as well... But while I'm waiting, why not listen to music? Right? Every song has a different beat, every song has a different chorus, whatever... It's a great distraction to be able to focus in and then focus out. So, you get to kind of zone out with the music while

you're waiting and then boom, once you're round comes up, you're focused in again. And we're taught as baseball players to be able to have that ability to zone in and zone out. Because if you're trying to focus 100% of the time when there's 200+ pitches thrown per game, it's impossible I mean we're human beings, right? And we only have so long of an attention span.

Some participants reiterated the potentially distracting impact of stadium music, though they largely described having momentary distractions when it did occur.

As a team, the stadium music again created shared experiences among teammates. In discussing this experience with his teammates, Tom expressed that:

We really liked... these like two Dua Lipa songs because they kept coming on between the innings for like this ad for like a casino or something and so... everybody just kind of vibes with it because we're like, "oh, that's that song!" Like, we just kind of like it from that experience and stuff, you know?

The participants mentioned that these songs heard repeatedly over the stadium, regardless of whether they matched with personal preferences, could help teammates bond with one another.

Walk-Up/Walk-Out Songs. While players acknowledged that music being played in stadiums can be experienced in other sports as well, several mentioned the unique integration of walk-up/walk-out songs. Dan discussed the uniqueness and widespread use of walk-up songs, explaining that, "no other sport has like, 'When I do this, play this.' So… it's just a different… thing that the sport of baseball has… Now, every team… it is like okay you do this, you get your jersey number, you get your uniform, and you say your walk-out."

As walk-up/walk-out songs are the only times that players are able to select the music being played in the stadium and are tied with an individual's performance, participants described

the process of choosing a song as being hours-long and was different for position players and pitchers. Walk-up songs, used for hitters, are around 15-second clips of a song selected by an athlete to be played as they walk to the plate and thus occur multiple times in a game. Some individuals choose one song to be played for all of their at-bats, while others prefer to use a few rotating songs. Walk-out songs are typically longer (about 1 minute in length) and are chosen by relief pitchers to be played as they run onto the field and warm-up during the game. These songs are thus only played once per game.

Participants expressed often being highly intentional and purposeful with the song and timing of the song to be played. Some players reported choosing a walk-up/walk-out song that would have a direct impact on them in hopes of enhancing performance. One such use was to *elicit a desired emotion*, as Lee stated that listening to his song, "Kind of gives [him] confidence. Kind of swagger on the mound that like [he] feel[s] comfortable and [he's] in a good state." Another reason was to use the song for *regulating arousal*. Ken, about hearing his walk-up song being played, stated, "I can feel my breathing getting slower, and I think that is the key to it, man. When you get in the box, can you slow your heart rate down."

Outside of performance, several players mentioned choosing a walk-up/walk-out song that *represented who they are* as a person or as a baseball player. Dan explained that, "If it's someone's walk-out, it's a personal song that they chose, so, it represents them walking up to the plate," while describing his own process of choosing a song in saying, "I always pick something that hits close to home because it is like... just like, I don't know, it is just the way it has been. It is like I have to pay my respect almost, but it is not that. I pay my respect to what made me who I am. So, I'm going to take it everywhere I go kind of thing." Similarly, Ron described choosing his walk-up to be a tribute, saying, "in college, I had a Frank Sinatra song actually. And, um... it

was, it was I guess you could say it was a tribute to my dad and my family. Because they're based out of Chicago and Frank Sinatra is a Chicago legend."

In addition to a self-focused selection, players also utilize their walk-up/walk-out songs to engage the crowd. Luis expressed the fans as the primary factor in his selection, stating, "every walk song I have chosen, I have chosen it for the crowd, it's not for me. A lot of people do it to get the crowd going, not to get themselves going... I choose a song I like, then I tell myself is the crowd going to like it." Some players did so with the ultimate goal of regulating their own energy/arousal, as Ron explained that, "with the audience being engaged, obviously that's gonna have an effect on him. I mean if you have 500 people behind you engaged in what you're about to do, if you as an individual can't get engaged because of that then you should check your pulse for sure." Other players used walk-up/walk-out songs as a way of *connecting with the fan base*. Luis expounded on this particular use with his walk-up song, saying:

I got really good responses... by the crowd, uh, people actually like sent me [direct messages] and stuff like, 'Hey, I love your walk-up song! It's so different! Like... actually that's cool... I like being able to tweet, to go search me on Twitter or Instagram and be like, 'Yo, I like your walk-up song.' It's pretty cool.

One participant mentioned that the walk-up/walk-out song can serve as a way of giving fans insight into the type of music players listen to and their personalities.

Participants depicted their walk-up/walk-out selection as a continuous process and explained reasons for *changing music*. A few examples were identified by participants in which a player keeps their specific song and it becomes strongly associated with him (e.g., Mariano Rivera), however most players change their song yearly. Another common reason for changing songs was due to performance. Dan summarized this reasoning:

That is one of the first things. 'Oh man, I went 0-4 today with four strike outs, gotta change my walk-up.' Like it is just something... baseball is also very superstitious [sic] in that aspect. So, it is like... So that's going to be the first thing you change. It is a routine; you've got to change a routine. If you keep making the same mistake, you've got to change the routine, change the path you are taking.

While this change typically occurred between games, some participants cited changes even occurring in-game.

A final reason for changing walk-up songs was feedback, usually negative, from teammates. As explained by Ken, "some guys just don't like to catch slaps from other teammates like, 'Man, that song. Why you listening to that? What is that? How does that hype you up?' Some people just can't take it and... they'll change it. They want to find a song they think is pleasing everyone."

Though participants reported multiple reasons for choosing music to listen to, players often make *interpretations of others' selections* of walk-up/walk-out songs. Players explained a perception that the music chosen by others can provide insight into their teammates, as well as their competitors. To this point, Tom stated, "And it's kind of funny to see like further into people based on what they do for that, it's... it's pretty neat to hear other, different tastes and what they feel like is a good walk-up song, or if it's actually just a song that they like. It's kind of funny to see." Ken expressed how he interprets opposing players' walk-up songs, saying, "when I'm catching, I'll listen to a walk-up song and... it is a little game I'll play with myself when I'm back behind the plate. Probably look at the scoreboard and listen to the song and be like, 'I wonder where this guy is from?' And a lot of time it'll fool me... but it is so cool how

like it doesn't it doesn't matter I guess where you're from if like there's a lot of different people, which is really cool."

Discussion

The current study was designed to explore baseball players' experience with selecting and using music, as well as their perceptions of the impact of music on gameday. Conducting phenomenological interviews with professional baseball players allowed the researchers to investigate the thoughts about, feelings toward, and motivations for music listening at both the individual and team levels across performance as experienced by the players. The authors compared findings from the present study with current theories on music use for psychological preparation, emotion regulation in sport, and other theories used in applied sport psychology, with participant descriptions helping to both support and extend the literature. For example, to the best of the authors' knowledge, no studies to date have explored the use of music at the differing levels (i.e., individual, team, stadium) and at different stages throughout a gameday (e.g., pre-game, during game, post-game).

Music Selection and Use

At all levels and stages, music selection was a process, music was part of the gameday routine, songs were selected for intended purposes, and listening had perceived effects. While sharing these themes across levels, each level of listening altered the ways in which music was used and experienced in unique ways. Individual listening took place throughout the day before and after games and happened in the individual's car or via headphones. Descriptions of participants' individual music listening before games supported previous findings (Gabana et al., 2019) and proposed theories (Bishop et al., 2007) on the selection and use of individual music in sport. Participants in the present study developed playlists of songs based on music components

(e.g., rhythm, lyrics) and extramusical associations (e.g., identification with artist, memories and familiarity). In individual listening, participants then chose music depending on the setting, their current emotional and physical states, and their desired emotional and physical states. Players listened primarily for energy regulation, emotion regulation, and attention management with the ultimate goals of improved and more consistent performance. Participants largely perceived music to be effective when choosing for themselves. After games, players listened to music individually in their cars and were usually less intentional with their music use as it was serving mostly as background noise.

Team listening occurred in the clubhouse/locker room before and after games and music was played through the speaker system. Participant descriptions about group music use before games aligned with the theory of group use proposed by Karageorghis and colleagues (2018). The same reasons for listening to music individually served as motivation for music use at the team level, as well as for team bonding and group cohesion. Music selection before games depended on the individual in charge of the sound system and the group's familiarity and comfort with one another. Extending the group music use theory (Karageorghis et al., 2018), which cites group cohesion as an outcome of music listening, participants in the present study specifically described how group listening helped to create shared experiences and an opportunity to share cultures with one another. Further, participants outlined how players assume the role of music selector for the group. Team members who selected music for the group had to "earn" the role by showing an ability to recognize the emotions of the group and successfully choose songs that matched those emotions, while also eliciting feelings of belonging and unity. Players noted the increased difficulty in selecting music to regulate the emotions of others, particularly due to different personalities, preferences, and cultural backgrounds. All players

were still able to have some choice, however, in the music being played for the group. While music before games is largely targeted for enjoyment and performance enhancement, music after games was selected that to match the team's performance outcome and was intended to "set the tone" for appropriate behaviors. After losses, music is not played immediately after the game and, when it is played, is played quietly and intended to serve more as background noise. After wins, however, music is played as soon as players get back into the clubhouse/locker room, is played loudly, and is aimed at increasing players' enjoyment and celebration.

Extending previous literature, participants explained that music being played at the stadium level was primarily chosen by organization staff based on music that is popular and appropriate for fans of all ages (e.g., well-known songs, no cursing). The songs chosen by staff were intended to engage fans and make the game more enjoyable for those in attendance. Stadium listening was the only type to occur during the game itself with music integrated between innings and throughout the game by way of walk-up/walk-out songs. Walk-up/walk-out songs allowed players to exercise some autonomy over their experience at the stadium level, with players selecting songs from their individual pool of music or songs outside of their own pool that they believed would engage the crowd. Several players used these songs for performance enhancement through energy and emotion regulation. Some players, however, chose songs for self-expression and for fan connection and engagement, motivations that were unique to listening at the stadium level. As players noted an intention of engaging and connecting with fans with their walk-up and walk-out songs, and the music being played throughout the stadium is similarly aimed at drawing fans, organizations allowing players to choose more of the music that is played throughout the game may be a beneficial step. Players noted these song selections can give insight into player personalities, making games more

engaging and enjoyable for fans, while having autonomy over songs could allow players to better use music during games for performance enhancement.

Music for Emotion Regulation

To emotionally regulate, participants primarily used music for changing or creating a desired atmosphere (e.g., more inviting environment in the locker room), directing attention to or from emotion (e.g., focusing on feeling calm and peaceful), and altering their perceptions of the situation (e.g., putting situation in perspective). These descriptions fit within the families of situation modification, attentional deployment, and cognitive change proposed in the PMER (Gross, 1998). Further, participants portrayed their reasons for use as being both hedonic and instrumental (Tamir, Mitchell, & Gross, 2008) depending on the timing of use. Music earlier in the day was used more for hedonic reasons and became more instrumental as they got closer to the game. Players utilized music for both intrapersonal and interpersonal emotion regulation, with co-regulation mainly being used for interpersonal regulation, and typically had egoistic motivations (Campo et al., 2017). While some players noted a desire for improved performance from their teammates, the motivations were ultimately still egoistic as the hope was that better performances from teammates would increase the likelihood of the individual to advance to a higher-level club in the organization.

Music and Sport Psychology

The participant descriptions of the integration of music into their individual and team preparation performance routines provide practical support for the findings by Middleton, Ruiz, and Robazza (2017). While Middleton and colleagues used a psychoeducational intervention to tie music with the IZOF model (Hanin, 2000), players in the present study discussed a similar, albeit much slower, learning process occurring throughout their careers. Through reflection on music

listening pre-performance and subsequent outcomes, players learned to adapt their selections to help them achieve states most beneficial for their personal performance. Interestingly, while the aforementioned study focused specifically on individual routines, this pattern was reflected in team listening in the present study. While each individual still had their own needs, players discussed particular zones of functioning at a team level. Each team, then, may have a general level of energy and set of emotions that can be achieved through integrating music into team routines that is selected intentionally with an understanding of the team's current and desired zone of functioning.

One participant described using music for imagery in his pre-game routine, supporting findings from Bishop and colleagues (2007). Using the applied model of mental imagery use in sport from Martin, Moritz, and Hall (1999), the participant's music use most aligned with motivational general-mastery and motivational general-arousal as he listened to music that would help him feel more confident and relaxed with the hopes that the feelings would become associated with the situation. Players integrating music with their imagery use should consider the emotions they want to be associated with the scenario, while baseball players specifically may want to include their walk-up and walk-out songs in imagery scripts to make the situation more realistic.

Practical Implications

In wider practical implications, baseball players in the present study discuss frequently listening to music and note a large overlap between music use and mental skills and topics commonly used in performance enhancement. Considering these results and the success of the intervention described by Middleton, Ruiz, and Robazza (2017), it may be beneficial for sport psychology practitioners to integrate music into their services. While discussing topics such as

imagery, IZOF, emotion regulation, team cohesion, and pre-performance routines, and more, SPPs can help athletes select music that better align with sport psychology principles. For example, a typically nervous athlete who uses music to get "pumped up" could benefit from an SPP providing education on IZOF and the anxiolytic properties of music may learn to instead incorporate calming music to enhance performance. As players discussed music listening helping to build relationships with teammates, music integration by SPPs may also serve as a way of building rapport with athletes by sharing interests and cultures. SPPs can share their personal backgrounds and music preferences with athletes, as well as learning more about their athletes through their music choices.

Further, organizations could use results from the present study in modifying how they choose music throughout games. If the intended purpose of music is to engage and entertain fans, organizations could give players increased autonomy in selecting the music that plays. Fans could thus connect with players in a unique way (i.e., a song chosen by the player specifically for fans) and potentially increase engagement during the game.

Limitations and Future Directions

The present sample is limited in that it lacks variability in the participants' racial/ethnic identities (8 of 9 participants identifying as White) and was restricted to A and AA levels.

Further, participants were asked to be interviewed for a study on the role of music in baseball, thus the players that agreed to participate may be more conscious of and engage more with music. Future researchers should continue applying music use theories (Bishop et al, 2007; Karageorghis et al., 2018) to other sports and explore the influence of cultural backgrounds on the role of music. As participants noted perceived performance benefits of walk-up/walk-out songs and this study was qualitative in nature, a quantitative examination of the effects of walk-

up/walk-out songs on players would be warranted. For example, researchers could explore walk-up/walk-out song choices and players' heart rate variability. Lastly, all participants in the present study had experience with mental skills training, and some were recruited through their team's mental skills coach. This sample could thus be more familiar with sport psychology concepts than most athletes and be more willing and able to use music more purposefully. Future researchers may want to consider the effects of mental skills training on athletes' music uses.

Conclusion

Players experience music at individual, team, and stadium levels, with each level offering unique aspects. Findings aligned with previous research on individual (Bishop, Karageorghis, & Loizou, 2007; Gabana et al., 2019) and team music use (Karageorghis et al., 2018), while also providing deeper understandings of how music is used during and after games, how music is selected in group settings and by whom, and the experience of listening at the stadium level. Participants' descriptions of music use overlapped significantly with mental skills training and provides a foundation for integrating music into sport psychology delivery.

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Appendix A: Figures

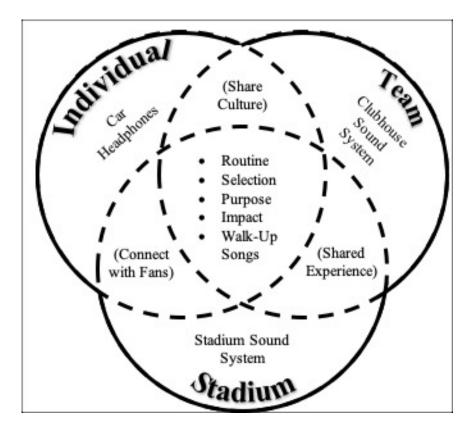


Figure 1. Visual Model of Participant Experiences with Levels of Baseball Listening

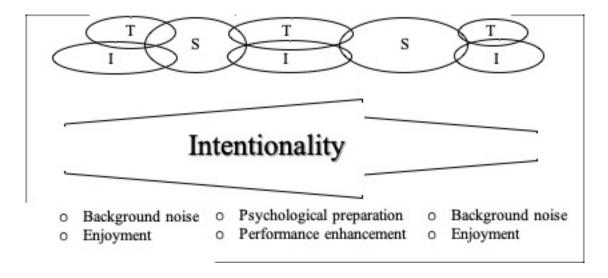


Figure 2. Visual Model of Music Use Throughout a Gameday

Appendix B: Descriptive Psychological Phenomenological Method

The Descriptive Psychological Phenomenological Method, as outline by Giorgi, Giorgi, and Morley (2017), modify the steps of description, reduction, and essence included in the philosophical method with criteria from scientific psychological research. To better align with empirical approaches, descriptions are provided by someone other than the researcher who is likely unaware of the phenomenological method and can provide descriptions of the natural attitude rather than coming from the researcher him/herself. The second difference between the current method and the philosophical method is that the researchers swap transcendental reduction for scientific reduction. Whereas transcendental reduction is intended for purifying consciousness, the scientific reduction is used to bracket one's own objectivities. Further, the researcher assumes a psychological perspective, meaning the researcher views those values and meanings discussed by participants stem from lived experiences. The final key difference is that researchers employing the current method identify psychological essences are typical, unlike philosophical essences which are universal. It is thus assumed that there are more universal essences above the psychological essences identified, as well as less typical essences below.

Within the descriptive psychological phenomenological reduction (Giorgi, Giorgi, & Morley, 2017), researchers analyze date following a five-step process. The researchers collect descriptions of the Lifeworld experiences and, if collected via interview, transcribe descriptions verbatim. In the first step, the researcher reads the original description or transcription to gain a basic grasp of the whole situation. The researcher then assumes scientific phenomenological reduction in the second step, followed by delineating meaning units in the description in the third step. These meaning units are identified by placing slashes whenever the researcher experiences a shift in the meaning being expressed. The fourth step consists of the researcher highlights the

psychological meanings lived by the participant by transforming their Lifeworld expressions through free imaginative variation and explicitly representing implicit factors. In the final step, the researcher uses the aforementioned transformations to describe the psychological structure of the experience.

The aim of the researchers in the present study was to gain a better understanding of how athletes experience music in the sport context. The descriptive phenomenological psychological method (Giorgi, Giorgi, & Morley, 2017) is thus a suitable approach for such research goals as it allowed the researchers to create a description of the psychological structure of music listening in sport. This psychological structure extends previous literature on for *what* music is used to include *how* music is actually experienced by athletes.

Annendix C. Fmail/Message Templates

Appendix C. Email/Message Templates							
Coach Recruitment Email							
Hello,							
My name is Seth Swary and I am a fourth-year doctoral candidate in Sport, Exercise, and Performance Psychology at West Virginia University. Currently, I am conducting a research study for my dissertation on the impact of music on athletes and baseball provides a unique opportunity to study this phenomenon as it can help us better understand music at both the individual and group levels. I am reaching out to you because of your position as a mental skills coach with a professional baseball organization and would appreciate your help in recruiting players to be interviewed for 30-45 minutes on their experience with music in baseball. We are ooking for participants with a range of characteristics including country of origin, race/ethnicity, current level of professional team (A-AAA), years playing professional baseball, position (e.g., starting pitchers, relieving pitchers, position players), prior baseball experience (e.g., collegiate baseball, club baseball) and psychological-mindedness. If you would be willing to help, we ask that you identify and contact 4-5 players within your organization that may be open to participating in the study. A brief message providing information about the study and contact information for me is attached to this email and can be included in an email to the players. If you have any questions, I can be contacted at sdswary@gmail.com or by phone at 419-233-1069. Thank you for your time!							
Best,							
Seth							
Initial Recruitment Template							
The following message was attached to emails sent to mental skills and coaches to provide a template for messages they could send to players in their organizations.							

_		
Dear		
Dear		

I am reaching out as a colleague of mine is currently completing his doctoral degree in Sport, Exercise, and Performance Psychology at West Virginia University and is looking to investigate the role of music in sport. He believes that you are uniquely suited to provide insight into this role due to your experience playing professional baseball. Participation in the study would include a brief 30 to 45-minute interview that would take place through Zoom at a time convenient to your schedule. I will not know whether or not you choose to participate in the study and your choice will not have any impact on our relationship or your relationship with the organization. If you would be willing to share your experiences with him for his research, feel free to contact him directly at sdswary@gmail.com or 419-233-1069. Thank you for your consideration.

Best,	
	Player Recruitment Message
Hello,	

You are being asked to participate in this study because we believe you have a unique experience that can help us better understand the role music plays in sport. The purpose of the current study is to learn more about your experience with music in the context of baseball. To best accommodate you, the interview will take place through Zoom at a time and date that works for your schedule. Interviews will last approximately 30-45 minutes. You can cease participation in the interview at any time and you do not have to answer any questions you are not comfortable answering. The interviews will be audio recorded and later transcribed, removing any information that could be used to identify you as a participant. The results of the study will then be written up for publication in a peer-reviewed research journal. Your participation is not required and will not affect your standing in your organization. If you have any questions, you can send them to sdswary@gmail.com. If you would be interested in participating in the study, please respond to this email with some days that would work best for you. Thank you for your time!

Best,

Seth

Appendix D: Interview Probe Questions

Phenomenological Question:

Tell me about your experience with music on gamedays.

Probe Questions:

- Describe your process of choosing the music you listen to by yourself.
 - o Describe your process of selecting your walk-up song.
- Tell me about the effect(s) music has on you individually.
- Tell me what would happen if you were not able to listen to music as you typically do?
- Describe your process of choosing the music the team listens to.
- Describe what would happen if someone else were to select the music.
- Tell me about the effect(s) music played by your teammates has on you.
- Tell me about the effect(s) you think music has on your team as a group.
- Tell me about the effect(s) you think your walk-up song has on:
 - o opposing players.
 - o fans.
 - o your teammates.
- Tell me about the effect(s) you think your teammates' walk-up songs have on you.
- Tell me about the effect(s) you think opposing players' walk-up songs have on you.

Appendix E: Participant Demographics Table

Participant	Age	Race/Ethnicity	Position	Current Level	MiLB Experience (Years)	NCAA Experience (Years)
Ron	26	White	1B	A+	3	2
Max	23	White	SP	A+	2	3
Lee	23	White	RP	Rookie	1	2
Luis	23	Hispanic/Latino	С	Α	2	3
Ken	19	White	DH/1B	A-	4	0
Tom	24	White	RP	AA	4	3
Sam	25	White	RP	AA	5	3
Dan	25	White	RP	AA	5	2
Eric	24	White	RP	AA	3	4

Appendix F: Self-Reflexive Statement

My earliest memories of the overlap between the worlds of music and sport prompt thoughts of collegiate football and the sounds of marching bands. As a native of Ohio, my family were dedicated supporters of the Ohio State University football team and would religiously watch and attend games. These football games were inextricably linked with the marching band and thus, in preparation for the games, my father would often proudly (and rowdily) play his collection of songs performed by the OSU marching band. Though I am admittedly much less committed now to Ohio State's athletic programs, hearing "Carmen Ohio" or "Hang on Sloopy" still elicits the feelings of energy, excitement, and joy that came along with watching a game with my family as a child.

In addition to watching sports, I participated in several sports throughout my childhood and into college. My memories of playing sports in junior high school and high school are tied with memories of listening to music while riding on the bus to and from games on my MP3 player, as well as hearing music being played during weight-lifting sessions and practice, while warming-up prior to a game, and throughout the games themselves. I primarily used music in team settings to increase motivation, get "pumped up" before competition, and increase enjoyment, while I also listened to music through headphones to separate myself from my teammates in order to prepare for competition or process competition individually. Though there was some overlap between the music I listened to by myself and that played with my team (e.g., lifting, warm-up), my personal preferences lead me to select more classic rock while team settings included more country and hard rock. The difference in the music selection was largely a result of the music I was exposed to as a child, as I grew up with my father commonly playing music popular during his childhood including rock bands such as AC/DC, Aerosmith, and Guns

N' Roses. Despite playing different sports (i.e., football, basketball, baseball, track), my music selection did not differ depending on the sport and the playlists I created were often also used when I would exercise outside of sport. During the games themselves, the music selection typically included more pop and country music to appeal to the fans in attendance. While I recall music being played at these events, I do not remember intentionally using this music for any purpose.

I attended a small, liberal arts school, Ohio Wesleyan University, for my undergraduate degree and played football at the Division III level. My current preferences for music were heavily influenced by my experiences in college as I was exposed to a much broader range of music by my teammates as I was surrounded by a considerably more diverse group of people. I used music in the same way as I did in high school, however I began listening to more hip-hop and rap, while I listened to less of the music that was popular in my hometown. I had never been particularly interested in genres popular in my hometown (i.e., country music) and gravitated toward new forms of music introduced to me by my friends and teammates. In reflecting on this progression, I recall fond memories of getting "pumped up" for a game with my teammates in the locker room and bonding with others over our shared interest in music.

In addition to my athletic career being intertwined with music listening, I have often used music in my personal life as well. I recall a specific comment made by a high school teacher in my Psychology & Sociology class in which he was discussing his thoughts on the difference between teenagers and adults in how they cope with sadness. The teacher noted that, as a teenager, he would select sad music when he felt sad as a way of sitting in the emotion, while as an adult he instead chooses happier music to help him "get out of the funk." Though current researchers in the realm of music psychology may disagree with the attribution of this difference

being age, it was nonetheless the first instance in which I considered the emotionally regulating properties of music. I often use music now as a way of better understanding how it is that I am feeling and as a way of expressing my own emotions.

The interest of music in my personal life has also spread into my professional work, particularly as an applied mental performance consultant. During my work as a master's student I recall using music on occasion during mental skills training sessions, however the purpose of using music was never to discuss the use of music itself but rather to introduce another topic (e.g., concentration, vulnerability). More recently, in my work as a doctoral student, I have further incorporated music into my sessions and have begun discussing music as a tool for regulating emotions prior to competition and to build rapport with clients. My research interests stemmed largely from the positive reactions gathered in these applied experiences and I have since reviewed as much of the available literature on the use of music in sport settings and music for emotion regulation as possible. I have selected to research the use of music by professional baseball players based on the gaps in knowledge on the impact of music at the group level, the assumed years of experience with music being played in their sport experience, and the incorporation of walk-up songs that is relatively unique to baseball.

Appendix G: Analytic Memos

February 25, 2020

Analysis Beginnings

We met in our new analysis pods this week with the focus on the pilot interview I conducted for my dissertation. I am excited to begin the process of analysis as this descriptive phenomenology is new to me and the others in my group. I think I have a sound grasp on the concept and am comfortable with this approach, however I don't think I explained it as well as I could have to the other members. I relied more heavily on the article that describes the approach which I think was helpful, but I think it was a good reminder to find a way that makes sense to me to describe it to others when it comes time to defend my study to my committee.

March 1, 2020

First Analysis!

Today I sifted through the pilot interview with the purpose of actually beginning analysis beyond familiarity. Delineating the meaning units was more difficult than I had anticipated, but I think it will get easier as I have more time and practice with different interviews. My group and I are doing this part of the analysis separately, so I'm wondering if others having similar experiences to mine will help me feel a little more confident.

March 3, 2020

New Eyes - Process vs. Moment

During our class we met for a second time to review everyone's first round of delineating meaning units. Overall, I was really happy with the contributions from the group and feel like the new eyes helped pull me out of my theoretical mindset. I had intentionally not provided the rest of the group with the theories I'll be using to compare results because I didn't want them to be biased in the same way that I am, which I think was useful. We all had very similar delineations and, when we discussed as a group, also had similar ideas in mind for the meanings of each unit. One piece of the discussion Sumaia mentioned was a differentiation between the process of choosing music and the singular moment of hearing it. I'm not really sure what to do with it yet, but it really struck me and is something I would like to explore further.

March 10, 2020

Reflexivity – Future Interviews

As I have created a codebook for the assignment to be able to present to others in the class and have been chatting with Ashley about starting analysis on my interviews, Ashley encouraged me to think about how it may affect the landscape of future interviews. I still need to conduct at least 4 more interviews, and I think it will be important for me to remember to stay in each interview rather than let my beginning thoughts and excitement get the best of me. I already worry that it happened in initial interviews, so I want to be continuously aware of the potential influence.

March 24, 2020

Analysis Beginnings Part 2!

Today our core research group (myself, Tommy, and Erika) met for the first time to discuss the project. Tommy and Erika had both read the chapter and had a solid understanding of the approach, and I felt it was easy for us to talk about how we will use the approach moving forward. We collaboratively set a goal to have each of us complete the first two steps (read transcripts, break into meaning units) for interviews 2 and 4 prior to our next meeting on Monday. I thought that starting out our analysis in this way could serve as a bit of a trial period and during our next meeting we plan to share our successes/challenges with the approach to see if any changes need to be made before starting with the rest of the data.

March 27, 2020

First Reads - Representation & Fan Engagement

I did my first read-throughs of interviews 2 and 4 today and was interested to see the similarities between the two. In conducting the interviews I had thought there was much more depth to interview 4 than interview 2, but I was pleasantly surprised by how much I got from the second interview. One piece that really stood out to me as interesting in both interviews was how walk-up songs were seen as a representation of individual players. Both participants talked about how they tried to match their own walk-up songs with their personalities and how they would judge their teammates' walk-up songs depending on their personalities. The idea of others hearing your song and representing your personality has not been addressed at all (as far as I am aware) in the literature and could be a novel aspect presented in this study. I also thought it was interesting that the participant in interview 4 chose a walk-up song completely for fan engagement. He explained that he did not feel affected by the music personally, even though he is heavily impacted by his pre-game music, and instead chooses his walk-up song based on the response and engagement he gets from fans. This kind of indirect effect is quite interesting as well and could be a new intervention for baseball players in selecting a song - if they do not necessarily feel personally impacted by their music they could instead select songs that engage fans to get an indirect effect.

March 29, 2020

Analysis Process

I separated interview 4 into meaning units today and actually found the process a bit easier with this process. In my qual analysis class we used the pilot interview and hard copies of the transcript, which was still effective but ended up a little harder to consolidate in the next steps. Having everything together in a Google drive folder with analysis spreadsheets for each interview will make the process much smoother (I think/hope), which I am particularly hoping as there are 4 of us in the group and I want to make this as efficient as possible. I'm curious to hear my teammates' thoughts on the first steps in analysis and how they like using the Google drive.

March 30, 2020

Being Mindful

In going through interview 2 I noticed myself starting to jump to the argumentation piece for my document, something that Malayna has discussed during the qual analysis class and something that I have been trying to be mindful about while analyzing. I still have at least 4 more interviews to conduct, so it is particularly important for me to keep from jumping too far ahead in the analysis process when I have not yet finished data collection. I don't think it's at a point yet that would interfere with my ability to effectively conduct interviews, but I think it's helpful for me to reflect on before each interview.

March 30, 2020

Team Meeting #2

During our second team meeting, Erika brought up a question that I had been wondering about myself during analysis which was whether or not we should include context from the interviewer's questions. In the Giorgi, Giorgi, & Morley (2017) chapter they do not, however they stuck strictly to one question and, for this study, I used recommendations from Bevan (2014) that included asking multiple questions. Some of the meaning units are responses to questions and make sense when following the question, but are unclear on their own. As context is only needed for a few of the meaning units from each interview, we decided to add context to the next column (Column B) if needed for transforming the meaning units to Column C. I think this will be an effective way of adding context when needed, while also not adding on a ton of extra work for the research team. This approach should help us with transparency as well so that if anyone were to look at our analysis sheets it will be clear how we transformed those meaning units using the context.

March 31, 2020

Revisiting the Pilot

I met with my analysis pod for my Qualitative Data Analysis class, which this round includes just one other person. We discussed the approach we'll be using and I felt like I was much more comfortable explaining the process than previous times. Since my last group analyzed the first half of the pilot interview, we decided to do the second half (pages 7-13). I also explained to Kim that we would be using a spreadsheet through Google drive like I have been with my dissertation group and realized that it was a much more efficient and effective way of collaborating than using hard copies. While I like reading hard copies better, I think it slowed down the process a bit in having to then enter the meaning units separately.

April 1, 2020

New Data?

I conducted another interview today with an individual who plays professionally in France thanks to Sofia! My committee is on the fence about whether or not they will let me use the

interview for my study as I was initially targeting professional players in the U.S. There were some concerns expressed by the committee that the quality would not be at the same level or if that would be too different from the experience of playing in the States. I hope that they do allow me to include this interview because I thought he gave some really interesting, thoughtful insights into his music use. He particularly stressed the idea of culture in the interview (e.g., getting to know the cultures of teammates, learning languages) that makes me excited to revisit the transcript.

April 2, 2020

Data Collection Resumes!

Today I conducted my fifth interview with a professional player in the States. I was concerned about whether having already begun analysis would influence the interview, but I think I was able to effectively let the participant lead the interview. He brought up many points that have been discussed by other players without first having prompts from me, which I think speaks to my ability to keep my own assumptions out. During the interviews, I try to focus more on summarizing and reflecting participant answers rather than trying to push the conversation forward.

April 5, 2020

Transformations

I worked today on transforming the life-world expressions from Interview 4 into psychological meanings, which was really the first time I've done so with this method of analysis. I wasn't always confident with how I should word the transformations - like should I just say he or say that he feels/perceives? I think it will be helpful to check-in with Ashley over the next two weeks and see if she would be able to look over the transformations from the first to interviews and offer any advice or suggestions for moving forward. Getting the go-ahead from Ashley would make me feel more comfortable as we continue on.

April 6, 2020

Team Meeting #3

We met as a group again today for our weekly check-in and I was able to update the group on the interviews I conducted over the week and discuss our progress on transforming the meaning units. It seemed that we all had pretty similar experiences, with Tommy and I both noting that it was a little slow at first but we were able to get into more of a groove as we went along. Erika brought up concern that some of her transformations were longer than the initial meaning units, which for me I don't think is much of an issue because there are times in which we include some contextual information from a question that was asked. I also trust that as we move along with analysis those will continue to get shorter as we further boil the units down to their essence. Tommy reached out after the meeting and told me that he may have a connection for participants and was able to recruit 4 people! I'm extremely excited that he was willing and able to do that, and with the 4 interviews we will be able to reach the participant number recommendations for a phenomenology!

April 7, 2020

Mindful of the Process

Today I was able to complete two interviews, as well as met with my analysis pod partner for my Qualitative Data Analysis class. Prior to the interviews, I had sent an email to my committee to update them on the recruitment of more participants and Dr. Watson had recommended that I start thinking about saturation. As I near the 8-12 range recommended for phenomenologies, I think that it was a wise suggestion and is something I tried to be mindful of during both of the interviews (which were #6 and 7). I'm hearing some very similar themes (e.g., getting to know teammates, judging walk-up/out songs, listening to music as a group in the clubhouse) and I think we are nearing saturation.

In my meeting with Kim, we discussed the separations into initial meaning units for the pilot interview and her thoughts on using the analysis spreadsheets. She provided some helpful feedback about the use of spreadsheets and thought that it would be particularly useful for increasing the transparency of our analysis process. We set a goal for next week of transforming the meaning units, which is farther than we made it in the last round of analysis pods, and comparing the themes that emerged in the back half of the interview with those from the first half.

April 8, 2020

Variation?

I conducted my eighth interview today (ninth if including the French player), meaning that I have officially entered the recommended range for phenomenologies! I'm really excited to have reached this point in data collection, somewhere I had honestly started to worry about whether I would actually reach. I realized that the 4 participants Tommy helped me recruit are all pitchers, but they are also AA and AAA players. I was a little worried that having too many pitchers might minimize insight into music during the game, however I think that each still spoke to music during the game to the same level as position players. All of my other participants play at the A or rookie levels, so having AA and AAA players adds variation in the level of experience. The pitchers each even spoke to walk-up songs, something I had not expected them to touch on much, and it seems that they are quite impactful for pitchers as well. The pitchers talked about being affected by walk-up songs in different ways (e.g., distracted, motivated/energized, confused) and this idea could be something to revisit later on.

April 9, 2020

Saturation: Completed Data Collection!

I conducted my 9th (and final!) interview today! While I think we neared saturation with the interview from yesterday, today solidified that for me. The interview again covered similar themes and I don't think any drastically new information emerged today. I feel confident that we have reached a point of saturation and we can now move more fully into the analysis process.

April 13, 2020

Team Meeting #4

We met as a research team today which was to serve more as a check-in. I had reached out to the group after hearing from Tommy last week and just suggested that we take a break from analysis so that I could focus on finishing up the interviews. All of the group was on board, and today I was able to update them on the data collection. We are all really excited to have finished the interviews and to start more fully on analysis. We discussed a timeline for the rest of the project as I am hoping to graduate in the summer, which we thought could look like here:

- April 13-30: Finish transcriptions, continue moving with analysis
- May 1-15: Finish analysis, draft of results
- May 16-31: Edit results & complete discussion, send document to committee
- June: Edit as-needed
- Early July: Defense!

I met with Zizzi to discuss this timeline and pick out any specific dates (e.g., July 31st as last day of ETD submission). He seems happy with the timeline and I definitely think it is doable!

April 20, 2020

Team Meeting #5

We met again as a group today and, after discussing with Dr. Zizzi last week, asked if everyone would like to be involved as authors on the study. Each of the members have contributed significantly through the project in the analysis process alone (with plenty of more work on analysis still ahead!), while also having contributed in the methodology and in recruiting participants. I will also rely heavily on their perceptions and ideas as I write up results and discussion to ensure that it is representative of what they have seen as well. During the meeting, Erika brought up a helpful question about the chronology of some of the meaning units as some participants will trail briefly into different topics and quickly return. I encouraged everyone to keep the meaning units in the order the participant discussed them, even if there was a brief switch, as that still gives us useful insight into the experience and which parts of the experience may be more closely related.

April 26, 2020

Music as a Tool

The idea of music as a tool has popped up for me repeatedly throughout interviews, as well as being a topic often brought up by other members of my dissertation team and my qual data analysis class pods. I worked on transforming the meaning units of Interview 5 today and this theme was quite prominent to me throughout. He mentioned music helping him to "tap into his happy place" and uses it for arousal regulation (e.g., "country songs talking about mountain and back roads and stuff like that it it helps me go from earlier in the day when I was getting pumped up for the game to really just calm and I can I can feel my breathing getting slower and I think that is the key to it man when you get in the box can you slow your heart rate down"). Later in the interview he also mentions thinking that without music a lot of players would be unable to stay motivated, but that it's not necessary for him. It's really interesting to think about music as a

tool that can be replaced by other strategies or techniques. On the other hand, it can be a tool that enhances other strategies or techniques (e.g., diaphragmatic breathing, refocusing cues, motivation).

April 27th, 2020

Team Meeting #6

During our weekly check-in this week, we primarily set goals for the upcoming week and did so while keeping in mind that I would be moving to Michigan. Because of this transition, I know that I will be a little preoccupied and won't have a huge amount of time to dedicate to analysis, so I wanted to keep our goals relatively small this week. We decided to focus just on the initial meaning units for interviews 6 and 7, which I think will be helpful in lightening the load a bit while also keeping our momentum rolling! We also chatted as a group about what to do when we are inferring certain information, such as when someone says "you" but could be referring to himself or players in general. Kate and I both recommended using brackets to emphasize that, while it was not directly said, it was to what the participant was most likely referring. This discussion was a good reminder for me of the importance of having multiple eyes and perspectives on this data, as the inferences I may see could be completely different than another member of the group.

May 4th, 2020

Refreshed Eyes

After having taken a break from analysis to make the move to Michigan, I dove back in today with Interview 6. Despite being a much shorter interview than many of the others (~25 minutes), I was surprised when I identified as many, if not more, meaning units than in other interviews. I felt that this participant was able to provide some really great depth with his answers and tended to speak a bit faster than some other participants, which makes sense then as to why there were as many meaning units here compared to others. I had a bit of trouble with a specific section of text:

- "S: For sure! So, maybe that just like momentary distraction.
- P: Yeah, momentary.
- S: It was just like alright, weird but okay.
- P: Here we go (laughing).
- S: Yeah (laughing) and then definitely after the first pitch it's kind of gone.
- P: It's gone.
- S: Until you get in the dugout and then you just shred the guy.
- P: Yeah, then we talk about it for sure (laughing)."

I felt that each of the answers by the participant were important and helped to clarify his response, while each also seemed to be their own meaning unit. I separated each response as its own meaning unit and provided context to help in the later transformations. I'm curious to hear how the others in my team approached this section.

Team Meeting #7

We met as a group today and were able to discuss our progress from the week and again set goals for the upcoming week. As we are nearing the end of our analysis process, I wanted to get everyone's initial reactions as we begin to compare across interviews. The concepts of music as a tool for other skills (e.g., arousal regulation, attention) and the association of music with particular mindsets and memories were quick to stick out to all of us. I think it was quite interesting to see what others have begun picking out from the interviews as they have much less familiarity with the music in sport literature, yet these two main ideas are key in the models proposed by Bishop et al. (2007) and Karageorghis et al. (2019). The other members of the group identifying these without my initial prompting, in my opinion, further support the trustworthiness of the findings.

May 6, 2020

Demographics Table

As I have been working on writing up the analysis section for my QDA class, I thought that it might be useful to incorporate a demographics table. Creating this table was also quite useful for me as we had initially hoped to get a wide variety of demographics, however due to the COVID-19 pandemic and time limits for myself to finish the study we focused more on convenience. We ended up with 5 of the 9 players being relieving pitchers, and only 1 of the 9 was a non-White, non-US individual. Despite the relative lack in variability in those areas, we ended up with a strong variability in current level (low-A to AA), years of NCAA experience (0-4), and years of professional experience (1-5).

May 10, 2020

Active vs. Passive Listening

Participant 1 discussed music listening as both a conscious and unconscious activity, which is an idea that has come up in other interviews in slightly different ways. I think it ties together with the idea of passive music listening and using music more as "background noise" rather than an active process in which they are focusing on the music playing. He also reiterated several points that we have noticed in other interviews, such as the idea of music having group level effects to the point of uniting team members. One particular meaning unit sticks out to me in illustrating this concept:

"The thing with, uh, professional baseball is there's... there's people from around the world. Around the country. And we all have our differences, whether it's political or, you know, emotional. Or we tend to hang out with our particular type of person, but it's funny how one song can turn a whole group of men into dancers who you never thought that could dance, right? (laughing). Um... and you even get the, the "shy guy" on the team getting down a little bit with the whole group. And it's uniting in a sense because not everyone listens to the same music and not everyone is outgoing, but all it takes is one classic song that everyone can get behind to agree on one thing, you know what I mean?"

My initial reaction is that listening to music as a group helps to build team cohesion by providing members with a low-pressure, shared experience. The way he mentions that "one song can turn a whole group of men into dancers" sticks out to me as quite profound and gives a sense of pulling people out of their shells and allowing them to interact with one another in a different way.

May 11, 2020

Routine Listening

In working on the transformations for Interview 7, it seemed that he really focused on the idea of incorporating music into his pre-performance routine. He mentioned it several times as important for consistency between home and away games. His quote of, "And that's kind of, like, with the music I was able to listen to it and like almost trick my mind into thinking like it didn't matter where I was, I was in the same place, you know, it's still going to be a game at 7 o'clock or like 5 o'clock no matter what. If I could listen to some of the songs on the playlist it's like some familiar almost feel to every day where I know what's going to happen" really stuck out to me as exemplifying this idea. He uses music to prepare for each of his games and is something that he can use regardless of location.

Meeting w/ Erika

Kate and Tommy were unable to meet today, but Erika was still available and had a few questions about analysis so we still met via Zoom. Erika was concerned that she was taking too many direct quotes from participants and wasn't transforming them as much as she should be. My response was that she would continue to have opportunities to transform as we continue through analysis, and that using as many words directly from the participants actually aligns really well with the approach of a phenomenology. She said that that was helpful, and that she was relieved to know that the constructivist approach allows all of us to trust our own intuitions on the data.

May 12, 2020

Autonomy, Association, and Responsibility

Going through the initial meaning units of Interview 8, one aspect that stuck out to me was the autonomy of choosing walk-up songs. Much of the sport experience is controlled by others (e.g., coaches), however the walk-up song is chosen by you individually and serves to represent you to others. The association can be so strong that it becomes tied with that specific individual, something the participant noted in his quote, "stuff like that you think about it, it stands out. Like... I just named the player and the song because it stands out." He liked an opposing player's song choices so much that he was able to recall the player and his song!

Another aspect that I found interesting was his role as the person selecting music that's played in the clubhouse. I believe he's the only one of the participants who held this role and he talked about it being an important responsibility, as evidenced by his quote: "That, that is a big responsibility especially in like when you're with your close friends who are like your teammates. If you suck on the aux cord you are going to get booted man."

May 15, 2020

Expression and Fan Engagement

While transforming the initial meaning units from Interview 1, it stuck out to me as he spoke out walk-up songs being one of the few areas in which players are able to express themselves. I imagine much of their experiences are controlled by the organizations, so having a walk-up song that they choose could be quite freeing. This form of expression is heard by your teammates and opposing players, but can also serve as a way of engaging fans and building a brand. One quote that I think speaks to this idea is him stating, "But it's definitely significant for a player having a walk-up song 'cause it's one of the few things you get to choose to express yourself. Not only to your team and your competitors, but the fans in the stands." The concept of autonomous expression could be interesting to explore further in analysis.

May 18, 2020

Meaning Units

In working on the initial meaning units for Interview 9, I ended up with several more (and smaller) meaning units than other interviews. I think part of the reason for this difference was that this participant tended to switch between topics much more frequently than others. He would often change topics mid-sentence to give some context and then return to what he was saying before. I think there still ended up being about the same depth of content with the interview, but it was interesting to see the different ways people express their experiences and how to analyze them in a similar way.

Team Meeting #8

As we near completion of analysis, Kate asked today if it would be okay for her to step away for a bit as she takes some time to enjoy the completion of her degree, which is absolutely understandable for me. She has played an integral role throughout development and analysis, and noted that she will complete her transformations before leaving. I told her that I am completely happy to have her take some time off and will continue to keep her in the loop for when she returns. Since I will be taking the reins more so while writing because it is my dissertation, I felt that her role will be much smaller anyway at this point and I can still rely on her to provide feedback when I submit different sections to the group. As a group, we again discussed initial reactions to the overarching structure of the experience, coming up with:

- Intentional use thought about it, process
- Music highly intertwined w/ baseball culture
 - o Boring w/o music fans being bored
 - Mundane routines
- Attentional focus
- Routines
- Autonomy & control tangible way of exercising autonomy
- Group effects shared experience, representation, cohesion

In addition to these thoughts, I posed my thoughts of how I might start converting these ideas into a structure. I proposed dividing the sections up into pre-performance, during, and post-performance, but was reminded by Kate that the focus should be more on telling the story of the experience. Participants didn't really divide up their experience into these sections, so I think it was helpful advice in thinking about how I can use that idea to pivot towards a more authentic structure. My goal is to create an initial outline to present to the group next week and get their feedback.

May 19, 2020

Regulating Emotions of Others

As I did transformations of Interview 9, I found myself thinking about the role of the music selector in the clubhouse. It was clear in Interview 8, an individual who serves that role on his team, that he takes pride in being the person who plays music and the process of choosing that music can be difficult. Participant 9 talked about the selector(s) being the ones who, "play music on the regular, because, you know, those two guys can catch vibes for the whole room. They are able to kind of be able to bring the whole team together and everybody is listening to the same thing." For me, this concept is similar to the idea of emotion regulation, specifically interpersonal emotion regulation. Those selecting music have to understand the group-level emotions that are targeted and play music that will elicit or match those emotions.

May 22, 2020

Learning Process

As I have been working through the final transformations for the interviews and creating "keywords" for each, I'm noticing that across interviews several of the participants describe their use of music as a sort of process. In interview 3, I think this quote represents this idea well: "And I found the higher tempo more, you know, like hard rap, that kind of stuff, kinda had me a little more on edge and I would get more upset about mistakes instead of just kind of letting them go. Especially since it was just the bullpen, and then I would kind of bring that into my game and if I made a bad pitch or something, I would get really frustrated instead of just focusing on the next pitch and letting it fall by the wayside. And I found when I listen to you know slower, more relaxed music, um, it kind of put me in that." This idea is again brought up in interview 4: "You know, it just depends on how well I perform, like I mean I have played for a long time, so, like I have tried, I have tried a lot of different music. And, uh, so what... What has been helping me most lately, like the last year and a half or year or whatever, and especially... I just got done playing this last winter. I played winter ball in Mexico, especially there. I was really into meditation, mediation in yoga, like meditation music. I am like this is what I need, this is what I need like that the music that has been helping me the most. That being... helping me the most from everything, everything that I have tried." It seems, then, that music use in baseball is not necessarily something that comes naturally or quickly, but rather something that players learn over time and through trying different types of music to identify what fits best for them.

May 24, 2020

Initial Structure

Having now gone back through each of the interviews, three overlapping, but distinct, sections have emerged from my perspective: integration of music with baseball culture, music selection, and music as a vehicle. Aspects such as walk-up songs and pre-performance routine would fall under more than one section, but I feel that these sections represent the experience of music with baseball as expressed by the interviewees. I am excited to meet with my group tomorrow to

discuss these ideas and collaborate with the other members to see if they have had similar or different conceptualizations.

June 9, 2020

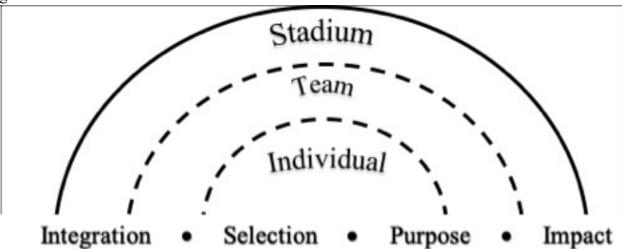
Reorganizing for Elegance

I met with Dr. Zizzi today about his feedback on the first draft of results - he thought that the draft was clean and coherent, and is looking for a bit more refinement and reorganization for the next draft. That feedback makes total sense to me as I knew that what has been making since initially to me will need to be reworked to make more sense to others sitting outside of the data. He mentioned dividing it up into levels (individual/group), which really resonated with me and I think for the next step I will focus on telling the experience through that lens. I think that a lot of the structure can still be kept, but reorganized into the individual listening experience, the group/team listening experience, and the stadium listening experience. He also challenged me to come up with a visual representation of the results - something that I will work on this week and pose to the rest of the research team at a meeting on Friday!

June 11, 2020

Visual Model #1

I worked today on creating a visual model, which I think was also really helpful in envisioning how I can reorganize the data in the results section. While it's not set in stone, I think it's a really good start and I am excited to hear feedback from the others!

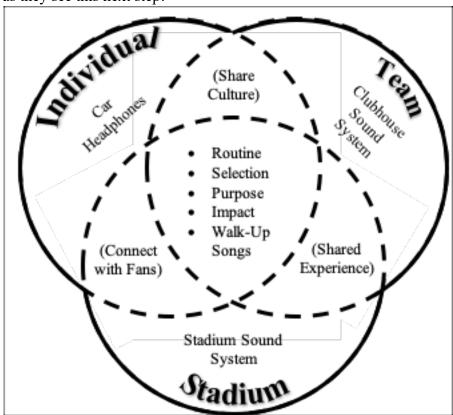


June 13, 2020

Visual Model #2

After meeting with the team yesterday, I was really excited to try to rework the model around the venn diagram idea and created a new model that pulls the important pieces from the first model while structuring it in a new way to include more depth. I think this model is a much better and more clear representation of the experience and will be much easier for the reader to understand.

While I still plan on sending both models to Dr. Zizzi with the next draft, I feel that this model is much stronger than the first. I'm looking forward to hearing feedback from the rest of the team as they see this next step!



June 17, 2020

Moving Along

I got feedback today from Dr. Zizzi on the updated round of results! There's less edits to make this time and I feeling really good about the new organization. I'm excited to move on to the Discussion section, though I'm a little nervous to be able to tie everything up and finish. I think it will be helpful for me over the next few days to revisit my introduction as it's been a while since I've read it!

June 22, 2020

The Discussion Struggle

I had an even more difficult time writing up the discussion than I had thought. I struggled to get momentum and when I finally did write, it felt like I was just repeating the results. I spoke with Zenzi because she's always been a huge supporter and help when it comes to me organizing my thoughts, and she read the section and challenged me to use subsections and think about other ways for the data to flow. She also offered some fresh eyes from the intro and reminded me of

relying more on the structure I set up there. After hearing her thoughts and once I get feedback from Zizzi, which may add some more layers, I'm feeling much more optimistic that I can tie in the theories and frameworks I used to start this project to finish it strongly.

June 29, 2020

Final Stretch

I have reworked the Discussion section and feel much happier with it as it stands now. I spoke with Jesse as well and I was really excited for his feedback as I knew he would be particularly helpful in laying out practical implications. He had a really interesting suggestion about the influence of mental skills training on the participants and their experiences, something I think will be important to incorporate into the limitations and conclusion. My next steps are going to be putting everything into the final ETD document and scheduling a day and time for the defense! I still can't believe that I've made it this far, and I'm actually excited to share my results and defend my document!

Appendix H: Review of Literature

Introduction to Emotions in Sport

Emotions are a critical part of sport and performance and can be found throughout one's experience. From the disappointments and frustrations in defeat to the joys and elation in success, emotions have a critical impact on how we approach and experience an event.

Researchers in sport psychology, however, have only recently begun to recognize the important role emotions play in athletic performance (Hanin, 2000; Lazarus, 2000a; 200b). The purpose of this literature review is not to address the entire scope of emotions and sport performance.

Rather, considering the relationship between sport and performance, the focus of the review will be on one's ability to recognize his/her emotions and effectively regulate those emotions. This overall concept is also known as emotional intelligence (EI; Mayer & Salovey, 1997).

The first section of this literature review will address research on EI specifically within the context of sports, with a focus on the impact of EI on objective measures of performance. The following section will narrow the scope specifically to literature regarding the emotional regulation of athletes. As researchers in the field of sport psychology have recognized the social and cultural influences on emotion (Campo et al., 2012; Tamminen et al., 2016;), the section is divided between studies addressing intrapersonal (self-targeted) and interpersonal (other-targeted) emotion regulation. Lastly, one particular emotion regulation being recognized by researchers and athletes is the use of music (Bishop et al., 2007; Friesen et al., 2015; Karageorghis et al., 2018; Stanley et al., 2012). The final section will address the impact of music on athletes' emotion regulation and sport performance.

Emotional Intelligence in Sport

This section is meant to orient the reader with a brief overview of emotional intelligence in sport, highlighting the impact on objective measures of performance. In a recent review by Laborde, Dosseville, and Allen (2016), the authors provided a systematic review of the current literature on emotional intelligence in sport and physical activity. Additionally, the authors hoped to introduce the tripartite model of EI (Mikolajczak, 2009; Nelis et al., 2009) to be applied in sport and physical activity. Studies included in the review were empirical in nature, had assessed EI in the context of sport or physical activity, and was published in an English-language, peer-reviewed journal or article. The reviewers searched SPORTDiscus, Psychology and Behavioral Sciences Collection, PubMed, and Web of Science for the keywords of "emotional intelligence," "emotional competences," "sport," "physical activity," and "exercise." A total of 227 results were obtained, while 36 met the criteria for inclusion.

According to the review, emotional intelligence can be conceptualized as a trait and as an ability (Laborde et al., 2016). The vast majority of studies on EI in sport and exercise have conceptualized EI as a trait, while only three have conceptualized EI as an ability and one examined the construct from both perspectives. EI as an ability was measured in all three studies using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002). A variety of self-report questionnaires have been used to asses EI as a trait, the most common being the Schutte EI Scale (Schutte et al., 1998) and the Bar-On Emotional Quotient Inventory (EQ-i, Bar-On, 2004). Thus far, no studies have directly compared the predictive validity of the scales being used, making comparisons between studies difficult. The reviewers suggest the future use of the trait emotional intelligence questionnaire (TEIQue; Petrides, 2009), as it is strongly founded in theory, predicts neurophysiological outcomes, and has demonstrated strong

psychometric properties in athletic populations. An issue arises, however, in that the TEIQue is grounded firmly in the conceptualization of EI solely as a trait and is thus not modifiable.

Beyond the use of scales, no observable differences were found between team and individual sport athletes (Laborde et al., 2016). Two studies supported gender differences identified in nonathletic populations, with men having higher trait EI scores than women. Athletes scoring high in EI tests, overall, seem to be more successful in both long-term and short-term athletic performance, regardless of the level of competition. Some have speculated that athletes with high levels of emotional intelligence may appraise competitions as challenges (as opposed to threatening) and, when faced with stress from competition, use more effective coping strategies. In regard to competition day emotions, athletes scoring high on tests of EI reported more frequent experiences of pleasant emotions and fewer and less intense experiences of unpleasant emotions. High EI scores were also found to have a positive relationship with measures of athletes' heart rate variability (HRV), while athletes with low EI scores had a greater cortisol response to a stressor, indicating the important role played by EI in stress responses. Athletes with high levels of EI tend to more frequently use psychological skills such as self-talk, imagery, goal setting, and relaxation techniques both during and after competitions. In regard to individual functioning, EI may protect against several negative health outcomes. Athletes with higher scores on trait EI reported having a healthier body image, while athletes with disordered eating attitudes showed lower trait EI. In addition to performing, empathy and emotional contagion also play important roles in coaching. Coaches scoring high in EI were more confident in their leadership abilities and in their capabilities to coach effectively. One study examined the role of EI with sport spectators, finding that those with higher EI were more accurate in predicting their emotions in response to the event. Six studies assessed EI in the context of

physical activity, generally finding that higher trait EI was associated with higher levels of physical activity and positive attitudes toward physical activity.

Few researchers have focused specifically on the relationship between EI and athletic performance. Zizzi, Deaner, and Hirschorn (2003) were among the first to address this relationship among collegiate baseball players. A total of 61 Division I baseball players (40 hitters, 21 pitchers) between the ages of 18-23 participated in the study. All participants completed the Emotional Intelligence Scale (Schutte et al., 1998) to obtain baseline measures. Total hits, doubles, walks, and strikeouts were tracked for hitters, while total earned runs, walks, hits allowed, strikeouts, and wild pitches were tracked for pitchers. Performance data was obtained through the conference website and, if data was unavailable, athletic departments were contacted.

Overall, the baseball players participating in the study showed above-average EI scores (M=128.6, SD=11.25; Zizzi, Deaner, & Hirschorn, 2003). The global measures of hitting were not significantly related to EI (p>.05). For pitchers, only strikeouts showed a significant relationship with EI scores (r=.484, p<.05), while the other statistics were supported by low to moderate correlations and moderate effect sizes (Cohen's d=.54-1.1). The authors reported only moderate support for the hypothesized link between EI and athletic performance. Components of EI seemed to be moderately related to pitching performance, but a relationship with hitting performance was not supported. The results make sense considering the ability of pitchers to control the pace of play, whereas hitters must adapt to the pace and thus may not have adequate time to process emotional states and direct behavior appropriately. Additionally, pitchers must communicate frequently with teammates and must recognize others' emotional states to

communicate effectively. The data supports similar results from previous research, with EI accounting for 7%-23% of pitching performance.

While the researchers were the first to use objective performance measures, the performance statistics measured represent only one sport and thus limit the application to overall athletic performance (Zizzi, Deaner, & Hirschorn, 2003). Additionally, using only broad season-long hitting and pitching statistics may have limited the context in which EI would impact performance. The authors suggest that future research include additional inventories to compare predictive ability of sport-specific psychological skills and EI on athletic performance and explore the potential link between EI theory and Hanin's (1995) theory on individual zones of optimal functioning. The researchers also noted that future studies should include a variety of sports and competitive levels and should compare athlete levels on specific components of EI between more and less successful athletes.

Perlini and Halverson (2006) were similarly interested in the relationship between EI and performance and examined the relationship within professional hockey players. The primary purpose of the research was to explore whether considerations of hockey players' levels of emotional intelligence would assist in the traditional methods used to select players in professional hockey. Additionally, the authors sought to examine differences in EI between hockey and nonhockey populations, evaluate the individual and relative predictive abilities of traditional selections and EI on NHL performance, and examine EI's predictive influence on position. A total of 79 athletes from 24 of the 30 teams in the NHL during the 2003/2004 season participated in the study. Participants had an average of 10.44 years of experience, had played an average of 236 games, and were an average of 28.8 years old. Athletes' emotional intelligence were assessed using the Bar-On Emotional Quotient Inventory (EQ-i; Bar-On, 1997), with five

subscales including Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood. Players were also assessed using the number of games in which they played, points scored, years since being drafted, and draft rank.

Relative to the average among the general population, athletes showed higher total EQ-i scores (t = 2.32, p < 0.05) as well as higher scores on the intrapersonal (t(78) = 3.33, p < 0.01), stress management (t(78) = 2.73, p < 0.01), and general mood (t(78) = 4.39, p < 0.01; Perlini & Halverson, 2006) subscales. The authors conducted a hierarchical regression analysis to examine the predictive validity of years since draft (Step 1), EQ-i subscales (Step 2), and draft rank (Step 3) on total NHL points. Years since draft was a significant predictor of both total NHL points (β = 0.56, $R^2_{adj} = 0.31$, p < 0.005) and NHL games played ($\beta = 0.64$, $R^2_{adj} = 0.41$, p < 0.005). In regard to total NHL points, within Step 2 only general mood was reported as a significant predictor ($\beta = -0.30$, p < 0.05). When focusing specifically on forwards, however, the composites did add significant variance ($\Delta R^2 = 0.08$, p < 0.05), though of the 3 composites only general mood was significant ($\beta = -0.5$, p < 0.005). The EQ-i composites added significant explanatory variance for games played ($\Delta R^2 = 0.04$, p < 0.05), with significant contributions from both the intrapersonal ($\beta = 0.35$, p < 0.05) and general mood ($\beta = -0.6$, p < 0.005) composites. For those in the forward position, Step 2 added significant variance to games played ($\Delta R^2 = 0.13$, p <0.05). Furthermore, the intrapersonal ($\beta = 0.35$, p < 0.05) and general mood ($\beta = -0.6$, p < 0.005) subscales contributed significantly.

The authors report that athletes in the NHL show higher scores on measurement of overall emotional intelligence, intrapersonal, stress management, and general mood than the general population (Perlini & Halverson, 2006). Additionally, the authors state that higher levels of emotional intelligence can explain a significant portion of the variance of total points scored

for forwards and of the total games played for both forwards and defenders. An issue apparent in the study, however, is the way in which the authors measured performance, specifically in the use of total points scored, as players in the forward position simply score more points than defenders. Overall, the authors suggest that NHL teams should take emotional and social factors into consideration when selecting players in the draft as EI in this study was a significant predictor of performance measures.

Whereas individual performance was the focus of the previous studies, Crombie, Lombard, and Noakes (2009) sought to extend the work on EI by examining the relationship between team EI and team performance outcomes. As no prior studies have previously addressed the relationship between emotional intelligence and sports performance at the team level, the purpose of this research was to examine whether or not team EI is related with team performance. The researchers selected cricket due to the high demands placed on athletes as a result of the long duration of games and predicted that team performance in the sport would be influenced by the team's overall score of emotional intelligence. Athletes on all six of the professional cricket franchises participating in the premier national cricket competition in South Africa during both the 2004-2005 and 2005-2006 seasons were recruited for the study, with a total of 104 athletes being selected and having participated in both years. The Mayer-Salovey-Caruso Emotional Intelligence Test V2.0 (MSCEIT; Mayer, Salovey, & Caruso, 2002) was administered to each athlete to assess total individual EI scores as well as individual scores for each of the four Branches of EI. These scores were then averaged among each team to create Team Total EI and Team EI Branch scores. Team performance was assessed based on game outcome (win = 10 points, tie = 6 points), while additional points (1-4 points) were awarded for

batting and bowling performance. A simple linear regression was conducted of scores calculated from team performance on team scores for total EI and branch EI sub-scores.

Significant correlations were found between team performances and total EI (r = .69, p =.014), Understanding Emotions (r = .69, p < .05), and Managing Emotions (r = .69, p < .05; Crombie, Lombard, & Noakes, 2009). Within the regression model, total EI emerged as the best predictor of team performance, with each 1-unit change in total EI increasing team performance by 6.8 points (p = .007, 95% CI [3.0, 10.7]). Understanding emotions (B = 4.5, p = .005, 95% CI [2.4, 6.5]) and managing emotions (B = 3.3, p = .010, 95% CI [1.7, 4.8]) were also found to be significant predictors of team performance. Results support the researchers' hypothesis that a team's total score of emotional intelligence would impact team performance. The authors propose several reasons for why teams with higher total scores of EI may show improved performance, including a greater mental ability to control emotions under pressure, a better awareness and understanding of the potential impact of emotions on current and future performance, and a higher ability to manage the negative emotional impact of controversy (e.g., poor standards of officiating). Whereas the majority of researchers have examined individual EI scores on individual performance, this study is the first to address the impact of a team's total EI on team performance.

As previously noted, the differences in conceptualization of and various scales available for measuring EI have made comparisons between studies problematic (Laborde et al., 2016) and thus making conclusions about the relationship between EI and performance has been difficult. Kopp and Jekauc (2018) sought to reconcile these differences through a meta-analysis of available studies examining the relationship between EI and sports performance. The authors also considered several potential moderators, including type of sport (individual vs. team), level

of expertise, measurement of performance, the conceptualization and measurements of EI, and quality criteria. The researchers chose to use correlation as an effect size across studies as most of the researchers reported an r value and they could easily convert other values (e.g., t values, Cohen's d) to r. Out of the 312 results obtained from their search, the authors identified 21 that fit criteria and were used in analysis. The authors reported the small, but statistically significant, positive correlation between EI and sport performance (r=0.16) and found no significant moderators. While these results are promising for the impact of EI on performance, limitations to this study include a focus on correlation over causality, inconsistent measures of performance, and a lack of control over quality of publications.

Overall, it is clear that EI has a significant impact on performance in athletics and future research further examining the relationship is warranted. Using the Tripartite Model (Mikolajczak, 2009; Nelis et al., 2009), two integral pieces of one's EI are his/her understanding of emotions and ability to regulate those emotions. Emotion regulation (ER) then may be an avenue through which the relationship between EI and sport performance can be better understood. Further, authors in social psychology (Peña-Sarrionandia, Mikolajczak, & Gross, 2015) and sport psychology (Lane et al., 2010) have argued for additional integration between EI and ER to better clarify the relationship between the two. The next section of the present literature review will thus address the concept of emotion regulation in the context of sport.

Emotion Regulation in Sport

This section addresses athletes' emotion regulation, and is divided between intrapersonal and interpersonal strategies. Emotion regulation, in particular, has received a great deal of attention recently in the field of sport, exercise, and performance psychology, with a review being provided by the British Association of Sport and Exercise Sciences (Lane et al., 2012).

Though the authors do not describe the specific criteria used for determining which studies to include in their review, they note that, "research findings from sport and relevant areas of psychology are reviewed" (Lane et al., 2012, p. 1189) in regard to emotion regulation. Specific attention was given to studies examining athletes' use of emotion regulation strategies and their impact on mental health and athletic performance. The purpose of the article was to review relevant research findings and discuss implications to sport for both athletes and sport psychology practitioners.

For the purpose of this study, emotions were defined as the subjective feelings athletes experience in response to events either in the athlete's mind or in his/her environment. Athletes displaying appropriate emotional responses before and during competition could benefit in multiple ways, including better quality interactions with their teammates (Moll, Jordet, & Pepping, 2010) and improvements to both interpersonal and organizational dynamics (Wagstaff, Fletcher, & Hanton, 2012). While not explicitly stated in the article, these findings may apply particularly well to team sports as performance is reliant on players working together to achieve a common goal. According to Lazarus (2000b), emotions typically include physiological, cognitive, and/or behavioral responses and may be either functional or dysfunctional. In order to initiate, maintain, modify, or display emotions, individuals consciously or unconsciously monitor their emotions and employ a variety of strategies (Gross & Thompson, 2007). Individuals are motivated to regulate their emotions either to feel good/pleasurable (hedonic) or to assist achieving another goal (instrumental; Tamir, 2009). Athletes display instrumental motivations as they develop beliefs about the relationship between their best performances and their emotions and are more likely to regulate their emotions if they believe it will help them better perform (Hanin, 2003, 2010). Emotion regulation strategies can be understood as either antecedentfocused, which are aimed at preventing an emotional response, or response-focused, which are aimed at modifying an emotional response that has already occurred (Gross & Thompson, 2007). The authors provide several recommendations for enhancing the emotion regulation of athletes, such as improving the ability to recognize one's emotional states and their beliefs regarding their relation to best and worst performances. Practitioners should help athletes identify the difference between their current state of emotion and optimal states, which can then be used to determine in which direction to regulate their emotions. The second recommendation provided is that practitioners help athletes examine their uses and effectiveness of their strategies for regulation. A third recommendation is that practitioners assist athletes in determining the root cause of their emotions, and state that future research on the efficacy of interventions designed to help athletes do so would be beneficial. Lastly, the authors recommend explaining to athletes that multiple strategies aimed at managing sport performance can also regulate emotions.

Similar to the inclusions of one's knowledge of others', as well as his/her own, emotions in conceptualizations of emotional intelligence, emotional regulation can be targeted at regulating intrapersonally (one's own emotions) and/or interpersonally (others' emotions). The following sections will review relevant research currently available, to this author's knowledge, examining the role of both intrapersonal and interpersonal emotion regulation in sport.

Intrapersonal emotion regulation. Stanley and colleagues (2012) sought to examine the range of emotion regulation strategies used within the context of sport and whether or not those strategies are different than those identified outside of athletics. A total of 506 runners (317 females, 189 males) with an average age of 37.69 years (SD = 8.84 years) participated in the study. Participants ran 22.74 miles (SD = 12.87) on average per week and ranged from recreational to international levels of competition. The authors distributed surveys asking

individuals to reflect on a race or training session in which they experienced an intense emotion and to describe how they felt in the hour before performance, as well as the strategies they used to influence their emotions. Using conventional content analysis (Hsieh & Shannon, 2005, as cited in Stanley et al., 2012) on participant responses, the researchers familiarized themselves with the data and allowed categories to be generated with the initial codes with over a 95% agreement between authors on the final coding.

The authors reported five general dimensions of emotions regulation strategies including task preparation, positive thinking, self in relation to others, avoidance, and negative thinking (Stanley et al., 2012). In regard to task preparation, the most common strategies athletes reported were setting goals (n = 117), listening to music (n = 45), and visualization (n = 42). The researchers reported that positive thinking included 10 strategies identified by athletes, with the most common being recalling past performance accomplishments (n = 63), anticipating pleasant emotions after running (n = 52), and self-reassurance (n = 34). Self in relation to others was most often accomplished by athletes through receiving social support (n = 29), giving social support (n = 29)= 15), and social comparison (n = 13). Avoidance and negative thinking contained the fewest number of strategies, consisting of distraction (n = 62) and downplaying outcomes (n = 29) and negative focus (n = 44), reframing (n = 35), and anticipated unpleasant emotions (n = 14) respectively. The authors noted that the majority of strategies were cognitive in nature despite behavioral strategies being more effective in creating more pleasant emotions (Augustine and Hemenover, 2008 as cited in Stanley et al., 2012) and cognitive regulation requiring a higher ability to emotionally regulate. The authors suggested that this difference may be due to the focus being on the upcoming performance, which is not typically considered in other areas of psychology. Similarly, the researchers cited the higher likelihood of engagement strategies and

strategies aimed at increasing unpleasant emotions used in the present study in relation to previous research in the field of social psychology.

Overall, it is clear that athletes use a wide range of emotion regulation strategies prior to competition and do so with a focus on performance (Stanley et al., 2012). A clear limitation to the study, however, is the population being limited to one sport and the majority of participants only competing recreationally. These strategies then may not translate to those used in other sports or used by more elite athletes. The authors highlighted the endorsement of music as an emotion regulation strategy and, with improvements to the accessibility and portability of music, suggested future research further examine music as a strategy to regulate emotions.

Speaking to the potential use of a variety of strategies, Kucharski, Strating, Cameron, and Pascual-Leone (2018) sought to better understand the relationship between the complexity of emotion regulation strategies used by athletes and the situations in which they use various strategies. The authors assessed the variations in strategy complexity and compared strategies used before and after competition. A total of 61 varsity athletes (33 females, 28 males) with an average age of 20 years participated in the study, and the majority of athletes (75%) identified as Caucasian. Participants were asked to complete a demographics questionnaire, followed by open-ended prompts asking athletes about emotion regulation strategies they have used before any game and after a game that went poorly. These responses were coded using the Complexity of Emotion Regulation Scale (CERS; Pascual-Leone et al., 2016, as cited in Kucharski et al., 2018), used to rate strategies from simple (0) and self-destructive/maladaptive (1) to highly complex and integrative (6). Multiple choice response options were provided asking athletes to rate their perceived effectiveness of the strategies used, how frequently they use those strategies, and the extent to which the strategies they used prior to competition affected their following

performance. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item, self-report measure used to identify any common problems that may be present that could interfere with an individual's ability to regulate his/her emotions (α = .92 in this study). The Emotion Intensity Scale (EIS; Bachorowski & Braaten, 1994) is a 30-item, self-report questionnaire used to assess the intensity of an individual's typical emotional response to a trigger (α = .91 in this study). The Toronto Alexithymia Scale (TAS; Bagby, Parker, et al., 1994) is used to measure any deficits in one's emotional awareness, with higher scores indicating lower awareness (α = .749 in this study). The Sports Mental Toughness Questionnaire (SMTQ; Sheard, Golby, & van Wersch, 2009) was used to assess aspects such as confidence and persistence to determine an athlete's global mental toughness (α = 0.71 for this study). Lastly, participants completed the Almost Perfect Scale-Revised (APS-R; Slaney, Mobley, Trippi, Ashby, & Johnson, 1996) to assess both adaptive and maladaptive perfectionism (α = 0.90 for this study).

The vast majority of athletes perceived their strategies before (97%) and after competition (84%) to be effective, and 92% felt that their strategies had an impact on performance (Kucharski et al., 2018). While 74% of athletes reported using the strategy they described pre-performance "often" or "always," only 44% of athletes reported the same for the strategy they described using post-performance. In support of the hypothesis, athletes more often used simple or general strategies pre-game (43%) than post-game (17%), while they less commonly used complex or specific meaning-making strategies pre-game (53%) than post-game (73%). Athletes who displayed higher levels of difficulty regulating their emotions tended to also show lower levels of emotional awareness (r=.517, p<.001) and mental toughness (r=.454, p<.001). Additionally, lower levels of emotional awareness were also associated with the use of more general strategies prior to competition (r=0.26, p=0.043) and more complex strategies

following performance (r=0.282, p=0.029). Athletes with higher scores of mental toughness typically also showed higher emotional awareness (r=0.317, p=0.013) and lower emotional intensity (r=0.352, p=0.005).

Athletes in the study were generally more consistent with strategies employed and effective at emotion regulation prior to performance than after a poor performance (Kucharski et al., 2018). These findings make sense considering that, prior to competition, athletes would be utilizing antecedent-focused strategies in anticipation of an event, whereas after a poor performance they would be incorporating response-focused strategies. As noted by Lane et al., (2014), antecedent-focused strategies are typically more effective than those that are responsefocused. As general emotion-regulation strategies were the most commonly used by athletes, the authors argue that the simplest strategy that sufficiently allows athletes to regulate emotions may be ideal. Athletes who tend to struggle with emotional awareness and regulation, however, may need to put in more effort to self-regulate and could potentially need more complex strategies. While participants in this study commonly reported using similar strategies, it is possible that certain strategies are taught or encouraged by coaches or teammates as interpersonal regulation is important in team sport contexts and may be absent from individual sports. Overall, athletes appear to be flexible in their use of emotion regulation strategies and select a strategy depending on the situation. The potential for most athletes to benefit from general emotion-regulation strategies is clear, while the authors have also highlighted the additional layer of intricacy involved with ER in team sports. Athletes on team sports may be more highly influenced by ER strategies used by their teammates and are also affected by interpersonal regulation.

Athletes' motivations for emotionally regulating were recently examined by Lane and colleagues (2011). Set within an IZOF framework (Hanin, 2003), the researchers examined the

influence of athletes' meta-beliefs about the effect of their emotions on performance on their use of instrumental emotion regulation strategies. The authors suggested that, despite being considered hedonically unpleasant emotions, athletes who hold meta-beliefs that increasing anxiety and/or anger will help performance may experience different emotional states prior to competition and utilize different emotion regulation strategies than those who believe doing so will harm performance. A total of 140 male and 220 female runners ($M_{age} = 37.12$ years, $SD_{age} =$ 9.13 years) participated in the study and reported participating at the club (n = 298), regional (n = 298) 39), and national (n = 23) levels. Emotions were measured using the UWIST (Matthews, Jones, & Chamberlain, 1990, as cited in Lane et al., 2011) as the emotions assessed represent each of the different areas of the circumplex model of emotion (Russell, 1980). Two subscales from the Emotion Regulation of Others and Self (EROS; Niven et al., 2011) measure, namely strategies to increase pleasant emotions and strategies to increase unpleasant emotions, were used to assess the use of intrapersonal emotion regulation strategies. Lastly, meta-beliefs about the emotions were assessed by asking participants whether or not they believed using strategies prior to competition to increase anxiety and/or anger would assist in performance.

A total of 305 participants (85%) reported holding the belief that using strategies to reduce anxiety and/or anger would help performance, while 55 (15%) reported the belief that using strategies to increase those same emotions would improve performance (Lane et al, 2011). A MANOVA was run examining the effect of athletes' preferred intensity of anxiety/anger on emotions experienced prior to competition, with the authors reporting a significant overall effect (Wilks' $\lambda_{2,35} = 0.98$, p = .002, partial $\eta^2 = 0.02$) and a univariate effect on anger ($F_{1,353} = 8.08$, p = 0.005, partial $\eta^2 = 0.02$). The authors also reported that athletes who hold the belief that increasing anxiety/anger would improve performance overall were statistically different in their

use of emotion regulation strategies (Wilks' $\lambda_{2,364} = 0.97$, p = 0.01, partial $\eta^2 = 0.03$) and that they used strategies to increase those emotions significantly more often ($F_{1,353} = 10.32$, p < 0.001, partial $\eta^2 = 0.03$).

The authors' suggestion that individual motivations for emotion regulation need to be considered was supported by the results that the intensity of anxiety and/or anger preferred by an athlete influences his/her emotions, anger in particular, before competition as well as his/her use of strategies to emotionally regulate (Lane et al., 2011). These results also show support for the use of instrumental emotion regulation strategies in sport even when emotions are considered hedonically unpleasant. However, as direction of emotion regulation was assessed in relation to current emotions rather than to optimal desired level of emotions, the authors suggest future research address the relationship between the direction of emotion regulation and the difference between athletes current and optimal states.

Similar to EI, emotion regulation's link with performance has been a recent area of interest (Balk et al., 2013; Martinent et al., 2015). After conducting a pilot study to investigate the impact of arousal on performance outcomes in a golf putting task, Balk and colleagues (2013) sought to explore the mediating relationship of emotion regulation strategies between arousal and performance under pressure. The purpose of the pilot study was to ensure that the pressure manipulation used within the golf-putting task was successful in inducing arousal in participants and that their subjective arousal aligned with objective measures of arousal. From the pilot study, the authors reported significant increases from the low- to high-pressure phases in perceived pressure ($F_{1,17} = 11.63$, p = .003, $\eta^2 = 0.4$), perceived competitiveness ($F_{1,38} = 7.45$, p = 0.01, $\eta^2 = 0.16$) heart rate ($F_{1,38} = 14.84$, p < 0.001, $\eta^2 = 0.28$), and self-reported arousal

 $(F_{1,38} = 32.42, p < 0.001, \eta^2 = 0.46)$, as well as a significant decrease in performance $(F_{1,38} = 5.26, p = 0.028, \eta^2 = 0.12)$.

For the main study, the authors selected two of the families of emotion regulation strategies identified in the process model (Gross, 1998), namely cognitive reappraisal and distraction, specifically for their effectiveness in the downregulation of emotions (Balk et al, 2013). Participants included 12 women and 28 men (n = 40) with averages of 59.6 years of age and 21.75 years of experience who had been recruited from a Dutch golf club. Participants were randomly assigned to one of three conditions (reappraisal, distraction, or control) and completed three blocks of putts, all of which were done in a fixed order from low to high pressure. Pressure was induced by telling participants that their next series of putts would be videotaped and that their performance would be published in the clubhouse, with the five best players receiving a coupon to the golf shop. Participant arousal was assessed subjectively through self-report scales and pressure was checked using the pressure/tension subscale of the Intrinsic Motivation Inventory (Ryan, 1982, as cited in Balk et al., 2013). Performance was measured by the amount of successfully holed putts (0-10).

The researchers conducted a repeated-measures ANOVA examining the effects of pressure and condition on performance, reporting a significant interaction between pressure and condition ($F_{2,35} = 7.76$, p = 0.002, $\eta^2 = 0.3$; Balk et al., 2013). More specifically, the authors reported that participants in the control condition showed reduced performance from low- to high-pressure ($F_{1,12} = 6.24$, p = 0.028, $\eta^2 = 0.34$), while participants in the reappraisal condition did not show any significant differences in performance between low and high pressure (p = 0.239) and participants in the distraction condition improved performance from low to high pressure ($F_{1,12} = 8.35$, p = 0.014, $\eta^2 = 0.41$). The researchers also conducted a repeated-measure

ANOVA using subjective arousal as the dependent variable and the same independent variables. The authors reported no main effect of pressure (p = 0.204) or condition (p = 0.962), but a small yet significant interaction effect ($F_{2,35} = 3.18$, p = 0.054, $\eta^2 = 0.15$). The authors note that participants in the reappraisal condition reported significantly lower arousal in the low-pressure condition compared to high pressure ($F_{1,11} = 5.90$, p = 0.033, $\eta^2 = 0.34$) and no significant differences in the other conditions (p > 0.25).

The use of an emotion regulation strategy prior to performance in this study was effective in preventing choking, with distraction even helping to improve performance, and outcomes could not be explained by differences in arousal (Balk et al., 2013). Only two of the five families of emotion regulation strategies were used, however, and no measures of objective arousal were taken during the main study. The authors argue that emotion regulation strategies should be employed under pressure to prevent choking.

Martinent and colleagues (2015) similarly sought to examine the relationship between emotions experienced, emotional regulation strategies employed, perceived effectiveness of strategies, and performance. The study consisted of 11 male national table tennis players with an average age of 23 years (SD = 5.74) and an average of 12 years competing (SD = 2.88). Each of the athletes had participated in at least 15 competitions during the table tennis season. The researchers studied a total of 30 matches (2-3 matches per participant) and continuously video recorded each of the matches to capture players' action, the score, and the official. The researchers also collected qualitative data through self-confrontation interviews, in which the athletes' narratives were stimulated using the video recordings. The semi-structured interviews consisted of questions addressing participants' emotions experienced, the cognitive appraisals about the emotions, emotion regulation strategies used and perceived effectiveness, and athletes'

interpretation of the direction of emotions. The researchers analyzed the data beginning with an inductive coding of the transcripts and extracting elementary units of meaning (EUMs), associating the EUMs regarding emotion regulation with the emotions being targeted by the strategy. After using a hierarchical content analysis to compare between individuals, the researchers compared their results with available literature and used existing theories of emotion regulation to guide the development of themes and categories. The researchers then transformed the qualitative data into quantitative data on the types and effectiveness of emotion regulation strategies and operationalized an objective measure of performance as the total of winning versus losing points after the use of an emotional regulation strategy.

The researchers reported 10 discrete emotions identified by the athletes, including joy, anger, anxiety, discouragement, disappointment, serenity, relief, hope, pride, and disgust, and four broad categories to describe emotion regulation (Martinent et al., 2015). The first category, regulation effort (2,422 EUMs, 58.7%), consists of antecedent- and response-focused regulation and social support. Antecedent-focused regulation (2,020 EUMs, 48.96%) included the themes of attention deployment (37.57% of EUMs) and cognitive change (11.39% of EUMs). Response-focused regulation (334 EUMs, 8.10%) included the themes of behavioral (2.38% of EUMs) and physiological regulation (5.72% of EUMs). The authors reported that the final sub-category of social support (68 EUMs, 1.65%) was another resource used by athletes to manage their emotions. The second category, automatic regulation (388 EUMs, 9.4%), included strategies that were so well learned by athletes that it required no conscious effort to manage their emotions. The authors noted that automatic regulation was used most commonly for managing joy and relief, but rarely for anxiety or serenity. The third category, no regulation (494 EUMs, 11.97%) is indicative that players do not always try to manage their emotions in competition. The authors

reported that athletes chose not to regulate their emotions when they felt the emotion would facilitate their performance or when they did not have interest in managing their emotions. Finally, the last category of regulation effectiveness (822 EUMs, 19.92%) included the subcategories of high (9.52% of EUMs) and low effectiveness (10.4% of EUMs). The authors noted that positive emotions were typically managed well, whereas negative emotions such as discouragement, disgust, and anxiety were only managed well about half of the time.

The researchers conducted a 2x2 chi-square test of association for each of the 10 emotions between winning and losing points throughout all matches and winning and losing points following the use of an emotion regulation strategy (Martinent et al., 2015). Overall, athletes showed better performance (winning significantly more points) after using an effective emotion regulation strategy through attention deployment, cognitive change, physiological regulation, and automatic regulation. After using ineffective attention deployment, cognitive change, or physiological regulation, however, athletes lost significantly more points. This study is helpful in highlighting strategies used specifically during competition, with attention deployment strategies emerging as the most commonly used, and provides support in the importance of effective emotion regulation strategies for performance. Again, however, the authors focused on an individual sport and intrapersonal emotion regulation, which may not be applicable to athletes on doubles/team sports.

Interpersonal emotion regulation. More recently, the social and cultural impacts on emotion regulation are being recognized (Campo et al., 2012; Tamminen et al., 2016;) and the role of interpersonal emotion regulation is being explored (Friesen et al., 2013b; 2015; Tamminen & Crocker, 2013). Friesen and colleagues (2013a) took a social-functional approach to study the how the social functions of emotions impact the decision to regulate a teammate's

emotions. Based on the assumption that emotions are also used to coordinate behavior across individuals and assist in meeting shared goals, the authors sought to explore how this social-functional approach may influence athletes' decisions to regulate the emotions of their teammates. The researchers recruited two ice hockey captains, chosen specifically as their role includes the expectation of emotionally regulating teammates, who played on a semi-professional (n = 1) and recreational club (n = 1). Each participant had more than 10 years of experience playing ice hockey and had experience at the international level. The authors interviewed the participants using semi-structured guides, in which the captains were asked to recall particularly memorable games and instances wherein they regulated emotions and the circumstances surrounding the decision. The researchers then analyzed the transcripts by following the guidelines set forth for a holistic-content narrative analysis (Lieblich, Tuval-Maschiach, & Zilber, 1998, as cited in Friesen et al., 2013a).

Friesen and colleagues (2013a) reported ER strategies used in four different layers: individual, dyadic, group, and cultural. At the individual level, the captains' own emotional responses and prior personal experiences with ER influenced their current attempts at regulation. At the dyadic level, the captains assessed a teammate's emotional state (and compared to states in previous similar situations) and considered the teammate's ability to self-regulate before implementing a strategy directed at that teammate. The athletes expressed that, at the group level, the meaning of the game and their teammates' roles within the team were influential on the decision to regulate emotions. Finally, at the cultural level, the authors reported that the participants relied on cultural ideologies about hockey to inform their decisions.

Overall, the authors state that the function of emotions at the individual, dyadic, group, and cultural levels influenced if, when, and how these captains decided to regulate the emotions

of their teammates (Friesen et al., 2013a). The researchers note that, though previous research has proposed emotion regulation occurs when one notices a discrepancy between current and desired emotional states, the application of such a proposal in interpersonal ER is more complex. Athletes may misidentify the present and desired emotional states of their teammates and may prioritize intrapersonal ER. The authors suggested that future research examine the effects of athletes' meta-emotion beliefs surrounding the use and prominence in sport, the effectiveness of their interpersonal ER strategies, and their subsequent performance.

Friesen and colleagues (2015) expanded their work as they sought to explore what strategies were being used by hockey players to regulate teammates' emotions and what factors moderated interpersonal ER. Sixteen male professional hockey players ($M_{age} = 23.5$ years, $SD_{age} = 5.1$ years) competing on the same team in the English Premier Ice Hockey League participated in the study, the majority of which had at least 10 years of experience. Participants had been with the team ranging from 6-12 months (n = 13) and over 5 years (n = 3). The authors conducted semi-structured interviews, asking participants to recall recent significant games (e.g., international competitions, immediately prior to playoffs) and their experiences with interpersonal emotional regulation during those games. The researchers then analyzed the data inductively initially to identify strategies and moderating factors, followed by a deductive hierarchical content analysis using the EASI model.

The authors identified a total of 22 interpersonal ER strategies, classified by their nature (verbal or behavioral) and their target (initiating inferential processing or affective reactions; Freisen et al., 2015). Verbal strategies targeted at initiating inferential processing included such strategies as deception, calling out teammates, distraction, goal setting and positive appraisals. Those targeted at initiating affective responses included humor, chatter about the sport, and the

silent treatment. Behavioral strategies targeted at initiating inferential processing included benching and tapping on a teammate's pads, while behavioral strategies targeted at initiating affective responses included such strategies as fighting, fun activities, and music. The authors also reported a total of 12 moderators between strategies used and their effectiveness on interpersonal ER. Some moderators (e.g., personality factors, empathic accuracy) influence the emotions evoked in others, while others (e.g., situational meaning, perceived status of agent) affected the target's accommodation to the strategies. The authors categorized such strategies under the higher order them of inferential processing ability and motivation. Additionally, within the theme, the researchers noted the precedence of performance regulation over emotion regulation, a variable not previously identified within the EASI model. The second higher order theme of moderators presented by the researchers was social-relational factors, including agent and target perceptions of the strategy, appropriateness of the intended evoked emotion, relationship dynamics, and the individuals' roles on the team.

The researchers classified strategies by creating four categories, distinguishing between verbal and behavioral strategies and between cognitive and affective pathways (Friesen et al., 2015). The authors argued that behavioral strategies, such as music, may be more common and effective for interpersonal ER as many are also strategies that can enhance performance. Further, several moderators are important in whether or not a strategy being used is effective. Athletes' meta-emotional beliefs about performance play a critical role in emotion regulation as they are highly influential on many of the social-relational factors reported by the authors. Future research on ER should include the beliefs athletes hold about the relationship between emotions and performance.

Tamminen and Crocker (2013) took a similar approach, focusing on curlers. The researchers purposively selected elite curlers due to the nature of the sport, in which all members of the four-person team are required to interact with one another, and the assumption that the high level of competition would also create numerous stressors, requiring effective strategies for emotion regulation. Each of the participants had competed in a national event but varied greatly in age (23-58 years old) and competitive experience (14-33 years). Taking an instrumental case study approach, the researchers observed and interviewed the athletes through the course of a competitive season with a specific focus on intrapersonal and interpersonal emotion regulation. The authors inductively analyzed the first of the three interviews (early-, mid-, and post-season) and used the results to create an initial coding schema, which they then used to deductively analyze the following interviews in addition to inductively coding new information.

Through their analysis, Tamminen and Crocker (2013) identified three main themes: emotional self-regulation, interpersonal emotion regulation, and factors influencing emotion regulation. Athletes in the study reported an awareness of how their emotions may influence teammates and regulated emotions accordingly, typically through the use of body language (e.g., not showing emotions on his/her face) and self-censorship (e.g., not "burdening" teammates with personal stressors). Regarding interpersonal emotion regulation, athletes discussed and were observing using strategies such as providing feedback (positive and/or technical), using humor, cueing teammates about their emotions, engaging in prosocial behaviors (i.e., adjusting behaviors to accommodate a teammate's actions/preferences), and through indirect actions that considered teammates' needs and protect them from potential stressors. The final theme identified by the researchers included factors that affected emotion regulation. Athletes reported and were observed engaging in more emotion regulation strategies the longer time they spent

with one another and, similarly, engaging in more strategies with improved team cohesion. Strategy use varied based on context, with athletes using more deliberate emotion regulation strategies during competition while expressing emotions more often after competition and when in individual settings with a teammate. Lastly, the participants' roles on the team (e.g., the Skip engaging in more intra- and interpersonal regulation due to her leadership role) and team social norms influenced emotion regulation, while self-regulation was often done through seeking support outside of the team through others such as family or mental performance consultants.

The authors (Tamminen & Crocker, 2013) acknowledged that the first author's involvement with the team could have impacted results, with two athletes noting that having the researchers present brought up topics that may not have otherwise been addressed and perceived that it brought the team closer together. The study is also focused on one, unique sport, as the small number of members and consistent interaction with each teammate may lead to more specific emotion regulation strategies that would not necessarily be seen on other teams or sports. This limitation may be particularly important due to the authors' identification of length of time together and team social norms as factors that would influence athletes' selection and use of interpersonal emotion regulation strategies.

Campo and colleagues (2017) were similarly interested in how and why athletes on team sports regulate their teammates' emotions. The authors provided findings on two studies: the first of which examined how athletes regulated themselves and their teammates, and the second assessed the motivations behind the interpersonal extrinsic regulation strategies utilized (Campo et al., 2017). The primary goal of the research was to better understand the use of interpersonal emotion regulation in the context of team contact sports. For the first study, the researchers hypothesized that athletes would report using strategies in each of the five families of regulation

strategies identified by Gross (1998). A qualitative approach, specifically a post-positivist epistemological position (Weed, 2009), was adopted for both studies for its fit with examining interpersonal processes.

A total of 22 professional male rugby players (M = 27 years old) participated in the first study (Campo et al., 2017). Participants had competed at the professional level for an average of 5 years and played for the same French division team. The authors recruited a total of 30 male rugby players (M = 19 years old) who all competed at the professional level for an average of 2.5 years, and none of the participants were also involved in Study 1. In Study 1, a semi-structured interview guide was created to use while watching video recordings of the participants' performances. Each player was interviewed twice (after both a home and away game) within three days of the game. Participants were asked to share any specific moments in which they experienced intense emotions, what caused those emotions, the consequences of the emotions, and whether or not they attempted to regulate their emotions. Data from Study 1 was analyzed using an inductive-deductive approach (Uphill & Jones, 2007, as cited in Campo et al., 2017), first using an inductive approach to allow the perceptions of the athletes to provide grounded knowledge. This approach was then followed with a deductive approach, utilizing the five emotion regulation strategies identified by Gross (1998) to categorize the strategies identified. In Study 2, a game was simulated with conditions similar to that of an official competition and with the understanding that performance in the game impacted the starting lineup in the upcoming championship game. Each player was interviewed within three days following the game with a similar interview guide as used in Study 1, but with the addition of questions related to the motivations for athletes' use of interpersonal extrinsic regulation, and again did so while

watching a video recording. Inductive content analysis was used in searching for the motivations behind extrinsic regulation.

A total of 47 emotion regulation strategies were identified through analysis of Study 1. Strategies were found to target the athlete personally as well as his teammates, of which two dimensions emerged as interpersonal co-regulation (regulating emotions with the assistance of teammates) and extrinsic regulation (used by teammates to regulate target athlete's emotions; Campo et al., 2017). Strategies identified fell into each of the families presented in the process model (Gross, 1998). Of the 22 athletes interviewed, at least 19 (86.4%) reported using a strategy in each of the families except for Situation Selection (40.9%). Within the dimension of coregulation, the most common strategies used fell into the families of Response Modulation (72.7% of athletes), Cognitive Change (50% of athletes), and Situation Modification (50% of athletes). Extrinsic regulation was the least used among the three dimensions, with the highest rates falling in Situation Modification and Cognitive Change (18% of athletes each). Overall, a wide range of strategies were used, and athletes reported using emotion regulation throughout performance. In Study 2, it was found that all athletes reported attempting to regulate the emotions of their teammates. Motivations were categorized as altruistic (in the interest of teammates, regardless of impact on self), egoistic (in the interest of self, regardless of impact on teammates), or both. Of the 30 participants, 24 reported egoistic motives, and these motives accounted for 56% of all those reported. Altruistic motives, on the other hand, were reported by 22 of the athletes and accounted for 27% of all motives. Lastly, 12 athletes reported being both egoistically and altruistically motivated, while these motives accounted for 17% of all motivations. Three primary reasons were provided for why athletes may not engage in extrinsic

emotion regulation, including a lack of belief in its usefulness, a belief that it was a natural consequence of sport, and the interference of one's own self-regulation.

While many of the strategies reported in Study 1 have previously been identified in team sport athletes, additional strategies were found that have not been previously reported (e.g., modifying teammates' emotional states) that support the notion that teammates play a critical role in affect regulation (Campo et al., 2017). The findings all fitting within the five families of emotion regulation strategies support the suitability for using the process model (Gross, 1998) to examine emotion regulation. Findings from Study 2 show that athletes perceive that they are able to emotionally regulate their teammates, though their identification of teammates' emotions may not always be correct. Additionally, findings suggest that, though behaviors seem altruistic, much of one's attempts at interpersonal emotion regulation may be done so with a focus on the self.

Listening to music is one strategy used to regulate emotions in the sport context (Bishop, 2010; Bishop et al., 2007; Karageorghis et al., 2018; Lane et al.) and is commonly employed by athletes (Laukka & Quick, 2011) for both intrapersonal (Stanley et al., 2012) and interpersonal (Friesen et al., 2015) ER. The following section will address the relationship between music and sport, with a specific focus on emotions and performance.

Music in Sport

The final section of this literature review is meant to provide an overview of the relevant research examining the relationship between music and athletes' emotion regulation and sport performance. Bishop, Karageorghis, and Loizou (2007) sought to examine music use in manipulating emotional states by young tennis players who reported using music as a preperformance strategy. The researchers also hoped to gain a better understanding of how the

athletes respond emotionally to music and the potential mediating factors. Participants were purposively selected by the researchers, with a total of 14 participants (7 women, 7 men) meeting the inclusion criteria and all had at least 5 years of competitive tennis experience. Prior to interviews, participants completed questionnaires assessing their music listening habits and their use of music in tennis. Participants were asked to list five emotional states they feel are critical to success in tennis and to specify songs that evoked either the feeling or the thought of those emotions. During the interviews, participants were asked to adjust the intensity of the music to the level they would typically apply during tennis and the selected songs were played to stimulate discussion. Participants were also asked to rate each song for how much they liked it, its arousal potential, and for familiarity and popularity with peers. Of the 14 participants, 10 additionally agreed to complete a diary over a period of two weeks, recording their music use.

Participants reported listening to music for approximately two hours daily, primarily while traveling, preparing for tennis, in their bedrooms, or while working out (Bishop et al., 2007). Participants used music for a variety of reasons, particularly to psych themselves up, feel more positive, motivated, and confident, and to dissociate from external stressors. Participants purposely selected music to elicit specific emotions, categorized as appropriate mental focus, confidence, positive emotional state, psyched up, and relaxed. Several factors were identified that influenced each song's likeability and arousal potential. Extramusical associations with people, places, or events that were held by the athletes featured prominently in the interviews, as well as film soundtracks and music videos and the acoustic properties of the song. Additionally, some evidence was found that athletes empathized with the artists and listened closely to the lyrics. All of the songs discussed were rated as highly liked, arousing, and familiar by the participants. In order to get "psyched up," participants played tracks at the highest intensity and

chose songs with faster tempi, while participants chose songs with slower tempi and played them at lower intensities when trying to relax. These selections suggest that proprioceptive feedback can be used to sync internal rhythms (e.g., heart rate) with external drivers. Participants described experiencing visual images while listening to music, as well as experiencing auditory imagery that extended beyond listening to the song. As auditory imagery follows the same neural principles as visual imagery, singing the lyrics to a song to oneself thus may also be a powerful regulatory tool. All participants used music as a way of manipulating their emotional state, and all music selections were idiosyncratic. As extrinsic sources were mentioned more frequently and with greater description than intrinsic sources, extrinsic sources seem to be stronger determinants of emotional content. The researchers identified three ways in which emotive music was considered modifiable, being extramusical associations, acoustical properties, and inspirational lyrics. Pairing selected tracks with certain emotions could supersede other, more deliberate methods of emotion regulation. Due to technological improvements, athletes are now able to listen to music portably and have the ability to adjust the intensity and content of music.

Bishop and colleagues (2007) were the first to use qualitative data to propose a theory for determinants and mediators of athlete music selection for emotion regulation. Only 2 of the 14 participants, however, had adequate knowledge of musical structure in order to describe the properties of the music that they had selected. This study was also the first to identify song lyrics as an important aspect of music listening, noting that athletes may be listening closely to some songs and that even singing the lyrics of a familiar track can bring many of the same benefits as listening to music through auditory imagery.

Using this grounded theory (Bishop et al., 2007), Laukka and Quick (2011) created a questionnaire to address athletes' emotional and motivational uses of music. As prior research

had been limited in regard to the motivations of athlete music use, this study sought to provide estimates of the prevalence of and explanations behind music use in sports and exercise. The target population was elite (national or international level) Swedish athletes competing in a variety of individual sports, with a total of 252 athletes completing the 24-item questionnaire. The questionnaire assessed athletes' everyday music listening habits and semantic ratings of their motivational and emotional uses in sport, while follow-up interviews were used to incorporate episodic descriptions of participants' most recent examples of an emotional reaction to music in a sport setting. Music genres were group according to four broad categories proposed by Rentfrow and Gosling (2003; as cited in Laukka & Quick, 2011): uptempo and conventional, energetic and rhythmic, intense and rebellious, and reflective and complex. An ANOVA was run to identify rates of music use during various situations, while free responses were coded by two independent coders.

The majority of athletes (66%) reported listening to music several times each day, while uptempo and conventional, energetic and rhythmic, and intense and rebellious music were most preferred (Laukka & Quick, 2011). Almost half of the athletes reported experiencing emotions often when listening to music. Female participants reported experiencing emotions from music significantly more than males and rated music as significantly more important when practicing sports. Music was utilized most often during pre-event preparations and warm-up, while few reported listening to music during or after competition. Most of the participants selected music themselves and did so at least 66% of the time. Athletes most commonly reported using music to control arousal, regulate emotionally, gain motivation, perform better, and experience flow. Positive emotions (e.g., happy, alert, confident) were reported more frequently being experienced after listening to music. The majority of athletes reported experiencing fairly intense emotional

reactions that lasted less than an hour, though nearly one-third of athletes reported the reactions lasting longer than one hour. Athletes typically referred to aspects of the music as the cause of their emotional reactions, however many had difficulty verbalizing the explanations. The most common situation, occurring significantly more often than by chance, was using energetic and rhythmic music to increase levels of activation and become more alert prior to competition.

Overall, results suggest that athletes listen to music often and use it purposefully to facilitate training and performance.

While this study is notable for being the first to offer estimates of emotional and motivational uses of music by athletes (Laukka & Quick, 2011), several limitations are apparent. Musical genres were offered in four broad categories, thus limiting knowledge of specific genre preferences. All of the athletes that participated in the study competed in individual sports, limiting the applicability to other sports. Further, the questionnaire was designed using the grounded theory proposed by Bishop and colleagues (2007), however a new theory has since been proposed by Karageorghis et al. (2018a) that acknowledges the impact of music at the group level.

Building on the framework proposed by Bishop et al. (2007), Karageorghis and colleagues (2018a) looked to further add to the understanding of athletes' uses of music in psychological preparation for performance by examining individual preparation as well as social processes underlying musical interventions. A grounded theory was deemed appropriate by the researchers as it allows for the exploration of social processes within a specific context (Corbin & Strauss, 2015), as no available theories provide an explanation for group influences on athletes' use of music in preparation for performance (Karageorghis et al., 2018a). A total of 34 male athletes, with an average age of 18 years old, from an English Premiership soccer academy

were recruited to participate in the study. Nineteen participants completed a questionnaire addressing their use of music both individually and in a group setting, within which they were asked to list three or four songs that they felt would increase team cohesion and teamwork.

Additionally, eleven participants who were most descriptive in their questionnaire responses were asked to complete a daily reflective journal of their use of music over the span of one week.

Of these participants, nine were also interviewed individually.

Similar to the previous theory (Bishop et al., 2007), song selection was determined by a song's musical components and the athletes' extramusical associations (Karageorghis et al., 2018a). Participants noted that the combination of tempo and lyrics elicit certain psychological responses, with high tempo being more activating and slower tempo creating low activation, while results from this study also suggest that instrumental music can help facilitate task-related self-talk. In regard to extramusical associations, music that is familiar to the athlete and evokes cultural and personal associations will likely be most suitable for a pre-event routine and assist in optimizing responses to music.

Emergent from the data were three primary effects of music: group cohesion, performance gains, and psychological effects (Karageorghis et al., 2018a). These effects on an athlete are moderated by group factors, task-related factors, and personal factors. Group factors include who is selecting the music, the group's levels of social and task cohesion, and the team atmosphere. Participants in the study reported the ideal location for listening to be in the gym or locker room prior to performance and that it was important for performance. Music was generally selected by a senior member of the team, which holds significant implications as the norms created by team leaders can have powerful effects on the self-concepts of other members. Task-related factors include the context of listening, the athlete's psychological state, how the

music is being delivered, and where and when the music is being played. Participants reported using music to achieve a desired, optimal level of activation. Personal factors include motivation, listening habits, overcoming obstacles, and any emotionally-significant factors. Participants noted having primarily extrinsic motivation in using music, particularly as a strategy to cope with stressors. Additionally, participants showed a high degree of similarities in daily activities and listening habits. These similarities may be a result of the homogeneity in demographics and sociocultural backgrounds among those in the study.

Most recently, Gabana and colleagues (2019) sought to broaden the understanding of music use specifically within the sport of golf. The researchers interviewed ten amateur and semi-professional golfers who regularly using music during practice and/or prior to performance on how they currently use music and the potential effects. Participants represented a wide range of ages (18-34 years old) and length of experience (4-22 years). The authors utilized consensual qualitative research (CQR), which includes pieces from other qualitative approaches, as a methodology, meeting to reach consensus following individual coding.

Gabana et al. (2019) reported a total of six domains regarding music functionality for golfers, including tempo, attention, physiological regulation, psychological regulation, perceptions of the effects of music on performance, and whether to use music. Athletes cited the tempo of music as impactful on their mental synchronization, as well as in synchronizing physically (e.g., timing the swing, music as a metronome) with the beat. Athletes noted that music could be used both as an associative or a dissociative mechanism for attention deployment, and perceived music as effective for regulating their levels of energy/arousal. Psychologically, athletes regulated their mood, mental performance state, and motivation through music. Perceived effects on performance reported by athletes included time perception,

performance enhancement, facilitation of flow, and improving the qualitative experience, while athletes determined if they should use music based on the setting and the difficulty of the task.

Results reported by the authors help to support previous research on the impact of music in sport, however they are again limited by the restriction to an individual sport.

Within the context of sport, researchers have been exploring the use of music as an ER strategy as well as the impact of music on performance. In a study done by Middleton and colleagues (2017), athletes' ability to regulate preperformance states was examined through the use of self-selected music playlists. The researchers chose Hanin's (2000) Individualized Zone of Optimal Functioning (IZOF) model as a framework as it was developed in an elite sport setting and offers some empirically validated predictions off of which the study was based. According to the IZOF model, athletes who perform within their own individualized optimal zone of functioning, in regard to their preferred arousal levels, will be more successful than those outside of that zone. Additionally, it is important that athletes are aware of their optimal zone of functioning and identify differences between zones in order to develop the ability to enter/stay in their optimal zone.

In the study, a group of collegiate swimmers were assessed on baseline performance levels and were asked to reflect on their psychobiosocial states during their most successful and most unsuccessful performances in the last two years (Middleton et al., 2017). Participants then created three specific music playlists consisting of at least seven songs, each addressing a modality of the IZOF model, and were asked to provide a brief description of why each song was included. Following four experimental phase performance measures, participants were interviewed using a guide developed through questions proposed by Bishop and colleagues (2007). The most common benefit of participation as cited by swimmers was the more

purposeful use of music. Many athletes noted that they had not thought much about their music selection prior to the intervention and would continue using more intentional selection in their preparation. Interestingly, participants in the control group added that music served as a distraction and as a way to isolate themselves from others. Participants reported that the profiling of psychobiosocial states helped to increase their awareness of the states and their impact on performance, and that using this information to create playlists helped solidify the impact of more purposeful music selection. Additionally, the results showed the effectiveness of athlete music use in regulating performance related states. The researchers also noted a difference when it came to two of the most common reasons for music use among athletes: "motivational" and "pump-up." Pump-up music was primarily chosen for its association with swimming and related activities and for its musicality. Motivational music, on the other hand, was primarily chosen for its nonswimming associations and for its lyrical content. As the study was done in a simulated competitive environment, one potential future direction recommended by the authors is the examination within an actual competitive setting.

While Middleton and colleagues (2017) examined the motivational aspects of music, Elliott, Polman, and Taylor (2014) explored the potentially calming effects of music. In the study, the researchers sought to assess the validity of using music to reduce pre-sport competitive anxiety by focusing specifically on the effects of relaxing music on somatic and cognitive anxiety, self-confidence, subjective relaxation, and heart rate. A total of 72 college students (44 male, 28 female) from a university in northern United Kingdom participated in an intervention study. Participants were told they would be involved in a competitive motor task with their results recorded and available to others as a way of inducing competitive state anxiety. Participants were shown four possible competitive tasks (basketball throw, plyometrics/agility,

strength, and underarm throwing task) in which they would be asked to partake. Each participant then completed an underarm beanbag throw, having 15 throws to land the beanbag in a 1-meter diameter hoop 7 meters away. Participants were randomly assigned to one of three conditions: relaxing music (n=26), non-relaxing music (n=24), and no music (n=22). Relaxing music followed guidelines provided by Elliott et al. (2011), while non-relaxing music were songs that did not conform to recommendations.

Competitive state anxiety was measured using the Revised Competitive Sport Anxiety Inventory-2 (CSAI-2R; Cox, Martens, & Russell, 2003, as cited in Elliot et al., 2014), subjective relaxation was measured with a 7-point Likert item, and heart rate, due to the correlation with somatic activation, was measured with Polar FS3 monitors. Measures were taken at baseline, pre-intervention, and post-intervention. A repeated measures MANOVA was completed, revealing that all three conditions showed significant increases in competitive state anxiety from baseline to baseline to pre-intervention ($F_{5,62} = 18.91, p < .001$) and reductions from preintervention to post-intervention across all conditions ($F_{4.60}$, p < .001). Effect sizes in the relaxing music condition, however, were consistently higher and in all cases the 90% confidence intervals showed a positive effect. While the anxiety-producing stimuli was effective in raising measurements of competitive sport anxiety, self-confidence was not affected in any of the conditions. These results could be explained by participants at least believing they could complete the task. The lack of significant differences between conditions suggest that relaxing music is no more effective than the other two conditions, however the largest effect sizes were observed in the relaxing music condition and 90% confidence intervals showed a positive effect for all four of the dependent variables. As a great deal of studies on music in sport domains has thus far focused on the motivational and arousing properties of music, this study provides

evidence that music could also be a beneficial tool for helping to down-regulate arousal and emotions. In such situations as rehabilitating an injury or post-competition, in which low levels of arousal may be most appropriate, future studies could examine if and how athletes use music in these situations and whether or not they effectively use music to regulate their emotions.

Karageorghis and colleagues (2018c) sought to examine the potential effects of tempo and intensity on affect as well as psychomotor performance. Participants were all male, amateur athletes, with a mean age of 26, and had spent at least the previous 10 years living in the UK. All participants had indicated in a demographic questionnaire prior to recruitment that they routinely use music during training and to prepare psychologically for competition. In the experiment, each participant was presented with an excerpt of a song via earphones and then completed a grip-strength task. The athletes participated in each of the four experimental conditions (fast/loud, fast/quiet, slow/loud, slow/quiet) in a counterbalanced order and with a 1-minute rest period between conditions, after which they also completed the Affect Grid (Russell, Weiss, & Mendelsohn, 1989). The authors chose the song Umbrella by Rihanna based on its success in the Official UK Singles Chart, with a 140-second excerpt used to include a chorus and verse. The tempo was kept the same in the slow condition (87 bpm) and was manipulated to be 125 bpm for the fast condition. Additionally, the intensity of the music was manipulated, with the lower intensity being 10 dBA lower than the higher intensity.

A 2 (tempo) x 2 (intensity) repeated-measure ANCOVA was run each for grip strength, arousal, and pleasantness (Karageorghis et al, 2018c). The highest scores of grip strength were found in the fast tempo/high intensity condition (M = 58.22, SD = 5.38), while scores in the fast tempo/low intensity condition were significantly lower (M = 57.59, SD = 5.52). Results of the study suggest music tempo and intensity have an interactive effect on grip strength, as well as

having differential effects on subjective affect. The condition in which participants listened to faster tempi and louder music showed the highest scores in arousal (M = 7.18, SD = 1.37) and affective valence (M = 7.10, SD = 1.22). These results support and extend previous research, in addition to offering a potential explanation for the ergogenic effects of music via underlying psychological processes. The authors suggest that music can be implemented into athletes' prevent routines to serve as a stimulus and enhance affective states. As the participants in this study indicated that they were already using music in their pre-performance routine, however, it is clear that some athletes have been implementing this technique. Future research should instead focus on helping athletes better understand how to more effectively use music in their pre-performance routines.

Lane, Davis, and Devonport (2011) sought to study the effects of selecting and listening to music intended to help participants reach their desired goals. The authors hypothesized that the effectiveness of music for emotion-regulation and performance enhancement is influenced by the alignment of the music selection with the user's desired emotions. The purpose of the study, then, was to compare runners' performance and emotional states before and during running in two conditions: selecting their own music or using a program designed to create playlists specifically for running. A total of 65 volunteer runners (19 males, 41 females, M = 41.48 years of age) from the UK participated, with 56 recreational or club athletes and 9 reporting national standard. Emotions were assessed using a 9-item measure designed from previously validated scales, while the Music-Mood Regulation Scale (MMRS; Hewston et al., 2009) was used to assess participants' perceived effectiveness of using music as a strategy to alter feelings. The BMRI-2 was used for assessing the motivational quotients of the songs selected. Participants self-reported their personal goal difficulties, goal importance, and performance. During the first

stage, participants completed the inventories and set personal running goals that they planned to pursue for the study. During the second and third stages, participants attempted to reach their set goals and reported emotions and emotion-regulation strategies used both before and during running.

After the second stage, participants were randomly assigned to either a self-selected music group or Audiofuel (an online music source tailored specifically toward running) music group (Lane et al., 2011). In the self-selected group, participants were asked to consider how they want to feel before and during a race and to choose songs they associated with those feelings. In the Audiofuel group, participants were told to select songs that related to their intended running speed. MANOVA results revealed no significant difference between the two groups in their expectancies of the efficacy of music as a mood-regulation strategy, perceived goal difficulty, and goal importance (Wilk's $\lambda = 0.85$, p = 0.13, partial $\eta^2 = 0.02$). Repeatedmeasures MANOVA results showed a significant difference in emotions between pre- and postintervention. Participants who rated music as motivating believed that emotions experience before and during running helped performance and reported significantly greater improvements to performance after the intervention. Participants in both groups reported increased positive emotions and decreased negative emotions post-intervention. Songs with higher scores on the BMRI-2 were related with improved performance, thus the authors recommend that both athletes and practitioners should consider the use of the BMRI-2 when choosing music for running performance. The study is limited, however, in the inconsistencies between interventions (interventions were self-administered by participants) and lacked a control group, only examining differences between the two intervention groups. Overall, results show support for the hypothesis that music can be an effective strategy for emotion regulation prior to performance.

By better understanding how athletes are currently using music for emotion regulation, sport psychology practitioners could help athletes in more situations than solely pre-performance (e.g., post-competition).

Bigliassi and colleagues (2015) sought to extend the literature by examining the effects of music on performance, psychophysical, physiological, and recovery variables during 5 kilometers of running. Additionally, the researchers looked to explore whether amateur runners were capable of choosing motivational songs and if music is capable of changing emotional responses by increasing autonomic system activation. A total of 15 amateur runners participated in the study, taking place over a span of 30 weeks and divided into 3 stages. During the first stage, participants were familiarized with the procedures and scales to be used, as well as being asked to select 30 motivational songs (10 slow-speed, 10 medium-speed, and 10 fast-speed) with the only directions to select songs capable of increasing vigor and motivation. In the second stage, participants were asked to perform a neuroimaging test while listening to a variety of songs. These tests were used to ensure self-selected songs have an impact on the emotional areas of the brain. In the final stage, participants performed a total of 5 physical tests individually - a 5km run as fast as they could. A functional near-infrared spectroscopy (fNIRS) device was used to obtain cerebral activation. Heart rate variability and rate of perceived exertion (RPE) were also tracked during the process.

Participants were randomly assigned to one of five conditions: motivational songs applied before running, slow motivational songs applied before running, fast motivational songs applied before running, calm songs applied after running, and a control condition without intervention (Bigliassi et al., 2015). Music activated the 3 assessed prefrontal cortex areas and generated positive emotional consequences. Participants in the slow motivational and fast

motivational conditions completed the first 800 m faster than participants in the other conditions. The application of music increased the probability of improving running performance, while vagal tonus was accelerated after 5 km of running in the calm songs condition. The application of music improved initial speed up to 800 m, thus providing a likely chance of improved performance. The stimulation of the three assessed prefrontal cortex areas indicates that the songs chosen were capable of inducing emotional or memory responses. Results represent the applicability of music for arousal and as a recovery control tool without side effects. This study was the first to tie neuroimaging tests to listening to music, showing the emotion- and memory-inducing properties of music.

The potential impact of lyrical content has been addressed briefly by Sanchez and colleagues (2014) in their examination of the impact of lyrics on exercise performance. In the study, the researchers compared the cycling cadences and perceived exertion of participants when listening to music with lyrics, listening to music with no lyrics, and not listening to music. Songs were chosen through the use of the BMRI-2 and in collaboration with a group of undergraduate students who were of similar sociocultural backgrounds and ages as the participants. When listening to music, regardless of the presence of lyrics, participants exhibited greater average cycling cadences and lower perceived exertion than those not listening to music, supporting evidence for the use of music as a physical performance aid. Additionally, participants listening to music with lyrics exhibited higher cycling cadences than those listening to music without lyrics, but only at the end of the trial. Overall, this study shows the impact of music on physical performance and the potential role of lyrical content in its effectiveness.

Though the study conducted by Sanchez and colleagues (2014) was the first to examine the relationship between performance and lyrical content of music, two particular issues are clear

with the design. First, the playlists were selected by the researchers and were provided to the participants as a way of standardizing the experiment. The selection of music by the researchers is an issue because individuals are affected differently by music depending on a variety of factors including preference of music, familiarity with music, and the genre of music (Bishop et al., 2007; Karageorghis et al., 2018). One standardized playlist, then, may not have the same impact on each participant. Additionally, the study done by Middleton and colleagues (2017) reinforces the importance of self-selection in the effectiveness of music playlists. Another issue present in the study is the choice of music with no lyrics. While examples of songs without lyrics are prevalent and readily available, the researchers chose to use the same songs in both groups and remove lyrics for the non-lyric group. This removal causes an issue in that, as songs chosen were highly popular at the time, many of the participants may already be familiar with the lyrics of the song regardless of whether or not they were playing during the trial. Additionally, these songs were composed purposefully with lyrical content in mind, potentially altering the way the song is heard. Sanchez and colleagues (2014) recommended further research on the lyrical contents of music and individual interpretations.

Until recently, very few studies have investigated the recuperative properties of music (Terry & Karageorghis, 2011). Karageorghis and colleagues (2018b) sought to expand on the understanding of music following performance by examining the recuperative effects of music post-exercise. The primary purpose of the study was to explore effects of two different music conditions (slow, fast) and a no-music condition on recovery process after exhaustive exercise. A total of 42 recreationally active college students (21 female, 21 male) from Brunel University in London participated in the study. Using a within-subjects design, participants were taken through each of three conditions: fast, stimulative music, slow, sedative music, and no music. Fast music

Participants' affective valence, affective arousal, cortisol levels, heart rate, and blood pressure were assessed. Tests were performed on cycle ergometers, while music was played through standard in-ear Apple headphones through an iPod (Karageorghis et al., 2018b). Participants sat in silence for 10 minutes (measurements taken) and then completed a 3-minute warm-up at 50 rpm pedal rate. Participants were then required to maintain a constant speed of 75 rpm and a 300-g disk was added to weight basket to increase resistance. Additional disks were added at the end of every minute. Participants were determined to have reached exhaustion when they could no longer maintain a speed of 70 rpm for longer than 5 seconds, at which point they entered active recovery for 3 minutes at a speed of 50 rpm with no weight. Active recovery was followed by a 30-minute period of passive recovery, in which participants sat in a comfortable chair with headphones still in place. Measures were taken at 10-, 20-, and 30-minute intervals while in passive recovery.

Results showed that during the slow, sedative music condition, participants showed the largest decline in affective arousal between active and passive recovery (η_p^2 =0.50; Karageorghis et al, 2018b), had lower cortisol levels than in the other two conditions (η_p^2 =0.11), and showed more positive affective responses (η_p^2 =0.12). During the fast, stimulative music condition, heart rate levels showed a slower return toward resting levels (η_p^2 =0.06). Partial support was provided for the hypothesis that the slow, sedative music condition would be most effective in expediting recovery. Slow, sedative music seems to elicit more favorable psychological outcomes, with participants showing lower affective arousal scores and higher scores for affective valence. These results suggest music can be a powerful stimulus in aiding the down-regulation of arousal. While the crossover design implemented by the researchers helped to improve internal validity,

all music was selected by the researchers to ensure consistency across trials. The selection of music by the researchers may limit the responses to the songs by participants. Additionally, the researchers note that participants may respond differently to music on an individual basis relative to how they might respond in social contexts.

Bishop (2010) used the model provided by Bishop and colleagues (2007) to conceptualize music use by athletes and provide practical recommendations. An athlete's pool of emotive music is determined by "extramusical associations, peer and family influences, film soundtracks and music videos, acoustical properties, and identification with artists or lyrics" (Bishop, 2010, p. 36). Athletes should then consider the situational mediators (e.g., desired emotional state) and the modifiable emotional content and intensity mediators (e.g., tempo and volume) of the songs. Finally, the emotional intensity mediators (e.g. method of delivery) should be assessed. Overall, the author argues that music can be carefully selected and/or manipulated in order to produce performance-enhancing emotional and behavioral responses, offering nine recommendations for athletes and practitioners to use when selecting music.

Conclusion and Future Recommendations

Overall, it is clear that athletes' emotional intelligence has a significant impact on subsequent sport performance. An important aspect of EI is athletes' ability to recognize and regulate their own, as well as their teammates' emotions. Athletes use a wide variety of strategies that include both physiological and behavioral strategies and do so before, after, and throughout competitions. Additionally, strategies can be targeted at regulating one's own emotions, teammate(s) emotions, or both. One such strategy that has been recognized as an effective strategy both intrapersonally and interpersonally, but merits further research, is the use of music.

Music can be used as an antecedent- or response-focused strategy and has a significant influence on athletes' emotions, behaviors, and performance.

While interpersonal emotion regulation has been given substantial attention recently, the complicated nature of emotions requires further examination. Effects on interpersonal ER in particular has significant gaps in the literature, as the majority of studies addressing interpersonal ER has taken a broad approach (examining the wide variety of strategies being used). Focusing specifically on individual strategies could provide a more nuanced understanding of the relationship between athletes' beliefs about the strategy and the following impact on performance. As it can fit within multiple categories of emotion regulation strategies, music may provide a particularly relevant strategy to be studied. Additionally, further research needs to be done integrating the often-divergent concepts of emotional intelligence and emotion regulation. While emotion regulation is commonly studied in isolation, athletes' ability to accurately recognize their own and others' emotions, as well as their beliefs about the relationship between emotions and performance, should be considered.

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