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Exploring parent-athlete sport related communication outside of the sport environment with the Electronically Activated Recorder

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ABSTRACT

Objectives: The purpose of the current study was to explore parent-athlete sport-related conversations as they naturally occurred in the private contexts that surround youth sport. A secondary aim was to understand whether male and female guardians communicate differently in sport, and whether these differences are shaped by the contexts in which they appear.

Design: We used the Electronically Activated Recorder (EAR) to gather snippets of parents' and athletes' daily social interactions in the contexts that surround youth sport. A total of 220 audio files were gathered in the car ride to and from competition, the ice hockey arena, and at their home base (i.e., family residence of local teams and hotels for out-of-town teams) over the course of a 3-day competitive ice hockey tournament. Conversations were inductively coded using reflexive thematic analysis through a critical realist lens.

Results: Higher order themes included (a) performance-related dialogue; (b) the opportunity to discuss other social agents, and (c) parental social support. Frequency analysis revealed more instances of negative evaluations and technical instruction from fathers, whereas positive encouragement was more prominent from mothers.

Conclusion: These findings present novel insight into the nature of parent-athlete interactions outside of the immediate sport-competition environment. We encourage scholars to consider the EAR for future investigation of the youth sport environment.

The interactions that take place within the family unit have important implications for youth development and well-being (Branje et al., 2012; Fulkerson et al., 2010). As one of the most popular leisure activities worldwide (Aubert et al., 2018), youth sport can be an opportune context for studying parent-athlete interactions (Clarke et al., 2016; Dorsch et al., 2009; Holt et al., 2008). For example, family conversations held in youth sport help parents explore their child's interests and decide which sport-related opportunities are perceived as safe and facilitative for their development (Lindstrom-Bremer, 2012). Additionally, parents serve as the primary source of transportation to and from sport (Hayward et al., 2017), and act as devoted spectators who provide regular feedback and support (Dorsch et al., 2015, 2009; Tamminen et al., 2017). The unique opportunities that sport provides for interaction can foster closeness between parents and their children (Clarke et al., 2016; Elliott & Drummond, 2013). As a result, understanding the nuances of parent-athlete communication in sport has become a valuable research focus.

To date, much of the research on parent-athlete communication in sport has focused on public behaviour during competition (e.g., Dorsch et al., 2015; Ross et al., 2015). Through direct verbal communication, parents have been reported to voice praise and encouragement, offer technical instruction, and even direct derogatory comments at their children during competition (Dorsch et al., 2015; Knight et al., 2011). In terms of the latter behaviours, some studies have noted that a portion

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(estimated at 13–15%) of comments made by parents have some degree of negativity (Holt et al., 2008), and that fathers tend to convey more critical feedback in comparison to mothers (Bowker et al., 2009). In a more positive light, parents have reported the opportunity to make improvements with regard to their sideline behaviours in sport based on team norms and the feedback received from other agents (e.g., Dorsch et al., 2009; Gottzén & Kremer-Sadlik, 2012). It is unclear, however, whether similar communication patterns among family members emerge outside of the public eye, such as at home or in the car.

Tamminen et al. (2017) investigated conversations between parents and youth athletes during the car ride home. Using a narrative approach, parent-athlete dyads were interviewed about their experiences in the car following sport. Participant responses varied, with some enjoying the car ride home and others having to endure the experience. For instance, although Tamminen et al. reported the car to be a private space for athletes to converse with their parents, it appeared that parents used the opportunity to voice critical performance-related feedback. In an effort to navigate difficult conversations, athletes discussed using sarcasm to derail the topic, while also using avoidance behaviours to prevent discussing sport performance. In contrast, some participants reported the car ride home to be a positive experience, valuing the opportunity to receive feedback from parents. Tamminen et al. proposed accessing conversations in real-time as a means to advance our understanding of how private parent-athlete communications shape young athletes' sport experiences, which represents the overarching purpose of this study.

Until now, sport research has been predominantly represented by self-report questionnaires and retrospective interviews (for a methodological review, see Meredith et al., 2017). This has provided a foundation from which researchers and practitioners have understood parent-athlete relationships. These types of study designs, however, are open to response biases insofar as participants may be selective (consciously or not) regarding the information conveyed. Although a challenging task for researchers, capturing the real-time parent-athlete interactions without interrupting participants' natural behaviours would meaningfully advance the field (Herbison et al., 2020). Although observational research presents limitations of its own, work with ambulatory assessment devices (e.g., Electronically Activated Recorder) has shown that participants habituate to the device in as little as 2 h (Mehl, 2017). Thus, the purpose of the current study was to explore parent-athlete sport-related conversations as they naturally occurred in the social contexts that surround youth sport. A secondary aim was to examine gender differences with respect to type of communication across different contexts. In line with previous research (e.g., Bowker et al., 2009), we expected that male guardians would provide more critical feedback whereas female guardians would provide more supportive and encouraging feedback.

1. Methods

1.1. Qualitative approach

From a methodological standpoint, the current study used an innovative "mobile method"—a technological approach that has been advocated to advance qualitative inquiry (Moylan et al., 2015). Philosophically, this study was approached with a critical realist ontology and epistemology (Wiltshire, 2018), meaning we recognize that knowledge is continuously challenged through scientific rigor despite being underpinned by subjective frames of reference (Bhaskar, 1978). A critical realist position assumes that a subjectivist epistemology can co-exist with ontological realism (i.e., depth realism), which requires stratifying reality into three interrelated domains (Bhaskar, 1978). The *real domain* encompasses underlying generative mechanisms and structures that give rise to events, which can be physically or socially real (e.g., arena, social structures). The *actual domain* refers to events that are produced by these generative mechanisms (i.e., actual conversations between athletes and parents). Finally, the *empirical domain* refers to the subjective experiences of the events in the actual domain (i.e., a child's interpretation of parent feedback, a researcher's analysis of conversational transcripts). Reality therefore entails "events, states, affairs, experiences, impression, and discourse, but also underlying structures, powers, and tendencies that exist, whether or not detected or known through experience and/or discourse" (Patomäki & Wight, 2000, p. 223). As the EAR device gathered audio from multiple participants (i.e., parents, athletes, and sometimes teammates and other parents) within the same conversation, critical realism acknowledges that individual actors can hold different and valid perspectives on reality (i.e., the recorded conversation), from which an underlying theory-laden reality could be uncovered (Bhaskar, 1978). Taken together, we expected that parents would have different intentions and meanings with regard to communication with their child, but that unifying patterns and themes could be used to develop thorough understanding of process.

Because there is no available theory of parent-athlete communication specifically, and the scope of our study did not align with more general family communication theories (we discuss this further in the Discussion), literature pertaining to parent-athlete communication (e.g., Tamminen et al., 2017; Vangelisti, 2012), parent socialization and social support (e.g., Dorsch et al., 2009; Dorsch et al., 2015), parent-athlete relationships (e.g., Flouri & Buchanan, 2002), and parental involvement in sport (e.g., Holt et al., 2008; Knight & Holt, 2014) were consulted throughout our analysis.

1.2. Participants

The study sample comprised 41 athletes[1] (39 boys, 2 girls; $M = 12.39$ years, $SD = 1.10$) and their parents (39 women, 39 men) from nine competitive youth ice hockey teams, who were observed over the course of a three-day ice hockey tournament. Among the 41 athlete participants in the study, 37 returned EAR devices that contained conversations with male and female guardians. Thus, four athletes in the study only had one parent appear in their conversations and were evenly split between mothers (n = 2 athletes with mothers only) and fathers (n = 2 athletes with fathers only). The majority of the teams ($k = 8$) competed in the same weekend tournament, while the members of the ninth team were observed during a separate three-day tournament.[2] Notably, five of the teams were local to the city in which the tournaments were held, whereas the remaining teams travelled between two and 5 h to participate. Although parents consented to participate, we did not collect their demographic information as the main purpose of the larger project was athlete-centred (see OSF parent protocol: osf. io/58mvp; Bruner et al., 2020). During the initial point of contact, the research team informed parents that their child (if informed consent was given) might be among the six athletes per team chosen to carry an EAR device throughout the tournament. As such, information sessions were held with coaches, athletes, and parents of each participating team, and steps to inform these parties negated the expectation of privacy during conversations around the EAR over the course of the weekend.

1.3. Procedures

Following approval from the institutional research ethics board and the chairperson from both competitive ice hockey tournaments, we contacted the head coaches from all teams who were registered or who had contacted the tournament organizers and expressed interest in

[1] Although six athletes per team (i.e., 54 athletes in total) were asked to wear the EAR, we had eight EAR devices returned with data malfunctions and five without any parent-athlete interactions.

[2] We originally treated this separate team as a pilot in an effort to test device functionality and study procedures. However, due to the homogeneity of both tournaments (i.e., ice hockey teams of the same age and competitive level), we decided to include all nine teams in our analysis.

registering. In total, head coaches or team managers from 11 teams responded via e-mail or telephone and expressed interest in participating in the study. Head coaches or team managers were then provided a letter of information via e-mail and a subsequent phone conversation occurred during which the scope of the study was explained and questions were answered. Teams were contacted at least two months prior to the tournament to explain the nature of the larger scale project. Officials from all 11 teams were asked to respond to the research team one month prior to the tournament to indicate how many parents had consented for their child to participate in the study. The nine teams invited to participate were teams whose members indicated the most interest in participating in the study (i.e., all teams had no more than one team member who did not consent to participating). Participants were made aware that tournament registration fees would be covered by the research team as compensation for participation.

Athletes were selectively chosen to wear an iPod Touch equipped with EAR software throughout the three-day tournament. Athletes were selected before the tournament began as a function of how strongly they identified as a team member (see OSF protocol link above). Specifically, athletes with the highest ($n = 3$) and lowest ($n = 3$) social identity scores within each team were selected to wear the EAR. Athletes were instructed to wear the EAR device at all times between the hours of 8:00am and 8:00pm, except during competition. Each participating team was accompanied by a team chaperone (i.e., a member of the research team) throughout the three-day observation period to assist with device functionality. The chaperone gathered all devices from participants prior to each competition (i.e., ice hockey game) and returned the device to participants immediately after each competition. To sort through the large amount of data, research assistants classified audio as being either (a) unable to transcribe conversations (e.g., acoustic interference, non-conversational observation); (b) able to transcribe files but content was non-sport related (e.g., interactions regarding topics other than the sport team from which the participant was recruited); or (c) able to transcribe conversation and sport related (e.g., social-discursive interactions pertaining to the sport team from which the participant was recruited). Only files that contained sport-related conversations were forwarded for coding.

1.4. Measures

1.4.1. EAR devices

The EAR devices were fourth generation Apple iPod Touch handheld devices. In line with previous studies (e.g., Tobin et al., 2015), the EAR software was programmed to record for 50 s every 12.5 min. The EAR devices were also programmed to only record between 8:00am and 8:00pm for the duration of the three-day observation (Friday to Sunday). Participants were instructed to wear the EAR device clipped to their waistband or in their pocket.

1.4.2. EAR-derived measures

Trained research assistants listened to all 8864 recorded audio files and retained 624 sport-related conversations from 46 EAR devices. Only sport-related conversations were retained for subsequent analysis. Example audio files that were not included involved conversations about school or general non-sport related family dialogue. Four research assistants transcribed the remaining sport-related conversations verbatim and copied the transcripts into the Audio Coding System for Social Environments in Sport (ACSSES; Herbison et al., 2020). The EAR yielded a total of 251 audio files featuring parent-athlete conversations. Thirty-one audio files were excluded from our analysis (i.e., final sample of 220 eligible audio files; $M = 5.37$, $SD = 2.83$ files per athlete) due to participants mentioning the EAR device ($n = 8$) or interactions that occurred outside of our desired contexts. Undesired contexts include "at a friend's house" ($n = 8$), and "in the dressing room" ($n = 15$).

Trained coders[3] used a binary coding approach (i.e., "1" = presence; "0" = absence) with the ACSSES to identify contextual and behavioural information in the observations collected using the EAR. For the purpose of this study, researchers coded the audio data for the presence or absence of talking, talking with parent, socializing, and location. Audio files were coded as "talking" if the athlete spoke any words during the observation, "talking with parent" if the parent spoke any words during the observation, and "socializing" if the conversation was relevant to the athlete's sport or team and occurred outside of the immediate sport activity.

All sound files were coded by two trained coders. In an attempt to ascertain the reliability of the ACSSES, intercoder reliability was calculated following a four-week training protocol (Herbison et al., 2020) using a single-rating, absolute-agreement, two-way mixed-effects model. Intraclass correlation coefficients (ICC) at the conclusion of the coder training indicated good (0.75–0.90) to excellent (>0.90) inter-coder (i.e., between individual coders and the ACSSES's lead developer) reliabilities for all context and behaviour categories (Coder 1 = 0.94; Coder 2 = 0.87). Further, intra-coder (i.e., within-coder comparison between their coding of files during training and the final coding assignment) reliabilities at the conclusion of the coder training program indicated good (0.75–0.90) consistency for coded behaviour (Coder 1 = 0.77; Coder 2 = 0.72).

1.5. Data analysis

First, we used the ACSSES to contextualize sport related parent-athlete conversations. The first category (i.e., contextual elements) of the ACSSES helped situate the data according to location (e.g., in transportation, at home), speakers (e.g., parents, athletes, coaches), and the general context of the conversation (e.g., socializing, watching live sporting events). In addition, we analysed the frequency of ACSSES codes to provide additional meaning to subsequent themes. Each audio file was analysed in its entirety; however, some incomplete sentences were omitted from our analysis if they were cut off by recording termination or inaudible.

We then thematically analysed the transcripts in an inductive, reflexive way, which involved six independent steps (Braun & Clarke, 2019). In the first step, the first author was deemed a "reliable coder" within the original ACSSES coder training (Herbison et al., 2020) and therefore had extensive experience both listening to the audio recordings and reading interactions transcribed verbatim (i.e., familiarization; Braun & Clarke, 2019). Then, as a second step, initial codes were extracted from the transcripts by highlighting specific, meaningful sections of text through an unstructured-coding process. Our reflexive consultation of literature in the area of parent-athlete interactions in sport led us to revise codes throughout the process (Braun & Clarke, 2019). For example, reflecting on themes in Tamminen et al. (2017) helped shape codes related to either critical feedback or well-intended support during the car ride home. At the same time, we made notes based on the tone of the conversations (e.g., athlete audibly upset) to help contextualize the rich information offered by the audio files.

Initial themes were then generated as our third step. We then further reviewed and developed our initial themes (i.e., Step 4) by considering existing literature and participant dialogue throughout our inquiry. To be specific, the two primary analysts met on two seperate occasions to compare notes on initial themes and noteworthy quotes that best reflected these themes. Finally, once mutual agreement was reached on the names and definitions of each theme through further refinement (i.e., Step 5), a final draft of results was prepared (i.e., Step 6) and

[3] For a thorough description of the training provided to coders of the current study, see Herbison et al. (2020).

forwarded to other members of the research team. Minor semantic changes resulted from the final stage of review from the entire research team. Participant coding incorporated information on team number (e.g., Team #1 = T1, Team #2 = T2) and participant number (e.g., Athlete 1 = A1, Mother 1 = M1).

1.6. Qualitative rigour

Due to the complexity of the data gathered in the current study, several methods were employed to enhance the empirical adequacy of the findings. In line with a realist perspective (Maxwell, 2017), descriptive validity was achieved through extensive transcription checking and editing by multiple members of the research team (Ronkainen & Wiltshire, 2019). Additionally, as part of the larger scale project, athletes documented their location across time through the use of daily diaries, and the research team had access to these data while coding the location from which audio files were based. These steps enhanced the factual accuracy of the findings by assuring no mistakes or distortions were present in the data (Maxwell, 2017). Moreover, four coauthors acted as critical friends and engaged in peer debriefs throughout the analytical phase of the study. This involved providing on-going guidance and offering critical feedback on the first author's assumptions during team meetings (Creswell & Miller, 2000). Having multiple researchers provide their independent perspectives of each conversation allowed for reflexivity and ultimately a clearer interpretation of the findings (Smith & McGannon, 2018).

Furthermore, several coauthors have personal experience as either an athlete or parent in the context of youth ice hockey. In this way, these experiences informed decisions around study design, participant recruitment, and the interpretation of parent-athlete conversations. From a realist perspective, this aspect of the current study led to a more accurate representation of participants' experiences and meaning conveyed in the conversations (i.e., interpretive validity; Maxwell, 2017). This step was particularly important, as our mobile methods did not allow for participants to reflect on their conversations. Although valuable, we acknowledge that our collective understanding of ice hockey and personal experiences with parent-athlete communication in sport could influence the interpretation of data (e.g., Bradbury-Jones, 2007). Similarly, the first author is originally from the town in which the tournaments took place and played in these specific tournaments as an athlete. As such, the other authors' involvement in peer debrief was invaluable to address potential biases from the lead author's pre-existing experience in these contexts. Overall, in applying depth realism to the goal of understanding parent-athlete sport-related conversations, it is important to emphasize that we are limited to interpreting parent-athlete conversations through our own subjective frame of reference (i.e., empirical domain), and inferring the psychosocial elements that underpin these experiences. Any single research study thus only offers provisional explanations that should be understood as subject to revision, context-dependent, and reflective of an imperfect understanding of the links between the real, actual, and empirical domains.

2. Results

As a result of our first analytic stage (i.e., contextualization with the ACSSES), a total of 220 50-s parent-athlete conversations (i.e., 183 min of audio, 81 pages transcribed verbatim) were gathered from either the car ride to and from competition ($n = 89$), the ice hockey arena ($n = 49$), or at "home base" (i.e., family residence of local teams and hotels for out-of-town teams; $n = 82$). Moreover, parent-athlete conversations at the ice hockey arena were collected outside of competition periods, thus revealing private conversations in a public space. Across these contexts, subsequent thematic analysis derived the following higher-order themes: (a) performance-related dialogue (i.e., instruction and feedback), (b) discussing other social agents, and (c) parental social support.

2.1. Performance-related dialogue

2.1.1. Car ride to and from competition

Conversations in the car ride to and from competition offered parents the opportunity to express their thoughts on their child's performance. Consistent with other research that has examined parent-athlete dialogue generally and in the car, parental feedback often took the form of technical instruction, positive or negative evaluations, or intrapersonal instruction. In addition, this context yielded conversations that would otherwise be sensitive to discuss in public settings. For example, the audio in the following conversation revealed a dejected reaction from an athlete in response to his father's critical commentary:

> **Father (T8, F39):** Bad goal, but you [Athlete] just don't have that grit in front of the net, that's why. **Athlete (T8, A39):** No, it wasn't on my side. Coach told me to stay on that side of the draw. **Father (T8, F39):** No, that goal they got in front of your net down at the far end today. You didn't get on the guy. You stood in front of your net and just watched him. I stood there and watched and yelled. But you can't be perfect and you're not perfect. **Athlete (T8, A39):** That was once. **Father (T8, F39):** Well that was the one goal that cost us …

Adding to this subtheme of paternal technical instruction, and similar to themes generated in previous work (Tamminen et al., 2017), another father added the following comments while his son appeared to be enduring rather than enjoying the conversation:

> **Father (T8, F39):** Yes, you were dangling. You were moving around down low trying to find something. But you have to be careful when you pass it back to your defenceman, it has to be a hard pass, right? **Athlete (T8, A39):** Yes. **Father (T8, F39):** Because it will get picked off and if you know? If those wingers play really high, then you don't pass to the defenceman, but you look to the F3 [offensive position] in the slot. Right? Because then F3 is going to back up a bit and give you a nice target, you know what I mean? If the winger is really high on the defenceman, then it is going to leave that room in the slot, right? You know where the slot is?

On a lighter note, and perhaps more productive for the parent-athlete relationship, one father opted for a more comical exchange (i.e., this conversation was noted as light-hearted and included laughter) between him and his son following competition:

> **Father (T6, F29):** I loved how you hopped over the boards onto the bench. **Athlete (T6, A29):** That looked pretty cool right. **Father (T6, F29):** That looked bad**s. **Athlete (T6, A29**): I almost s**t my pants. I thought I was right in front of all those people! **Father (T6, F29):** Nope, that looked bad**s. **Athlete (T6, A29):** I know, right? **Father (T6, F29):** You were the only one that could step over it. **Athlete (T6, A29):** Well, I was short. How do the OHL [Ontario Hockey League] players do it? **Father (T6, F29):** Looked bad**s man. **Athlete (T6, A29):** I know, right?

It appeared as though female guardians made more supportive comments than male guardians. The mother in this example chose to provide a warm and reassuring evaluation of her own child and the team's performance:

> **Mother (T8, M5):** Well don't worry, you did phenomenally. You are making it sound like you think you lost the game for us and I don't think you did at all. **Athlete (T8, A5):** Our team did. **Mother (T8, M5):** You kept us in the game and a lot of people said that, so you don't ever think that you didn't play well. You played phenomenally.

2.1.2. At the arena

As per our frequency analysis, performance dialogue occurred less frequently at the arena in comparison to the car. The following conversation occurred in the arena foyer with multiple families.

Specifically, the son's voice sounded reserved, and we anticipate that this caused the mother to change the topic in response to the father's veiled critical feedback:

> **Father (T8, F3):** Good game out there. The last game I would have given you first star, not this one. You did good in this one, don't get me wrong. **Mother (T8, M3):** Good game, Nxxxx [Athlete]. **Athlete (T8, A3):** I know, I didn't play that good. **Father (T8, F3):** But last game? **Athlete (T8, A3):** This game. **Father (T8, F3):** No, you did good, but last game you were outstanding.

2.1.3. Home base

Similar patterns of performance-related feedback were present at home. Indeed, our coding revealed that parents used the time spent at home base to provide technical and informational support. The following example is one of three (i.e., covering at least 36 min) consecutive audio files that reveal a close-knit family engaging in intellectual stimulation by analysing video footage from a previous competition:

> **Father (T4, F21):** You have the puck here. So, if you have it here you have to look and fight. Show me what you do. **Athlete (T4, A21):** I stop it here. **Father (T4, F21):** I know but show me what you're doing. Where can you go? **Athlete (T4, A21):** Middle. **Father (T4, F21):** Look at the puck. You're not there so you are basically walking into their trap.

We identified conversations where parents appeared to experience pride and enjoyment as a result of spectating their child. The following examples show the positive connotations sport-related conversations can have among families:

> **Mother (T4, M22):** I mean you played well against Pxxxxx [Opposing team] and you scored. You are going to score again. Do your best you got to battle out there and you got to be tough like you were in your first two games because you are not going to be able to sit on the sidelines here. This was a good weekend for you guys; it just shows how good you guys really are.

Similar to above, the father in this example expressed his satisfaction with his child's performance despite it being a stressful experience:

> **Father (T4, F20):** You played well in the game tonight. It was stressful. You played well bud! **Athlete (T4, A20):** Thanks.

Adding to this subtheme of paternal positive reinforcement, the father in this example offered his child reassurance regarding the team coach's perception of his performance:

> **Father (T5, F24):** He's [Coach] very happy, very happy with your playing defence. He's very happy with how fast you're getting. Better and better every day. **Athlete (T5, A24):** Okay. **Father (T5, F24):** So, don't be so hard on yourself.

Conversations uncovered that parents chose to express frustrations freely with their child hours after competition:

> **Father (T3, F16):** Suck it up, you know? You guys should not have lost that game, there's no way. You guys should play like you did in the last three minutes, do that the rest of the game – that's what you should have been doing. **Athlete (T3, A16):** We could have beat them like, ten-nothing. **Father (T3, F16):** You guys drove me nuts, I just about broke my clipboard over my knee a few times, I was losing it!

Similarly, the following father's feedback was particularly critical and succinct:

> **Athlete (T2, A10):** I'm sad we lost the tournament, should have had that. We lost in the last six minutes. **Father (T2, F10):** Five minutes. You s**t the bed. Lost focus.

In sum, our analysis revealed performance-related dialogue in the car, at home base, and at the arena. Both male and female guardians provided positive reinforcement and negative evaluations throughout the weekend tournament, however, fathers were more inclined to provide negative evaluations than mothers. In addition, performance dialogue seemed to shift in a positive direction at home base compared to the car, thus highlighting the potential benefit of refraining from this type of communication immediately following competition.

2.2. Discussing other social agents

2.2.1. Car ride to and from competition

The discussions of others while driving in the car included positive (e.g., positive evaluations and reinforcement) and negative (e.g., negative evaluations, antisocial remarks) commentary about officials, and other parents or athletes. This conversation offers a rich example of a parent dyad undermining one of their child's teammates:

> **Mother (T6, M29):** Is it just me or is Mxxxx [Teammate] scared of being hit? Keep an eye out. He's scared of being hit. **Father (T6, F29):** Surely not. **Mother (T6, M29):** He won't go and get it [the puck] when it's in the corner and he doesn't go for the guys. In any case.
>
> **Father (T6, F29):** He's as small as a mosquito. **Mother (T6, M29):** What do you mean like a mosquito? **Father (T6, F29):** Well, mosquito is a big word, but you can squish him with your finger, and you'll hear a crunch!

Similarly, another couple's frustration with their team's coach led to critical comments about a teammate's performance:

> **Father (T2, F11):** You're [Mother] going to have to have a meeting with him [Coach] and say something. Because he [Athlete] is taught to do those nice tight turns with the puck. He did some beautiful ones there. Nice tight turns, boom, leaves the guy going the other way. So, a couple of times he loses his edge and they say, "don't ever do that again or I'm going to sit you." That's total bull***t. **Mother (T2, M11):** But Pxxx [Teammate] can do that and he can score on his own net and cause the goal today and yet he doesn't get into trouble? **Father (T2, F11):** Did Pxxx [Teammate] cause a goal today? **Mother (T2, M11):** He can't even get the puck out.

In the following example, a father persisted with emphasizing the team goalie's questionable focus after his son expressed hesitation to criticize his teammate:

> **Father (T1, F9):** You've got to support each other, right? **Athlete (T1, A9):** Yes. Yes, he [Goalie] played well that game. He was good on his post and his glove. **Father (T1, F9):** He's [Goalie] not ready for the start of the game though, eh? **Athlete (T1, A9):** Well, I don't know. **Father (T1, F9):** The goalies are not ready for the start.

As an example of the potential negativity that can arise in the car following competition, this family engaged in a disrespectful conversation while having another teammate along for the car ride:

> **Mother (T5, M25):** Did you see the two teams that were on the ice when you guys got off? **Athlete (T5, A25):** No. **Mother (T5, M25):** That's the Sxxxx [Opposing Team] and Nxxxxx [Opposing Team], you guys play both those teams in two weeks' time. You're not worried about playing against Txxxx [Opposing Athlete] or Rxxxx [Opposing Athlete], are you? **Athlete (T5, A25):** Rxxxx [Opposing Athlete] is a s**t head. **Mother (T5, M25):** Yeah, he is a s**t head. **Teammate:** Who's that? **Athlete (T5, A25):** Some dumb**s.

Mother (T5, M25): He played on Xxxxx's [Opposing Athlete] team not that long ago. Like minor atom? Well, you guys were minor they were major. **Athlete (T5, A25):** I don't know, again he's [Opposing Athlete] a piece of s**t. Remember when he thought he was so good and tried to stickhandle through everyone? **Father (T5, F25):** Yeah, I do.

2.2.2. Home base

There appeared to be a tendency for conversations at home base to shift from being athlete-centred to other agents (e.g., officials, parents). This cheerful conversation revealed a family debrief of a previous competition, which led to positive remarks regarding a teammate's first goal:

Mother (T4, M21): Have you told dad about the hockey game already? **Athlete (T4, A21):** No. **Mother (T4, M21):** Ixxx [Teammate] drew a hooking penalty. I couldn't see it very well because it was right up against the boards. **Father (T4, F21):** Pxxx [Teammate] scored his first goal, he must have been so excited eh? **Mother (T4, M21):** It was kind of hard to tell. **Athlete (T4, A21):** Some people say Exxx [Teammate] got it and others say Pxxx [Teammate]. **Father (T4, F21):** Awesome!

This example illustrates a mother and father discussing their dissatisfaction with the official from their child's previous competition:

Mother (T6, M28): Did you hear him [Official] though? At one point he was like "Hey! What are you doing?" The referee, like when he did that at the beginning.

Father (T6, F28): Oh, he [Official] is an idiot. The referee today? **Mother (T6, M28):** Yeah. Use your whistle! **Father (T6, F28):** Trust me, he [Official] has no issues using his whistle. Did you not hear him blow it? **Mother (T6, M28):** No.

Our observations also captured examples of participants becoming frustrated with other parents. The couple in this example was critical of another father's conduct during a competition:

Father (T9, F41): Yeah, you know what, there's some rough kids. But this stepfather, of the kid we called up. He came over to our bench yesterday. He said, "Don't take any stupid penalties, and I didn't hear it all, I just heard bits and pieces. I went over and told him he had to leave. He comes over and tells this kid, who's actually got a lot of upside to him.

Mother (T9, M41): That's the kid you called up? **Father (T9, F41):** Yeah, but his stepfather wasn't nice.

To recap the aforementioned findings, conversations pertaining to discussions of other social agents in youth sport (e.g., coaches, athletes, parents, officials) were generated in the car and at home base. This category of conversation was not prominent at the arena, therefore revealing an effort to refrain from discussing other agents in a more public setting. Although positive evaluations of others were gathered, these conversations were predominantly critical, and parents were not hesitant to critique other athletes in the presence of their own child.

2.3. Parental social support

2.3.1. Car ride to and from competition

Our analysis found evidence of social support in the car ride to and from competition. This conversation lends a rich example of esteem support from a father offering positive reinforcement in the car ride home:

Athlete (T1, A7): Our line has been doing really good. **Father (T1, F7):** Yeah, perfect! **Athlete (T1 (A7):** They're starting from the blue line, but not, not right now. **Father (T1, F7):** Interesting. Keep working together. Keep talking. **Athlete (T1, A7):** Did you see me work on the two guys in the corner? **Father (T1, F7):** I did, yeah. The high guys right stick on the ice.

2.3.2. At the arena

Parents also provided varying amounts of support (i.e., tangible, technical, esteem, and emotional) at the arena. This often took the form of parents aiding in match preparation, or discussions regarding potential tournament standings and outcomes. This particular audio file began with a mother and father offering tangible support by checking in on the condition of their child's skates. However, the conversation quickly transitioned to technical instruction and validation of antisocial behaviour:

Father (T2, F13): How are your skates? Are they good? **Athlete (T2, A13):** Yeah. **Father (T2, F13):** Skate hard, shoot hard, keep your head up right. And you know on the penalty kill, when you're on the penalty kill, don't bother going for the hit. **Athlete (T2, A13):** Thank you. **Father (T2, F13):** Right, no hitting on the penalty kill. Unless the guy is begging for it, right? **Mother (T2, M13):** Umm, yeah work hard okay. **Father (T2, F13):** Watch out for number 77 [Opposing Athlete]. **Mother (T2, M13):** Yeah, number 77, be careful of him. If you need to take him out, take him out, okay?

Conversely, some conversations offered displays of esteem support towards others outside of the family unit. In this example, the mother appeared to enjoy watching two unaffiliated teams compete, but her child did not share her interest:

Mother (T8, M5): Help him out, help him out, help him out! **Athlete (T8, A5):** Uh, why did I go to this game? **Mother (T8, M5):** Why? **Athlete (T8, A5):** Because you're loud, it's cold, this is boring, and I have nothing to do. **Mother (T8, M5):** This is not boring for your mother. **Athlete (T8, A5):** Well, I am not playing so that is why it is boring to watch probably.

Relatedly, some parents appeared to be so invested as spectators that they ignored some important sentiments from their child and effectively missed opportunities to provide meaningful emotional and esteem support. In this example, a young goalie attempts to convey that he virtuously asked his coach to share playing time with his fellow goalie; however, the mother's tone in the audio file suggested annoyance and disinterest:

Mother (T8, M5): Go Lxxxx [Opposing Athlete] go! Go Sxxxx [Opposing Athlete]! **Athlete (T8, A5):** I was nice, and I talked to … Mom? Mom? Mom? I was nice and I talked to Coach, and Cxxxx [Other Goalie] is playing half of the next game. Mom? Mom? Uh? **Mother (T8, M5):** Why? **Athlete (T8, A5):** Because I wanted him to play. Mother (T8, M5): But what if it is not a good game? **Athlete (T8, A5):** Well then Coach will know if it is not a good game. **Mother (T8, M5):** Well, is that what he said? **Athlete (T8, A5):** Well, if we're winning then he can go in.

2.3.3. Home base

As one would expect, conversations at home base appeared transparent and revealed the various roles that parents adopt in youth sport. In this innocuous example, one athlete wanted to assure his mother would be prepared to adopt the role of photographer in the event of a championship:

Athlete (T7, A36): And mom, if we do win the finals and they let parents come on the ice for pictures, I really want you to. **Mother (T7, M36):** Okay, what's that bud?

Athlete (T7, A36): So, if we do win and parents are allowed on the ice for pictures, can you please come take some? **Mother (T7, M36):**

Sure. **Athlete (T7, A36):** Like, of me, you know? **Mother (T7, M36):** Sure, sure, sure, sure.

Parents also played an important role in managing the busy weekend schedule by offering informational support:

Father (T6, F32): Alright. Make sure all your stuff is ready to go because it's early tomorrow and we will be up at six eh? **Athlete (T6, A32):** Yes. **Father (T6, F32):** So, we will have to be on the road by 7:00am. **Athlete (T6, A32):** Be there at 7:00am. **Father (T6, F32):** Yeah, maybe if we start packing up the car at 6:45am.

Conversations between parents and athletes offered evidence of social support from real behaviours. Indeed, our analysis generated examples of esteem, informational, and tangible support in all three contexts under investigation.

2.4. ACSSES frequencies

Among the 220 audio files, 148 include paternal communication and 121 include maternal communication. Fathers ($n = 10$) and mothers ($n = 8$) provided a positive performance evaluation of their child at a similar frequency. With regard to more general positive reinforcement and encouragement (i.e., not particularly focused on performance), mothers provided encouragement more often ($n = 11$) when compared with fathers ($n = 4$). In contrast, although relatively less than positive evaluations, fathers and mothers provided a negative performance evaluation of their child with similar frequency ($n = 3$ and $n = 2$, respectively). The only instances of verbal aggression ($n = 2$), parental withdrawal ($n = 1$), and parental invalidation ($n = 1$) towards their own child came from fathers, although such instances were rare and only appeared in private contexts (i.e., home base or in the car). Among the 15 audio files that contained technical instruction from a parent, fathers were more likely to provide instruction ($n = 13$) compared with mothers ($n = 3$). Additionally, technical instruction was predominantly offered at home base ($n = 7$), followed by the car ($n = 6$), and the hockey arena ($n = 2$). Lastly, 21 audio files were returned with negative discussions about other agents and appeared slightly more frequently from mothers ($n = 12$) than fathers ($n = 9$). These negative discussions took place at home base ($n = 9$), in the car ($n = 7$), and at the hockey arena ($n = 5$). Conversely, 22 audio files contained positive discussions about other agents, and appeared more for mothers ($n = 12$) than fathers ($n = 10$). The positive comments appeared at home base ($n = 11$), in the car ($n = 7$), and at the hockey arena ($n = 4$). Subcategories of social support were more difficult to capture quantitatively.

3. Discussion

The purpose of this study was to explore parent-athlete conversations as they naturally occurred in social contexts that surrounded sport. Considering the growing body of literature examining parent-athlete communication in sport, we provided novel insight by gathering social discursive interactions in real time (i.e., EAR). As a result, the current study yielded primary themes of (a) performance-related dialogue; (b) discussions of other social agents; and (c) parental social support. Our findings support previous literature by providing evidence of substantive conversations about athletes' sport experiences in private settings (Dorsch et al., 2009; Tamminen et al., 2017). Our findings also illustrate that privately discussed topics may involve negative evaluations of other sport participants—a reality that participants may not otherwise self-report (i.e., response bias). In addition, the findings also extend the literature by providing rich examples of social support through observable behaviours.

The timing and settings where parents deliver performance-related feedback to their children has been discussed in previous work (Elliott & Drummond, 2017; Tamminen et al., 2017). For instance, Elliott and Drummond (2017) suggest that athletes may prefer certain types of behaviours from their parents before, during, and after competition. Specifically, athletes prefer their parents to focus on physical and mental preparation before competition. During competition, athletes hope their parents maintain a relaxed demeanor and offer positive and encouraging feedback. After competition, athletes prefer their parents to refrain from any feedback until the team has had the opportunity to process the previous competition outcome (Elliott & Drummond, 2017). As observed in the EAR audio recordings, both critical and complementary performance-related feedback appeared in conversations immediately after competition throughout the weekend tournament.

A noteworthy finding was the consistency with which parents and athletes critically discussed other social agents, particularly teammates and coaches from their own team, in private settings. Once parents and athletes were in the privacy of their vehicle, home, or hotel room, their conversations included negative evaluations of other athletes, coaches, and parents. In the first study to examine parent-athlete conversations during the car ride home (Tamminen et al., 2017), participants spoke to the idea of carefully timing critical feedback to maintain the public perception of a responsible parent. The audio recordings from our study reveal the extent to which parents will not only critique their own child, but their child's teammates as well. In fact, some audio files revealed athletes defending their teammates in response to their parents' negative evaluations. For parents, it is important to reflect on the impact that such evaluations may have on young athletes. Speculatively, parents may believe they are emanating good parenting by reserving these conversations for private settings, and therefore may even encompass a degree of trust among family members. As such, it is clear that parents perceive the privacy of the car or home base as an opportunity to express themselves freely with regard to other agents in youth sport, a trend that may appear in other achievement contexts (e.g., education).

Another important finding was the evidence of social support in actual behaviours undertaken. Indeed, the EAR gathered examples of informational, esteem, and tangible support between parents and athletes in the car, at the ice hockey arena, and at home base (Rees & Hardy, 2000). Specifically, some parents offered informational support by providing guidance and advice related to competition (e.g., technical instruction; Rees et al., 2007). Tangible support was evident from parents as they provided concrete assistance in competition preparation (e.g., skate sharpening). With regard to esteem support, some parents attempted to raise their child's competence and self-esteem through positive reinforcement and encouragement. Further, although most instances of social support were in the form of parents providing support to their own child, some conversations uncovered parental esteem support to unfamiliar athletes. Indeed, our audio recordings revealed parents cheering while spectating two outgroup teams (i.e., teams other than their own). Therefore, parents' enjoyment with regard to spectating does not appear to be dependent on having a child of their own engaged in competition. In sum, these findings provide evidence of social support in actual behaviour, and therefore highlight the utility of the EAR for more focused research questions on social supportive behaviours in youth sport parents.

A final and noteworthy finding was an apparent difference between the feedback expressed by male and female guardians in the current study. In line with our hypothesis, performance-related feedback (i.e., technical instruction) was more often voiced by fathers, whereas positive reinforcement and words of encouragement were more prevalent from mothers. In relation to previous literature, participants in Tamminen et al.'s (2017) study discussed that fathers may refrain from providing critical feedback when the mother is present in the car ride home. As one potential explanation, several studies have noted that organized sport represents a salient context for fathers to exhibit sport-related competencies and engage with their child outside of the home (Coakley, 2006; Gottzén & Kremer-Sadlik, 2012; Kay, 2007). Therefore, although sometimes framed as critical, the opportunities to provide performance-related feedback to their child may be particularly valuable for many sport-fathers' wellbeing (Kay, 2007). Though

tangential with respect to the aim of this study, these secondary findings provide some insight into potential role differences with regard to parental communication in youth sport and offer an opportunity for future research designs.

There are limitations and future directions to be discussed. First, this study is limited in that it was not underpinned by theory. Calls have been made to use family theories in the context of parent-athlete communication in sport (Grimm et al., 2017). Most notably, family communication patterns theory (FCP; Koerner & Fitzpatrick, 2006) has much to offer the study of parent-athlete communication; however, the design and scope of the current study did not allow for the appropriate assessment of conversation orientation and conformity orientation in relation to athlete outcomes (Koerner & Fitzpatrick, 2006). Additionally, the conversations were gathered on mobile devices programmed to collect 50 s of audio every 12.5 min, over the course of 12 h per day, for three days. Each device sampled 144 min (approximately 48 min of audio per day across three days). Therefore, a significant amount of relevant content was likely unobserved during the weekend tournament. Although the specific sampling procedures were set based on previous EAR research (e.g., Slatcher & Robles, 2012), future studies may consider a protocol in which additional data are sampled (e.g., more devices per team, more frequent recordings) while still preserving the rigorous ethical standards warranted by this type of research (for a review, see Robbins, 2017). Furthermore, pairing the EAR with additional methods may provide a deeper understanding of communication patterns in sport. For example, similar to photo elicitation methodology (Harper, 2002), researchers could retrospectively play audio recordings for participants and allow them to provide additional context for a specific moment. This would be particularly fruitful for examining athletes' perceptions of their parents' feedback during competitions.

Research methods that depend on the functionality of mobile devices and applications can be an arduous endeavour. For example, if participants did not remember to charge their device overnight and allowed the device to shut down, the mobile application would close, and all data were lost. As such, potentially meaningful conversations were missed despite sending daily reminders to participants and assigning chaperones to each team. Although difficult to control, future research using EAR technology may consider using protective cases that also serve as a back-up energy source. Moreover, the findings from this study serve as a starting point for quantitative investigations of parent-athlete communication in sport using EAR technology, and point to the meaningful contributions the EAR can offer for communication research with other agents (e.g., coach-athlete and coach-parent dialogue). As one example, the EAR may offer advantages to studying family interactions in aesthetic sports (e.g., gymnastics, dance, figure skating). These contexts often require families to spend considerable amounts of time aesthetically preparing the athlete for competition, and therefore the EAR would allow investigation of family communication patterns regarding body image (Francisco et al., 2013). Similarly, EAR methodology could be used to better understand how parental communication patterns impact athlete outcomes (e.g., indicators of wellbeing, motivation, engagement in sport).

Practically, the findings from the current study will serve future intervention work with youth sport parents. Although parents consider performance-related feedback and technical instruction as part of their role, the literature is mixed with regard to athletes' preferences of receiving feedback from parents, and therefore educating parents around timing of feedback should be considered (e.g., Elliott & Drummond, 2017; Tamminen et al., 2017). Moreover, recent qualitative findings from Azimi and Tamminen (2019) found that reflective practice (i.e., a self-development intervention that aims to evaluate and reconstruct one's ideas; Moon, 2013) could increase parents' awareness of their communication patterns with their child. The implications of such awareness include a shift in parents' perceptions of their role in youth sport, and in turn, encourage the practice of critical self-evaluation (Azimi & Tamminen, 2019). Together, future intervention work may consider reflective practice while also educating parents on the value of timing their performance-related feedback.

In conclusion, this study provides insight with regard to parent-athlete communication in youth sport. We used an innovative methodology to gain access into unexplored contexts in youth sport that otherwise would be difficult to obtain while preserving participants' uninhibited behaviour. Our findings demonstrate both adaptative and maladaptive patterns of communication from parents, which appeared to differentiate based on the dichotomy of private and public contexts. We hope that our findings encourage researchers and practitioners to use the EAR to address novel questions in youth sport, including those relevant to parent behaviour.

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Declaration of competing interest

We report no conflicts of interest for this study.

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