

**Obsessive Passion in Youth Hockey Parents: Relationships with Need Satisfaction and
Verbal Aggression toward Officials**

by

Julie F. Brodeur

A Thesis submitted to the Faculty of Graduate Studies of

The University of Manitoba

In partial fulfilment of the requirements of the degree of

MASTER OF ARTS

Faculty of Kinesiology and Recreation Management

University of Manitoba

Winnipeg

Copyright © 2022 by Julie F. Brodeur

Abstract

Verbal aggression toward officials in hockey is a problem. Parents are generally thought to be perpetrators of much of this verbal aggression. Obsessive passion toward being a hockey parent may be a reason for referee abuse. Obsessive passion, as defined in the dualistic model of passion, has been shown to predict various maladaptive outcomes, of which verbal aggression toward referees may be one. In line with the need-density hypothesis, obsessive passion may be a result of unmet needs in general which are instead met within the activity of being a hockey parent. Relying on basic need satisfaction theory, the need-density hypothesis, and the dualistic model of passion, this study examined the relationships between unmet needs inside and outside of the activity of being a hockey parent and obsessive passion, as well as the relationship between obsessive passion and verbal aggression toward officials. I distributed an online survey to Canadian hockey parents ($N = 941$; 75% female, $M_{age} = 41.8$ years, $SD = 6.2$ years) that asked them about their psychological needs met in general and needs met by being a hockey parent, level of obsessive passion, and verbal aggression toward officials. Path analysis was used to examine the relationships among the variables. I found that obsessive passion strongly predicted verbal aggression toward officials ($b = .506, p < .001$), and that obsessive passion was negatively associated with needs met in general ($b = -.172, p < .001$) and had no relationship with needs met while being a hockey parent ($b = .004, p = .902$). Finding no relationship between needs met by being a hockey parent and obsessive passion contradicts findings by other authors on the compensatory nature of obsessive passion. These findings enhance our understanding of both the role of obsessive passion in hockey parenting and the antecedents of verbal aggression toward officials.

Key words: aggression toward officials, basic psychological needs, hockey parents,
passion

Acknowledgements

I would like to thank Dr. Ben Schellenberg for his inspiration, guidance, and support throughout this project. Without his steadfast and calm demeanor this project would not have been completed. Ben, you are a fantastic researcher and an inspiration to other researchers out there. Also, a big thanks for talking me down from freaking out over 1600+ participants and how would I ever manage to wrangle all that data! A big thank you to my committee members, Dr. Jay Johnson at the University of Manitoba, and Dr. Katherine Tamminen at the University of Toronto; your questions, comments, and curiosity pushed me to examine my project in directions I had not ever thought of.

A thank you to the lab group, even though we could not meet in person, to know you were all there, just a Teams meeting away was helpful. Practicing and showing preliminary results, and the discussions that ensued were all useful in helping me to understand how to interpret my findings.

Thank you to my family. For the grace to spend hours in my office and to lose myself in countless articles, and to your ability to help me cut through the noise to see what parts of this project were important. Thanks for your support to complete this project as a piece of me separate from my role in our family.

I'd also like to acknowledge the support of Research Manitoba and the Faculty of Kinesiology and Recreation Management. The financial support of these organizations helped to make the time spent researching a bit easier on our family finances.

Table of Contents

Abstract	ii
Acknowledgements	iv
List of Tables	vii
List of Figures	viii
Obsessive Passion in Youth Hockey Parents: Relationships with Need Satisfaction and Verbal Aggression toward Officials	1
Aggression, Abuse, and Violence	2
Passion.....	3
Hockey Parents and Passion	3
Passion Dimensions	5
Passion, Sports Fans, and Aggression	6
Need-Density Hypothesis.....	8
The Current Research.....	11
Method	12
Participants	12
Measures.....	13
Psychological Need Satisfaction.....	13
Passion Types.....	17
Verbal Aggression Toward Officials	17

Quality Control	18
Data Analysis	18
Results.....	19
Preliminary Analyses	19
Path Analysis.....	19
Discussion	22
Passion and Verbal Aggression.....	22
Need Satisfaction and Passion	24
Limitations	27
Implications and Future Directions	28
Conclusion	30
References	32
Appendix A.....	43
Appendix B	49

List of Tables

Table 1 Demographic Variables	15
Table 2 Means, Standard Deviations, and Correlation Matrix of Variables of Interest	20

List of Figures

Figure 1 The Hypothesized Model	11
Figure 2 Exclusion Flowchart for Data Set.....	14
Figure 3 Path Model.....	21

Obsessive Passion in Youth Hockey Parents: Relationships with Need Satisfaction and Verbal Aggression toward Officials

Abuse of game officials has been a problem in youth sport for many years (Hamilton-McCharles, 2018; Lang, 2019; Lillicrap, 1975/2020). Over the last number of years, Hockey Canada has reported a decrease in the number of registered officials (Hockey Canada, 2014, 2015, 2016, 2017, 2018) from a high of 32,233 in 2015-16 to the most recent number of 30,641 in 2018-19. This is not a problem only in hockey. Hector Vergara, executive director of Manitoba Soccer Association, has indicated that official abuse is the cited reason in 30% of the cases where officials leave the game (personal communication, October 15, 2020). In 2017 the National Association of Sports Officials surveyed 17,000 officials and almost half the respondents indicated that they had felt unsafe due to others' behaviours in the sport (National Association of Sports Officials, 2017). In 2019, Sport Manitoba attempted to bring awareness to the issue of official abuse and the declining numbers of officials with a campaign entitled: "No ref, no game". This campaign was intended to remind spectators, players, and coaches that without a referee there is no game. As well, recently a campaign organized in the Ottawa region required hockey officials under the age of 18 to wear a green arm band to remind fans, most of whom are parents, about the age of the officials and to tailor their behaviour as appropriate (CBC News, 2021).

The purpose of this study was to understand why some hockey parents express verbal aggression toward officials. Some hockey parents may be more prone to verbal aggression toward officials and this study aimed to gain insight into the factors that may be contributing to this harmful behaviour. In this study the link between obsessive passion (OP) and verbal aggression toward officials (VATO) was examined. Other research (Bélanger et al. 2019, 2020;

Donahue et al., 2009; Goldstein & Iso-Ahola, 2008; Philippe et al., 2009; Rip et al., 2012; Vallerand, 2015; Vallerand et al., 2008) has shown that OP can be a predictor of aggressive and extreme behaviours. I posited that OP will predict greater VATO in Canadian hockey parents. Moreover, since VATO is such a problem in Canadian youth hockey, it is important to understand where OP arises in hockey parents. In line with the need density hypothesis (e.g., Lalande et al., 2017), I examined the source of passion through the satisfaction of basic psychological needs, both in general and in the context of being a hockey parent. I hypothesized that those whose needs are not met in general, but are met in the activity of being a hockey parent, will tend to have higher OP for being a hockey parent.

Aggression, Abuse, and Violence

Officials often suffer abuse at the hands or, more realistically and frequently, at the voices of spectators. A number of researchers investigating official abuse across a number of sports (Giel & Breuer, 2020; Gillu e et al., 2018; Jacobs et al., 2020; Webb et al., 2020) indicate that official abuse is a long standing and large problem. The majority of research generally focuses on the abuse from the officials' standpoint (Ackery et al., 2012; Cleland et al., 2018; Forbes & Livingston, 2013; Webb et al., 2020) and not on the perspective of parents, players, or coaches.

For this study, it was important to distinguish three terms that are often used somewhat interchangeably: violence, aggression, and abuse. The difference between violence and both aggression and abuse are stark. Violence implies that physical force is used with the intention to hurt or damage someone or something (Merriam-Webster, n.d.). Aggression, on the other hand, has been described as the intention to cause harm to another person or to achieve a particular outcome; often aggression is the result of frustration (Berkowitz, 1989). Aggression in sport has

been defined by Loughead and Dorsch (2021) as consisting of verbal or physical behaviour with the intent to cause physical or psychological harm to another living being. Loughead and Dorsch provide both examples of aggressive behaviour (e.g., the Todd Bertuzzi sucker punch to Steve Moore in a 2004 NHL game) and examples of assertive sport behaviour (e.g., a volleyball player exhibiting forceful behaviour without intention to cause harm to anyone). Aggression can be labeled according to the goal of the aggression outcome. If the goal is to intentionally harm another person, then the behaviour is considered hostile. If the aggression is performed to reach some other goal, then the aggression is instrumental. Finally, abuse, according to the APA dictionary of psychology (American Psychological Association, n.d.), encompasses behaviours where one person behaves cruelly, violently or in a demeaning way toward another. Most often abuse is synonymous with physical abuse, but can also include other types, such as psychological, emotional, or sexual abuse.

This study focussed on verbal aggression as directed toward on-ice hockey officials. In this study, verbal aggression was defined as the act of verbally attacking, yelling or swearing directed toward an on-ice official. Based on the prevalence and impact of verbal aggression toward officials (see Giel & Breuer, 2020; Gillu  et al., 2018; Jacobs et al., 2020; Webb et al., 2020) it seems that this was the most relevant and important type of aggression to study.

Passion

Hockey Parents and Passion

Parents of athletes invest a lot of time, effort, energy, and resources into their child's sport. People choose activities they love, value, and identify with to become passionate about. These investments of time and money into the activity of being a hockey parent describe parents who are passionate about being a hockey parent. Additionally, the marketplace is rife with items

that proclaim a love for being a hockey parent, such as the ubiquitous “Hockey Mom” or “Hockey Dad” mugs and t-shirts. Being a hockey parent is thus a passion for many people.

Evidence of the investment hockey parents put into being hockey parents has been obtained through a variety of surveys and collected data. A 2018 study by Flip Give and Scotiabank Hockey Club (FlipGive, 2019) showed that almost 60% of parents reported spending more than \$5,000 per year on hockey. As well, almost 90% indicated this cost was worrying with 68% taking fewer vacations, 35% taking on more personal debt, and 26% taking on a second job or overtime at a current job to help with the associated costs. The financial dedication to children’s hockey is a key indicator of parental involvement, however it does not speak to the emotional or time commitment involved.

Time commitments for youth hockey are large and are another way to show that being a hockey parent is often considered to be a passion. Hockey Canada advises that for a player in a House league, a less competitive league more focused on development, a time commitment of 3 hours per week can be expected. For a player in a Rep league, a more competitive league with a greater focus on more advanced skill and more elite players, the time commitment could be 6 – 7 hours per week. These figures do not include the time required for travel (Hockey Canada, n.d.). The Hockey Canada web page makes no mention of the time to travel to and from the arena, the time required to have the player at the arena pre game or pre practice, the length of time the child will spend socializing with teammates before and after practices and games, plus the time commitments to fundraise, travel to and from tournaments, and the amounts of time spent on acquiring and attending to equipment. In addition, there is no mention of the time commitment to additional practices for shooting or skating or extra training that some children may be attending. Any of the extras are over and above the Hockey Canada estimates of time and can be

considerable. All of this shows that parents are a vital and heavily invested part of youth hockey. It would stand to reason that these parents could be considered as being passionate for being a hockey parent.

Passion Dimensions

According to Vallerand et al.'s (2003) dualistic model of passion (DMP), passion can be of two types: harmonious passion (HP) or OP. People develop passion for activities they love, spend a great amount of time on, value or care deeply about, and that can be a part of their identity. It is in the internalization of these activities to one's identity that HP or OP can develop. A harmonious, autonomous integration into a person's life leads to HP where the activity is in balance with the person's life, whereas a controlled internalization leads to OP and a more rigid adherence to the activity by the person. An autonomous integration of an activity can be facilitated by the environment that the activity is engaged in, by others supportive of a person's involvement in the activity, and by a person's own attitudes toward the activity as well as any setbacks or failures within the activity. HP is characterized by autonomous functioning within an activity and positive outcomes such as enjoyment or social interaction, learning and enrichment of one's life (Curran et al., 2015; Vallerand et al., 2003). OP, on the other hand, is more associated with a controlled integration into a person's life with generally more maladaptive outcomes. The more controlled integration indicates a rigid adherence to the activity, in spite of the negatives that come along with this type of activity engagement. Outcomes of passion tend to be of two types divided along the lines of the DMP. For those who score higher in HP, outcomes tend to be positive and adaptive, whereas for those who score higher in OP, outcomes tend to be less positive and more maladaptive (Curran et al., 2015; Lafrenière et al., 2012; Schellenberg, Bailis, et al., 2013; Vallerand, 2010; Vallerand, 2015).

Passion, Sports Fans, and Aggression

Passion and sport fans have been a focus of researchers over a number of years. Vallerand et al. (2008) found fans to be passionate about the sports and teams they cheer for. A collection of research by Schellenberg and Gaudreau (2020), Schellenberg, Verner-Filion, and Gaudreau (2020), and Vallerand et al. (2008) indicate that people can be passionate as fans for sport. People who indicate passion for sport indicate that they love the activity, invest time, effort, and energy into being a fan, and that they identify as a fan. The authors of studies on fans have found that fans can be both HP or OP for being a fan and that fans experience the outcomes associated with HP or OP; HP tends to predict adaptive outcomes whereas OP tends to predict maladaptive outcomes. For example, Vallerand et al. (2008) found that OP for being a fan of a football (soccer) team was predictive of outcomes ranging from hating opposing team fans, mocking the fans of opposing teams, and poor personal relationships. When fans experience good times while supporting teams (e.g., a team championship), those with high OP tend to dampen their good feelings about these positive events (Schellenberg et al., 2020; Schellenberg & Gaudreau, 2020). This could be a factor in why OP tends to predict less adaptive outcomes in sports fans.

Hockey parents who yell at officials may be expressing a maladaptive behaviour as a result of the OP they experience for being a hockey parent. Vallerand (2010) reviews passion and its outcomes relying on the DMP. Overall, OP is associated with maladaptive outcomes in cognitive processes, affect, psychological well-being, addictive behaviours, physical health, and performance. The tendency for maladaptive outcomes when someone has high OP for an activity, across many domains, leads to the idea that hockey parents with high levels of OP for being a hockey parent may partake in verbal aggression toward officials more than those with low levels of OP for being a hockey parent. For example, in a study of basketball players, those

with high OP reported being more aggressive toward opponents (Donahue et al., 2009), especially when their identity was threatened. As well, people who expressed high OP for driving were also more likely to report exhibiting aggressive driving behaviours when faced with a driving incident where their progress was hampered (Philippe et al., 2009). In each of the studies by Donahue (2009) and Philippe et al. (2009), the authors note the connection between the obsessive passion for an activity and aggressive behaviours.

People who exhibit OP for activities often over rely on the activity for life satisfaction and self-esteem (Vallerand, 2015). This is because, with OP, a person's ego invested self is engaged and people with high OP may experience insecurity and greater perceived threats to the self (Vallerand, 2015). When that activity is removed or thwarted, or the person's ego is threatened, the person can become aggressive or tend toward less socially desirable behaviours. For example, Bélanger et al. (2019, 2020) found that OP about political actions, like environmentalism or radical political groups, predicted greater radicalization and tendencies to display violent behaviour. Other examples of ego threats leading to aggressive behaviours or violence are given in work by Goldstein and Iso-Ahola (2008) and in Rip et al. (2012) where threats to a person's ego or identity led to violent or aggressive behaviours. In Goldstein and Iso-Ahola's (2008) work they found a connection between ego defensiveness and sport parent aggression. These authors looked specifically at sport parents in the moment of play and found strong indications for officials being the source of parents' anger and the target of their aggression. Rip et al. (2012) found that when a person with high OP experienced identity threat, this led to greater hatred and extremism. Bélanger et al. (2019) also found that when extremists were obsessed with their activity, their ability to override other competing goals was impacted and they were more apt to engage in violent behaviours.

It could be conceivable that hockey parents could be similar to extremists in that the goal of winning could be superseding all other goals. Among hockey parents, there could be a link between OP and extreme behaviours, like verbal aggression, toward officials, who can be perceived as the source of parents' anger (Goldstein and Iso-Ahola, 2008). As an example, suppose that there is a hockey parent, Chris, who has high levels of OP for being a hockey parent. While at their child's game, a call for a penalty is made against their team. If Chris perceives this to be a poor call, they are likely to consider it as a threat to their ego. As a result, Chris lashes out and yells at the official. In this case, Chris's high OP for being a hockey parent has led to them lashing out with VATO. Therefore, given both the theoretical and empirical connection between OP and aggressive tendencies, I hypothesized that OP among hockey parents would be positively associated with verbal aggression toward officials.

Need-Density Hypothesis

Hockey parents displaying high OP are likely to experience maladaptive outcomes, including greater levels of verbal aggression toward officials. But where does the OP for being a hockey parent come from? Currently there is not a lot of research on the determinants of OP. This study will examine the need-density hypothesis (Rigby & Ryan, 2011) as a factor in the development of OP.

Need density hypothesis is based on basic psychological needs theory, one of the mini-theories of self-determination theory (Ryan & Deci, 2017). According to basic psychological needs theory people have three basic psychological needs essential to human well being. Basic psychological needs, defined by Ryan and Deci (2017) as essential for the growth and development of people include the needs for autonomy (a sense of one's own choice), competence (a sense of accomplishment in one's life), and relatedness (a sense of connection and

belonging with others). Ryan and Deci suggest that without these three needs being fulfilled, people will have difficulties integrating aspects of their lives in order to achieve optimal health and well being.

The need density hypothesis predicts that an activity meeting the psychological needs of a person will be more readily adopted and highly valued by that individual. Rigby and Ryan (2011) developed the need-density hypothesis in the domain of video gaming. Their premise was that some people turned to video gaming as a way to have basic psychological needs of autonomy, competence, and relatedness met within the video game world, while these same needs were unmet elsewhere. They theorized that these same people had their psychological needs unmet in their day to day lives while the video game world fulfilled those needs. A consequence of having unmet needs in general that were being met while playing video games is that people turned to video games to the point of exclusion of other aspects of their lives. That is, the combination of unmet needs (in general) and met needs (within the activity of playing video games) predicted greater obsessive tendencies.

Researchers have started to adopt the need density hypothesis to explain why some people become highly obsessively passionate toward activities. Lalande et al. (2017) looked at passion type development both within and outside of a specific activity along the lines of met and unmet needs. They were particularly interested in the over reliance on the passionate activity in order for people to have their needs met and that the over reliance would be experienced as OP for the passionate activity. Over a number of domains, they concluded that unmet needs outside of an activity led to higher levels of OP inside of an activity and that OP could be a compensatory mechanism for those unmet needs elsewhere. Johnson et al. (2021) continued the examination of the idea of basic psychological needs being met in general and

within activities as precursors to OP and HP. Similar to Lalande et al.'s research, they found that low satisfaction of needs in general predicted greater OP for videogaming. Holding et al. (2021) found a similar outcome to Lalande et al. (2017) and Johnson et al. (2021), in that when looking at people experiencing gambling addiction, they found low general need satisfaction predicted greater OP. However, in all the studies (Holding et al., 2021; Johnson et al., 2019; Lalande et al., 2017), needs satisfied within the activity predicted greater levels of both HP and OP; only OP was positively predicted by low need satisfaction in life in general.

Need satisfaction plays a role in the development of passion. Both needs inside of an activity and needs outside of an activity have been shown to be important in this development (Lalande et al., 2017; Vallerand, 2015). Using the need density hypothesis, it is reasonable to assume that some hockey parents do not have their psychological needs met in their day-to-day living, but those same needs are fulfilled through the activity of hockey parent. It is likely that these same people may develop OP for the activity of being a hockey parent. Returning to the example of Chris the hockey parent, we can suppose that Chris's needs in general are unsatisfied, but their needs are satisfied through being a hockey parent. Chris finds autonomy, competency, and relatedness in the role of hockey parent through activities like driving to practices, analysing statistics, searching out the best skate sharpener in town, discussing game strategies and team performance with the other parents. Chris does not find that these same needs are satisfied in other areas of their life. In this way, Chris becomes invested with being a hockey parent to the point of obsession.

This study examined the development of the passion of hockey parents via needs satisfied both within and outside of the activity of being a hockey parent. I hypothesized that OP toward being a hockey parent is negatively associated with basic psychological needs being met in

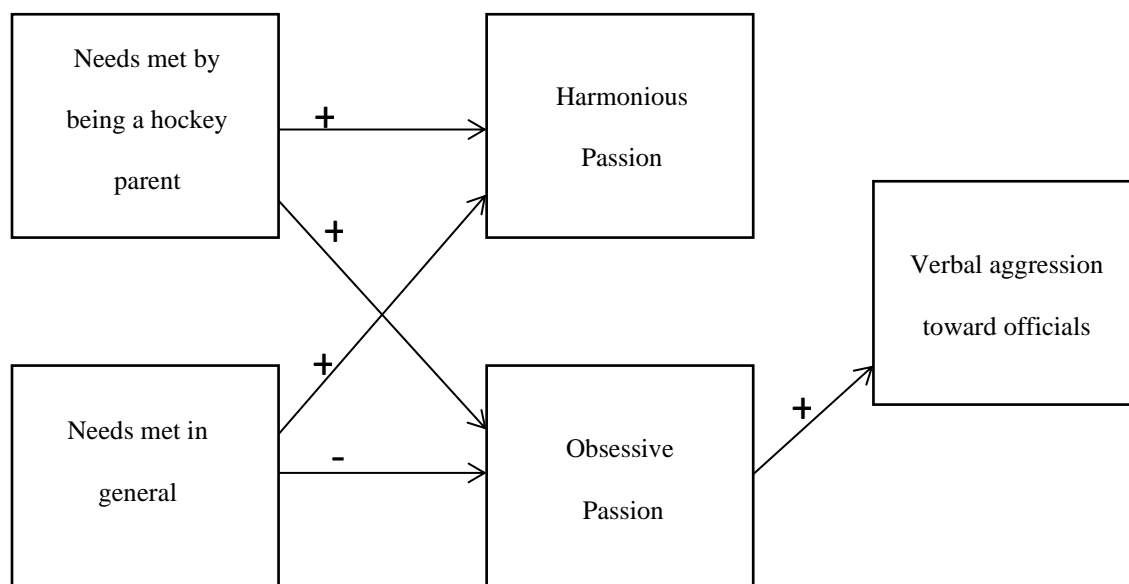
general, but positively associated with basic psychological needs being met by being a hockey parent. Conversely, hockey parents whose basic psychological needs are met in general and met by being a hockey parent should score higher in HP.

The Current Research

The goal of this research was to examine links between OP and verbal aggression toward officials in Canadian youth hockey parents, as well as link between OP and psychological need satisfaction, both in general and in the context of being a hockey parent. A cross-sectional online survey was administered between November 2021 and December 2021 to a sample of 992 participants. Ethics approval from the University of Manitoba Research Ethics Board was obtained prior to data collection. A copy of the consent form is included in Appendix A. All participants provided informed consent to take part in the survey and were compensated with the chance to win one of five, \$50 Amazon.ca gift cards. A conceptual model is shown in Figure 1 of the hypothesized relationships between the variables.

Figure 1

The Hypothesized Model



Method

Participants

Participants were recruited using two methods. First, an email was sent to publicly available email addresses of local hockey organizations in the Province of Manitoba. In this email, the presidents or chairpersons of the local organizations were asked to forward a request to their members for participation in the survey. Second, an advertisement campaign aimed at hockey parents across Canada was implemented via the University of Manitoba Faculty of Kinesiology and Recreation Management Facebook and Instagram accounts (UMKINREC). In this campaign, people were asked if they were interested in participating in an online survey about their feelings about being a hockey parent. These two recruitment methods resulted in two live radio interviews about the study on “The Start” morning program on CJOB (McNabb, 2021) and on CBC Radio Manitoba’s “Information Radio – MB” (Markusa, 2021). These two interviews likely enhanced participation rates in this study.

A Monte Carlo power analysis (Schoemann et al., 2017) was carried out to determine the sample size for this study. Using a requirement to obtain medium effect size plus a 5% contingency for missing or outlying data, a sample of $N = 442$ was needed. A total of 1630 participants responded to the survey over the recruitment period, a much larger number than had been anticipated. The large number of participants raised questions concerning data quality and the potential that some participants were bots. Bot participants are automated responders to online surveys. For more on bot detection in this study and how to handle bots in future work see Appendix B. To deal with these concerns, stringent exclusion criteria were used. An initial round of exclusions removed any participants with duplicate emails ($N = 13$). The next criterion for exclusion was to eliminate participants from the analyses if they completed less than 50% of

the survey items ($N = 528$). Using a criterion of less than 50% completion rate was a way to eliminate suspected bot participants from the large pool of survey responses, or participants who may not have been engaged in the study and who may have responded carelessly. Next, those participants who were completely missing responses to any one scale of the study ($N = 14$) were excluded because it was a prudent way to deal with responders who may not have been fully engaged in the survey. Then, those who did not answer “yes” to the quality control item (“Did you answer the questions on this survey honestly?”) were excluded ($N = 33$). Finally, those who did not have four out of five correct answers on the conscientious responder scale ($N = 50$) were excluded. This scale is discussed in the Measures section in more detail. The use of four out of five correct responses as an inclusion criterion was a conservative figure to exclude anyone who may not have been a true and engaged participant. Figure 2 shows an exclusion flow chart for the study. Final analysis included 992 participants.

Demographics of the participants and descriptive statistics are shown in Table 1. Most (58%) of the respondents indicated they lived in the Province of Manitoba. The participants mostly identified as having a White ethnic background (83%), with the two next most identified groups being Indigenous (8.5%) and Metis (3.8%). Most participants were female (75%) and most (57%) of the participants were university educated. Average age of participants was 41.8 years old ($SD = 6.2$ years, range 23 – 63 years) and the average age of first children was 11.7 years old ($SD = 3.6$ years, 79% male).

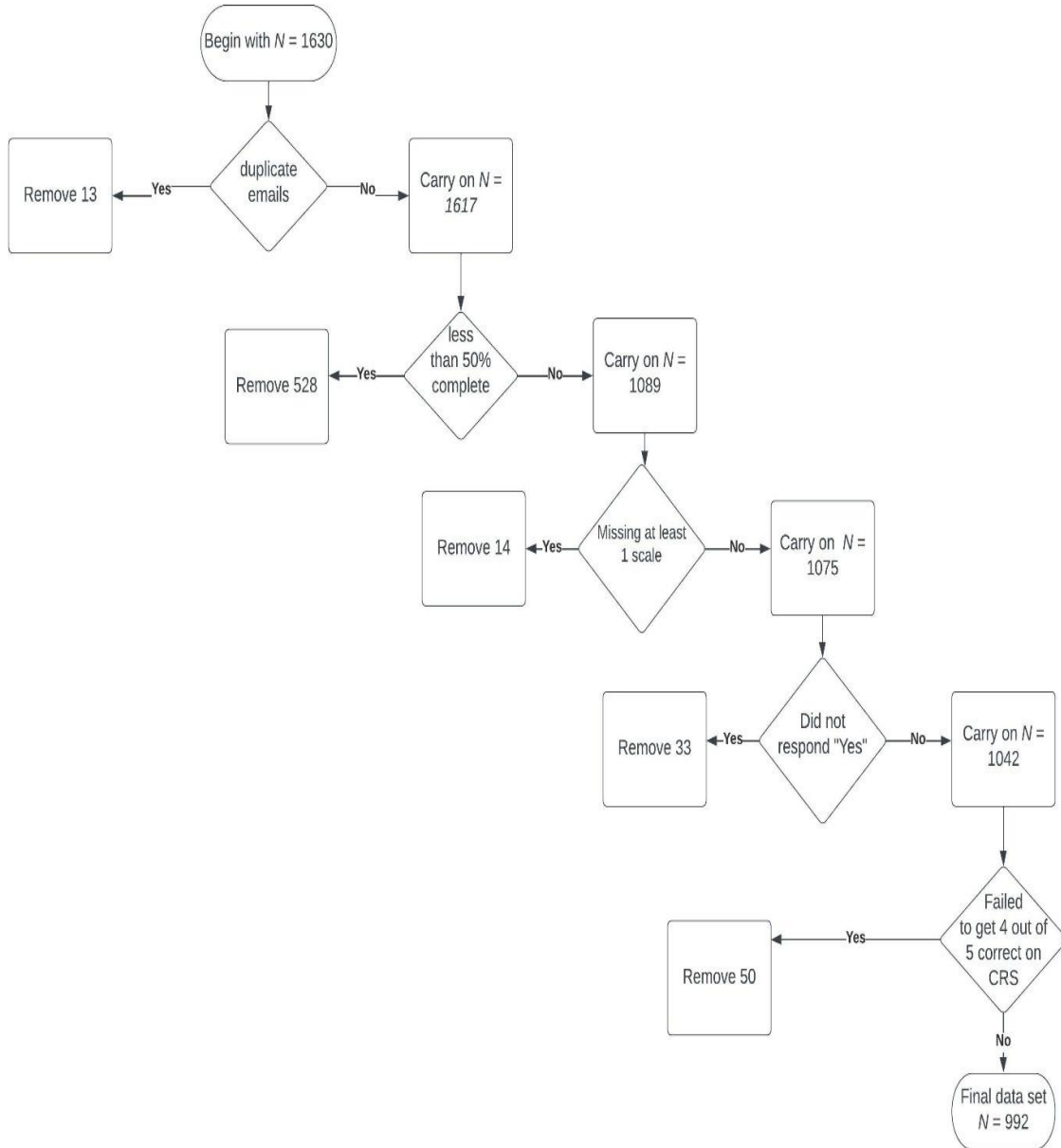
Measures

Psychological Need Satisfaction

Psychological need satisfaction within the context of being a hockey parent was measured with the 12-item Basic Psychological Needs Scale (Deci and Ryan, 2000; Gagne, 2003). These items measured needs met within the activity of being a hockey parent and were

Figure 2

Exclusion Flowchart for Data Set



Note: CRS = conscientious responder scale.

Table 1 Demographic Variables

	Sample Size ($N = 992$)	Percent (%)
Gender – Parent		
Male	253	25
Female	739	75
Age $M = 41.8$ $SD = 6.2$ years		
18 – 25	4	0
26 – 35	157	16
36 – 45	547	55
46 – 55	271	27
56 – 65	12	0
Education		
Less than high school	5	1
High school	37	4
Some college	67	7
Some university	103	10
Diploma/certificate	229	23
University degree	551	56
Child One		
Male	783	79
Female	197	20
Not declared/missing	12	1
Age	$M = 11.7$, $SD = 3.6$ years	Range 3 – 24
Province of Residence		
Manitoba	571	57.9
Ontario	156	15.8
Alberta	85	8.6
Saskatchewan	39	4.0
British Columbia	38	3.9
Nova Scotia	26	2.6
New Brunswick	20	2.0
Quebec	17	1.7
Northwest Territories	12	1.2
Newfoundland and Labrador	10	1.0
Prince Edward Island	9	.9
Nunavut	3	.3
Hours of Involvement in	$M = 14.2$ hours	$SD = 8.7$ hours
Ethnicity		
White/European	831	84
Aboriginal/First Nations	84	9
Metis	38	4
Arab/West Asian	2	.2
Black	2	.2

	Sample Size ($N = 992$)	Percent (%)
Chinese	4	.4
Filipino	4	.4
Japanese	1	.1
Latin American	2	.2
South Asian	4	.4
South East Asian	2	.2
Other	18	1.8
Money Spent per Year on Hockey		
< \$1200	93	9.4
\$1201 - \$3000	364	37
\$3001 - \$5000	216	22
\$5001 - \$10,000	202	20
>\$10,001	112	11.3
Previous Experience with the Game		
Yes	390	39
No	601	61
Knowledgeable about the Game		
Strongly agree or greater	645	65

Note. Where participant totals do not add to 992, cases are missing or not reported by participants.

scored on a Likert scale ranging from 1 (*not at all true*) to 7 (*very true*). Examples of items adapted for use were: “I feel that the way I am a hockey parent is definitely an expression of myself” (autonomy); “Most days I feel a sense of accomplishment from what I do when I am a hockey parent” (competence); “I consider the other parents at hockey that I regularly interact with to be my friends” (relatedness). The scale had good reliability with Cronbach’s $\alpha = .75$, in line with the reliability found in Lalande et al.’s (2017) study for a similarly adapted scale.

This same scale was used to measure general levels of need satisfaction. Wording on the scale reflected a more general view with examples such as “I generally feel free to express my ideas and opinions” (autonomy), “I have been able to learn interesting new skill lately” (competence), and “I consider the people I regularly interact with to be my friends” (relatedness).

All items were scored on a 7-point Likert scale of 1 (*not at all true*) to 7 (*very true*). Reliability for the basic needs in general scale was good ($\alpha = .93$). The scales show good reliabilities and validity as shown through past research by Chen et al. (2015).

Passion Types

The Passion Scale (Vallerand, 2003), consisting of 17 items, measures the level of HP and OP for being a hockey parent. The Passion Scale includes items such as “Being a hockey parent is in harmony with the other activities in my life” (item assessing HP), and “I have difficulties controlling my urge to be a hockey parent” (item assessing OP). The Passion Scale has been used in numerous studies across domains as varied as sport, academics, work, and favourite activities (Marsh et al., 2013). This scale is scored on a 1 (*not agree at all*) to 7 (*totally agree*) Likert scale. Responses are averaged by factor to achieve an overall score for HP and OP. Reliability of the Passion Scale for both HP and OP resulted in Cronbach’s $\alpha = .87$ for HP and Cronbach’s $\alpha = .89$ for OP, in line with research by Marsh et al. (2013). The remaining five items of the scale assess the passion criteria and were not analyzed for this study.

Verbal Aggression Toward Officials

In this study verbal aggression toward officials was measured using the Hostile and Instrumental Aggression in Spectators Questionnaire (HIASQ) by Wann et al. (1999). The HIASQ measures levels of hostile and instrumental aggression directed toward officials and also toward opponents. In this study, only the items assessing aggression toward officials were administered. This subscale consists of 4 items scored on a scale from 1 (*not agree at all*) to 7 (*totally agree*), and asks participants to rate the extent they tend to yell at officials to express anger or to hurt them in some way (hostile aggression), or because they think it will help their team win and perform better (instrumental aggression). I averaged the HIASQ items to compute

the total aggression scores. Reliability for the four items was good (Cronbach's $\alpha = .93$).

Relatedly, Wann et al. (1999) found reliabilities for hostile aggression toward officials of $\alpha = .73$ and for instrumental aggression toward officials of $\alpha = .91$.

Additionally, a confirmatory factor analysis (CFA) of the items of the HIASQ scale was performed to check how the items loaded onto the total aggression factor. A MLR estimator was used in Mplus to account for non-normal data. The fit indices for the CFA were MLR $\chi^2(2) = 6.59, p = .03, RMSEA = .048, 90\% CI [.01, .09], CFI = .99.$ and $TLI = .97$. The loadings of each item onto the total aggression factor were also very high, ranging from .76 to .95. This means that the HIASQ items, for both hostile and intentional aggression toward officials, were good indicators of a single factor representing verbal aggression toward officials.

Quality Control

A conscientious responders scale of five items was used to record and ensure conscientious responses by participants. The conscientious responders scale (Marjanovic et al., 2014) items ask participants to respond in a prescribed manner, for example: "To answer this question please choose option number four, 'Moderately Agree'". The intention of using this scale is to ensure that participants are paying attention to the survey and answering in conscientious ways. In this survey, the items were also used as a conservative cut off point to ensure a robust data set free from potential random or careless responses. Each item was randomly embedded within the other scales of the survey. For a participant to be included in the analysis, at least four out of five items needed to be answered correctly. A total of 50 participants were excluded from the dataset because they did not satisfy this inclusion criteria.

Data Analysis

Data were analyzed using SPSS version 27 and Mplus. SPSS was used to calculate subscales for the variables of HP, OP, basic needs satisfied in general (NEED-G), basic needs satisfied in the activity of being a hockey parent (NEED-P), and VATO. The path analysis was tested using Mplus. In the model, NEED-P and NEED-G predicted HP and OP. HP and OP, in turn, predicted VATO. The model used robust maximum likelihood (MLR) estimation due to non-normal data.

Results

Preliminary Analyses

Outliers in the data were identified using both univariate and multivariate methods. The univariate method standardized the values of HP, OP, NEED-G, NEED-P, and VATO. Comparing these values to cut-off scores of $> |3.29|$ (Tabachnick and Fidell, 2019), a total of 48 outliers were found with the variable VATO. Next, analyzing for multivariate outliers, using a cut off score of $\chi^2 (4) \geq 18.467, p < .001$, five multivariate outliers were found, two of which were also identified as univariate outliers; therefore, three additional multivariate outliers were removed from the dataset. In total, 51 participants were found to have data considered to be outliers and were excluded from analyses. The number of participants for the path analysis was $N = 941$. Correlations between the variables of interest, OP and HP, and NEED-G and NEED-P are provided in Table 2.

Path Analysis

The hypothesized model fit was adequate, MLR $\chi^2 (2) = 21.30, p < .001, RMSEA = .10, 90\% CI [.07, .14]; CFI = .98, TLI = .92$. The model fit values indicate that the data fit the model adequately (Hu & Bentler, 1998). The complete path analysis with standardized coefficients is

displayed in Figure 3. OP was positively associated with VATO ($\beta = .51, p < .001$) supporting the hypothesis that those scoring higher in OP for being a hockey parent will also score higher in

Table 2 Means, Standard Deviations, and Correlation Matrix of Variables of Interest

Variable	<i>M (SD)</i>	1	2	3	4	5
1. NEED-P	4.70 (.81)		.47	.60	-.12	-.18
2. NEED-G	5.16 (.87)			.36	-.14	-.13
3. HP	4.01 (1.23)				.33	.18
4. OP	2.02 (1.23)					.65
5. VATO	1.43 (1.00)					

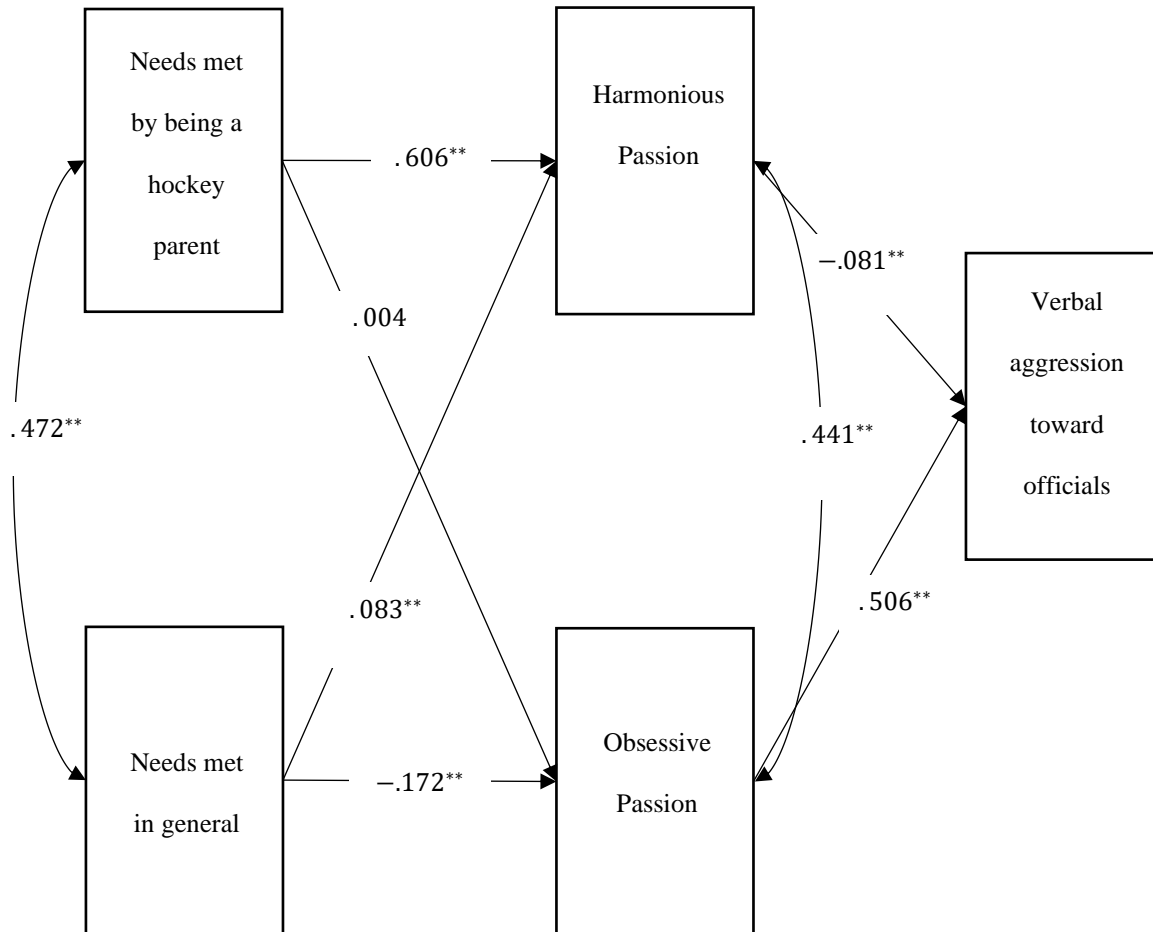
Note. $N = 992$. NEED-P = needs met by being a hockey parent; NEED-G = needs met in general;

HP = harmonious passion; OP = obsessive passion; VATO = verbal aggression toward officials.

All correlations significant at $p < .01$.

Figure 3

Path Model



Note: Path coefficients are standardized. Outliers were removed from the data set ($N = 941$).

** $p < .01$.

VATO.¹ HP, in contrast, was negatively associated with VATO ($\beta = -.08, p < .001$). NEED-G was negatively associated with OP ($\beta = -.17, p < .001$), whereas NEED-P was unrelated to OP (β

¹ An exploratory analysis of gender difference on OP using the PROCESS macro in SPSS indicated a non-significant interaction, $b = .08$, 95% CI $[-.01, .15]$, $t = 2.39$, $p = .15$. Indicating that the association between OP and VATO did not differ significantly between males and females.

= .004, $p = .902$). Therefore, the hypothesis that NEED-G would be negatively related to OP was supported, whereas the hypothesis that NEED-P would be positively related to OP was not. Also, HP was positively associated with both NEED-G ($\beta = .08, p = .004$) and NEED-P ($\beta = .61, p < .001$). The hypothesized relationships between HP and both NEED-G and NEED-P were supported.

Discussion

The purpose of this research was to understand why some parents behave aggressively toward officials at youth hockey. The study examined if needs met in the activity of being a hockey parent, but not met in general, would predict OP and if those whose needs were met in general and in the activity would predict HP. The study also examined if those scoring higher in OP would also report higher scores in VATO. The results showed that OP was a strong predictor of greater VATO. The connection between OP and VATO means that those who score higher on OP will tend to also score higher on verbal aggression toward officials. Additionally, the results showed that while NEED-G was negatively related to OP, as hypothesized, NEED-P was not associated with OP, which does not support my hypothesis. These findings enhance our understanding about parent behaviours at youth hockey and also about the antecedents of obsessive passion.

Passion and Verbal Aggression

Past research has shown that people with high OP for an activity, when threatened in their identity or frustrated in continuing with the activity, tend to react in maladaptive ways (see Bélanger et al., 2019; Bélanger et al., 2020; Donahue et al., 2009; Goldstein & Iso-Ahola, 2008; Philippe et al., 2009; Rip et al., 2012; Vallerand, 2015). Some people may resort to extreme behaviours or some people may react with aggression toward others. In this study, I examined

which parents may be more apt to express verbal aggression toward officials at their child's hockey game. I hypothesized that those parents who were highly OP for being a hockey parent would be more apt to be verbally aggressive toward officials. It is important to examine who is verbally aggressive toward officials in youth hockey if the problem of declining referee numbers is to be halted.

The strong connection between OP and VATO observed in this study supports past research findings related to the connection between OP and maladaptive outcomes. In particular, Goldstein and Iso-Ahola's (2008) research showed that in game threats to a person's ego led to aggressive behaviours. As well, Donahue et al. (2009) showed that threats to those with OP for being basketball players led to more aggressive play against opponents. Finally, Philippe et al. (2009) show direct thwarting of obsessively passionate drivers' progress increased their aggression toward other drivers on the road. Clearly the link between OP and aggression occurs in a number of domains. A threat toward those with OP for being hockey parents in this study, such as a bad call by an official, could result in the maladaptive behaviour of yelling at the official. Parents with high OP may be sensitive to threats, like a bad call, given the importance that activity performance plays in their self-worth (Vallerand, 2015). From the results of this study, it is clear that verbal aggression toward hockey officials is not an adaptive outcome and that parents who may be highly obsessively passionate about being a hockey parent may also be more likely to report yelling at officials.

The negative association between HP and VATO shows that parents who have harmonious passion for their child's sport are not likely to yell at officials. An implication of this relationship is that the parents who are able to have an HP for being a hockey parent are able to balance the activity within their lives and do not tend to react by yelling at the officials when

their identity is threatened. Like others' research, HP for an activity leads to well being and adaptive outcomes (Schellenberg et al., 2013; Tóth-Király et al., 2019; Vallerand, 2015).

Need Satisfaction and Passion

In past research on need density and need relationships with both OP and HP, Lalande et al. (2017) concluded that needs met in the activity were related to both the development of OP and HP. They also found that if needs were not met in general, people in their study tended to develop greater OP for their activity, but if needs were met in general then only HP was evident. In this study, the results show that needs met in general and needs met in the activity result in HP for being a hockey parent, supporting Lalande et al.'s (2017) findings. However, the results in this study indicated that there was no relationship between needs met in being a hockey parent and OP. This was not in line with the hypothesized outcome based on Lalande et al.'s (2017) work. These findings also differ from the findings of Holding et al. (2021) where needs met in the activity, but not in general, predicted greater OP.

Why may needs met within the activity of being a hockey parent have differed in this way? There are at least two potential reasons. First, both Lalande et al. (2017) and Holding et al. (2021) investigated needs met within the activities of videogaming and gambling. Both of these activities are activities where there are achievement motivations. In other words, if someone plays a video game, they can achieve the next level or be seen as "winning" at videogaming. Similarly in gambling, people can achieve in gambling by winning the game and monetary gains. In this study, being a hockey parent, while an activity that one can be obsessively passionate about, is not an achievement activity; one cannot directly "win" at being a hockey parent.

How the domain of being a hockey parent may be affecting the relationship between needs met within the activity and OP is unclear and would need to be explored in other domains.

Domain may be a potential moderator of the relationship between needs met and OP in that some domains could be better for meeting needs possibly because of the ability to assess how well one is doing or improving in that domain. For example, in the area of music, it is often quite easy for a person to tell if they are competent and are improving in their skill versus in an activity like being a hockey parent. Being a hockey parent is not an activity that particularly lends itself to assessment or improvement in skill level, nor is it an activity that allows someone to be completely autonomous. Activities people engage in lead to self-evaluation where a person examines their motives for involvement in that activity. According to Vallerand (2015) the self-evaluation leads to the activity becoming a part of a person's identity through self-assessment, self-enhancement, self-verification, and self-improvement. Some domains may lend themselves to self-evaluation more readily as there are clear ways to evaluate and assess if one is continuing to enjoy their activity involvement and continuing to improve in their activity. Based on the DMP, identifying with the activity is a requirement for developing passion (Vallerand, 2015).

The second reason why only partial support was found for the need density hypothesis in this research may be related to the ongoing COVID-19 pandemic. When the need density hypothesis is considered, the activity becomes a compensatory activity in order to meet the psychological needs of the person. If that activity is not available, then a person may not develop an OP for the activity, as it is not available to fill the compensatory role in meeting psychological needs. This could have been what occurred for these hockey parents as their activity of being a hockey parent had not been available for the previous two seasons due to pandemic shutdowns. It is possible that after a lengthy time off and away from hockey, parents may not be sure how to act or how to engage with their child's sport. A study by Lui et al. (2021) found that disruptions in social roles for people, due to COVID-19, affected the feelings

of authenticity of self that people had and that these same people could use present focus coping to manage feelings of inauthenticity. The authors go on to describe how the disruption of social roles leads to inauthenticity in that roles are so tied to personal identity. Following the logic of Lui et al. (2021) it is possible to see how a disruption in the role of hockey parent could cause changes to one's identity and affect the behaviours of parents at a return to hockey. At the same time, the DMP finds that in order for passion to develop, a person must identify with the chosen activity; a person sees themselves as "a hockey parent" and the disruption to the activity, due to COVID-19, could also cause a disruption to identifying with the activity. Hockey parents may possibly no longer be passionate or have the same level of passion, for the activity changing their behaviour at youth hockey. According to Vallerand (2015), passion may be transformed through any one of the constitutive elements of love for the activity, valuation, investment into the activity, and identification with the activity. If any of these elements undergoes a change, the passion can change either through type (OP to HP), intensity, change of focus or object, latency, or a cessation of passion. In this way, if the situational factors supporting passion for being a hockey parent changes, i.e., COVID interruptions which may take away the activity at a moment's notice or substantially change the way a parent participates in the activity, the passion may change. In this particular example, parents who have OP for being a hockey parent, may have a change in their passion when the activity does not function in the way they are used to and the person may come to value the activity less than before and may be reluctant to invest the same level of time or effort into the activity. In lay terms, because of the periodic Covid disruptions and possibilities of future disruptions, the person may be experiencing "a fear of commitment" to being a hockey parent.

Limitations

There are some limitations of this research that need to be acknowledged. First, biases in this study are indicated by the prevalence of a mainly white, high socio-economic, university educated group of participants. While the survey was sent to many different organizations across the province of Manitoba, there does not seem to be an indication that the differences in ethnic make up, across the entire sample, greatly differ from the report by Statistics Canada in the 2016 census. Canada as a whole, and Manitoba specifically, are majority populated by those who identify as White/European (82%), followed by those who identify as Indigenous (18%) (Statistics Canada, 2017a). Since the ethnic make up of the participants in this study closely mirror the ethnicities as shown in Statistics Canada reports, the skew toward White/European reflects the population (Statistics Canada, 2017b). At this time, Hockey Canada does not report information on the ethnicities of registered members, so it is not possible to know if the sample reflects the population makeup of Hockey Canada. However, in light of recent reports of racism in hockey and the current push to make “hockey for all” (Scotiabank, 2021), it can be inferred that hockey is a sport mainly made up of white participants. Finally, since the survey required computer access to participate, some people who do not have reliable internet access or easy computer access could have been left out of our sample. In particular, those who do not use Facebook or Instagram could have missed the opportunity to participate by not seeing the advertisements.

This research relied on self-report measures. In order to enhance honest responding, participants were reminded of their anonymity in all questions. I also included the conscientious responders scale and a direct quality control honesty check. For data integrity, those participants

who did not provide an affirmative answer to the honesty check question were excluded from the data analysis. When asking participants to report on instances they may have expressed verbal aggression toward officials, the question of social desirability and the possibility that participants would not want to admit to verbally aggressive behaviours was mitigated by repeated expressions of anonymity in their answers to survey items. Regardless, all variables were assessed with self-report surveys which remains a limitation in this research.

Another limitation in this study was the presence of COVID-19. This study had participants who were in the first full season of hockey after a two-year hiatus from the sport. The 2021-2022 season was the first full season and as such may have had an impact on the behaviours of hockey parents and other involved in the sport. For the initial part of the season, some Provincial health authorities had specifics as to who and how many spectators could attend games in person. Since the attendance was not “normal”, people may have been behaving differently at youth hockey than they may have before COVID-19.

Implications and Future Directions

Implications for this study are two-fold. First, more research needs to look into the link between needs being met in general and needs met within the passionate activity and their connection to obsessive passion. While Lalande et al. (2017) found links that indicated being obsessively passionate for activities could be a compensatory action to meeting one’s general basic psychological needs, this study did not have the same findings. It is possible that the activity of being a hockey parent is an activity that does not fulfill a person’s needs. It would be interesting in future research to investigate if different domains (i.e., sport parenting versus gambling or videogaming) matter for whether or not an activity meets one’s needs and if those needs being met or unmet lead to OP. Additionally, testing these same hypotheses in a post-

pandemic setting may create different outcomes on the results. Perhaps once sport returns to normal, or the “new” normal, people may have different patterns of behaviour.

The second implication of this study is the strong connection between OP and VATO which supports research showing that OP for activities leads to maladaptive outcomes (see Donahue et al., 2009; Philippe et al., 2009; Schellenberg et al., 2020; Vallerand et al. (2008)). In this study we see that hockey parents who report high levels of OP for being a hockey parent also tend to report more VATO. These instances of increased VATO contribute to officials leaving their posts and declines in the number of available officials. In order to improve sport outcomes for all involved, players, officials, and parents, a change in OP levels needs to occur. One simple way to change the levels of OP in hockey parents could be through a change to the way youth hockey is presented and set up, a change in culture. For example, more emphasis, in particular in the early stages of youth hockey, on celebrating the joy in playing and in the fun of skill development. Another possible way to increase the harmonious passion for being a sport parent is to remind parents that they “get to” be a hockey parent as opposed to “have to” be a hockey parent. Both of the previous examples on increasing HP stem from ways to adjust the social environment around an activity. According to Mageau et al. (2009), high levels of autonomy support for music involvement predicted HP for music. Additionally, in studies on work interactions, Liu et al. (2011) found that autonomy support from one’s work team was positively associated with HP for work. In this way, supporting hockey parents in their choices of involvement in the sport could be associated with more HP. Another method to decrease instances of developing OP for being a hockey parent concern the idea of decreasing instances of transactional leadership in the youth hockey setting. Houliort et al. (2013) concluded that instances of transactional leadership (contingency-based rewards) predicted OP for work.

Additionally, examining socially prescribed perfectionism in being a hockey parent can provide a mechanism to reduce OP. If a hockey parent places importance on being a perfect hockey parent, they are likely to develop an OP for the activity due to the controlling nature of conditional acceptance (Verner-Filion & Vallerand, 2014). A final thought on how to decrease OP for being a hockey parent could be less stringent or controlled interactions for the hockey parent, fewer instances of “you must be at practice 30 minutes before and you must show up for every event, regardless of what else is occurring in your life”. All of these changes to reduce OP and possibly increase HP for being a hockey parent require culture changes by hockey organizations. Finally, perhaps increased examination of parent behaviours at youth hockey, by researchers, parents' self-evaluation, and hockey organizations, can lead to better outcomes for all involved in the sport.

Conclusion

When referees are verbally harassed it leads to a decline in numbers of people willing to officiate sport (Dvorak, 2021; Giel & Breuer, 2020; & Guillue et al., 2018). When the number of officials decline, games are canceled and players lose out on the sport experience. Although parental conduct has been a focus in past research, it has mainly focused on the outcomes experienced by players and parents (see Sutcliffe et al., 2021 for a review). This research focused on the parental conduct toward officials within Canadian youth hockey and aimed to help identify who may be engaging in verbally aggressive behaviours by focusing on OP. At the same time, this study investigated if OP could be a result of needs met in the activity of being a hockey parent but unmet needs in general. This study showed that those scoring higher in OP were more likely to engage in VATO. These findings mean that verbal aggression toward officials can stem from people with high OP for being a hockey parent. This study also showed

that having unmet psychological needs in general acted as an antecedent of OP. The results of this study help us to understand the behaviours of hockey parents at youth hockey and may lead to further education of parents on how to behave at their children's hockey games. It is hoped that people may recognize that their obsessive passion for being a hockey parent may be leading them to exhibit behaviours that are extreme and that perhaps they should look to other activities to fulfil their needs.

References

- Ackery, A. D., Tator, C. H., & Snider, C. (2012). Violence in Canadian amateur hockey: The experiences of referees in Ontario. *Clinical Journal of Sport Medicine*, 22(2), 86 - 90. <https://doi.org/10.1097/JSM.0b013e3182342b69>
- Agely, J., Xiao, Y., Nolan, R., & Golzarri-Arroyo, L. (2021). Quality control questions on Amazon's Mechanical Turk (MTurk): A randomized trial of impact on the USAUDIT, PHQ-9, and GAD-7. *Behavior Research Methods*, 54(2), 885 – 897, <https://doi.org/10.3758/s13428-021-01665-8>
- American Psychology Association. (n.d.). *APA dictionary of psychology*. Retrieved June 30, 2021, from <https://dictionary.apa.org/>
- Amiot, C. E., Vallerand, R. J., & Blanchard, C. E. (2006). Passion and psychological adjustment: A test of the person-environment fit hypothesis. *Personality and Social Psychology Bulletin*, 32(2), 220 - 229. <https://doi.org/10.1177/0146167205280250>
- Bélanger, J. J., Schumpe, B. M., & Nisa, C. F. (2019). How passionate individuals regulate their activity with other life domains: A goal-systemic perspective. *Journal of Personality*, 87(6), 1136 – 1150, <https://doi.org/10.1111/jopy.12463>
- Bélanger, J. J., Schumpe, B. M., Nociti, N., Moyano, M., Dandeneau, S., Chamberland, P-E., & Vallerand, R. J., (2019). Passion and moral disengagement: Different pathways to political activism. *Journal of Personality*, 87(6), 1234 - 1249, <https://doi.org/10.1111/jopy.12470>
- Bélanger, J. J., Robbins, B. G., Muhammad, H., Moyano, M., Nisa, C. F., Schumpe, B. M., & Blaya-Burgo, M. (2020). Supporting political violence: The role of ideological passion

- and social network. *Group Processes and Intergroup Relations*, 23(8), 1187 – 1203, <https://doi.org/10.1177/1368430220933954journals.sagepub.com/home/gpi>
- Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin*, 106(1), 59 – 73. <https://doi.org/10.1037%2F0033-2909.106.1.59>
- Bettencourt, B. A., & Kernahan, C. (1997). A meta-analysis of aggression in the presence of violent cues: Effects of gender differences and aversive provocation. *Aggressive Behaviour*, 23(6), 447 – 456. [https://doi.org/10.1002/\(sici\)1098-2337\(1997\)23:6<447::aid-ab4>3.0.co;2-d](https://doi.org/10.1002/(sici)1098-2337(1997)23:6<447::aid-ab4>3.0.co;2-d)
- Betts, M. J., Forbes, S. L., & Livingston, L. A. (2007). Factors contributing to the attrition of Canadian amateur ice hockey officials: The experiences of referees and linesmen in Atlantic Canada. *Avante*, 11(3), 15 – 22.
- Buss, A., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, 63, 452 – 459. <https://doi.org/10.1037/0022-3514.63.3.452>
- Bjorkvist, K. (2017). Gender differences in aggression. *Current Opinion in Psychology*, 19, 39 – 42. <https://doi.org/10.1016/j.copsych.2017.03.030>
- Cleland, J., O' Gorman, J., & Webb, T. (2018). Respect? An investigation into the experience of referees in association football. *International Review for the Sociology of Sport*, 53(8), 960 – 974. <https://doi.org/10.1177/1012690216687979>
- Coakley, J., (2006). The good father: Parental expectations and youth sports. *Leisure Studies*, 25(2), 153 – 163. <https://doi.org/10.1080/02614360500467735>
- Curran, T., Hill, A. P., Appleton, P. R., Vallerand, R. J., & Standage, M., (2015). The psychology of passion: A meta-analytical review of a decade of research on intrapersonal

- outcomes. *Motivation and Emotion*, 39(5), 631 - 655. <https://doi.org/10.1007/s11031-015-9503-0>
- Deci, E. L., & Ryan, R. M. (2000). The “What” and “Why” of goal pursuits: Human needs and the self-determination of behaviour, *Psychological Inquiry*, 11(4), 227 – 268. https://doi.org/10.1207/S15327965PLI1104_01
- Donahue, E. G., Rip, B., & Vallerand, R. J., (2009). When winning is everything: On passion, identity, and aggression in sport. *Psychology of Sport and Exercise*, 10, 526 - 534. <https://doi.org/10.106/j.psychosport.2009.02.002>
- Dvorak, P. (2021, December). Sports parents are horrible and referees are finally doing something about it – quitting. *The Washington Post*. <https://www.washingtonpost.com/dc-md-va/2021/12/06/youth-sports-referees-quitting-shortage-sports-officials-quit/>
- Forbes, S. L., & Livingston, L.A. (2013). Changing the call: Rethinking attrition and retention in ice hockey officiating ranks. *Sport in Society*, 16(3), 295 – 309. <https://doi.org/10.1080/17430437.2013.779854>
- Giel, T., & Breuer, C. (2020). The determinants of the intention to continue voluntary football refereeing. *Sport Management Review*, 23(2), 242 – 255. <https://doi.org/10.1016/j.smr.2019.01.005>
- Gillue, G. S., Laloux, Y. R., Alvarez, M. T., & Cruz I Feliu, J. (2018). Sources of stress inside and outside the match in football referees. *Apunts. Education Fisica y Deportes*, 132, 22 - 31. [https://doi.org/10.5672/apunts.2014-0983.es.\(2018/2\).132.02](https://doi.org/10.5672/apunts.2014-0983.es.(2018/2).132.02)

- Goldstein, J. D., & Iso-Ahola, S. E., (2008). Determinants of parents' sideline-rage emotions and behaviours at youth soccer games. *Journal of Applied Social Psychology*, 38(6), 1442 – 1462. <https://doi.org/10.1111/j.1559-1816.2008.00355.x>
- Flip Give. (2019). *FlipGive and Scotiabank report on the real cost of hockey*.
<https://www.flipgive.com/stories/flipgive-scotiabank-report-on-the-real-cost-of-hockey>
retrieved on 04/19/2021
- Hamilton-McCharles, J. (2018, October). Unruly Northern Ontario hockey fans face suspension this year. *The Sudbury Star*. <https://www.thesudburystar.com/sports/local-sports/unrulynorthernontario-hockey-fans-face-suspension-this-year>
- Harwood, C. G., and Knight, C. J., (2014). Parenting in youth sport: A position paper on parenting expertise. *Psychology of Sport and Exercise*, 16(1), 24 – 35. <https://doi.org/10.1016/j.psychsport.2014.03.001>
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guildford Press
- Hockey Canada (2014). Annual Report. Retrieved from
https://az184419.vo.msecnd.net/hockeycanada/Corporate/About/Downloads/2014-15_annual_report_e.pdf
- Hockey Canada (2015). Annual Report. Retrieved from
https://cdn.hockeycanada.ca/hockeycanada/Corporate/About/Downloads/2015-16_annual_report_e.pdf
- Hockey Canada (2016). Annual Report. Retrieved from
<https://cdn.hockeycanada.ca/hockeycanada/Corporate/About/Downloads/2016-17-annual-report-e.pdf>

Hockey Canada (2017). Annual Report. Retrieved from

<https://cdn.agilitycms.com/hockeycanada/Corporate/About/Downloads/2017-18-hockey-canada-annual-report-e.pdf>

Hockey Canada (2018). Annual Report. Retrieved from

<https://cdn.agilitycms.com/hockeycanada/Corporate/About/Downloads/2018-19-hockey-canada-annual-report-e.pdf>

Hockey Canada. (2021) *Frequently asked questions by hockey parents.*

www.hockeycanada.ca/en-ca/hockey-programs/parents/faq#4 retrieved on April 20/2021

Holding, A., Verner-Filion, J., Lalande, D., Schellenberg, B. J. I., & Vallerand, R. J. (2021). The roles of need satisfaction and passion in behavioural addiction: The case of video gaming and gambling. *Motivation Science*.

Houliort, N., Vallerand, R. J., & Koestner, R. (2013). On the organizational and interpersonal determinants of passion. *Manuscript in preparation*.

Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification, *Psychological Methods*, 3, 424 – 453

Jacobs, B. L., Tingle, J. K., Oja, B. D., & Smith, M. A. (2020). Exploring referee abuse through the lens of the collegiate rugby coach. *Sport Management Review*, 23(1), 39 – 51.

<https://doi.org/10.1016/j.smr.2019.03.004>

Johnson, D., Formosa, J., Perry, R., Lalande, D., Türkay, S., Obst, P., & Mandryk, R. (2021).

Unsatisfied needs as a predictor of obsessive passion for videogame play. *Psychology of Popular Media*, April 22, 2021. <https://doi.org/10.1037/ppm0000299>

- Lafrenière, M. A. K., St-Louis, A. C., Vallerand, R. J., & Donahue, E. G. (2012). On the relation between performance and life satisfaction: The moderating role of passion. *Self and Identity, 11*(4), 516 - 530. <https://doi.org/10.1080/15298868.2011.616000>
- Lalande, D., Vallerand, R. J., Lafreniere, M-A. K., Verner-Filion, J., Laurent, F-A., Forest, J., & Paquet, Y., (2017). Obsessive passion: A compensatory response to unsatisfied needs. *Journal of Personality, 85*(2), 163 – 178. <https://doi.org/10.1111/jopy.12229>
- Lang, B. (2018, March). It's just a game: Young officials talk verbal abuse on ice. *paNOW.com*. <https://panow.com/2019/03/19/its-just-a-game-young-officials-talk-verbal-abuse-on-ice/>
- Lillicrap, B. (1975, January 29/2020 January 29). Parental abuse: Who needs it? *The Chilliwack Progress*. <https://www.theprogress.com/news/from-the-chilliwack-progress-archives-hockey-referee-chased-away-by-parental-abuse/>
- Loughead, T.M., & Dorsch, K. D. (2021). Aggression and moral behaviour in sport. In P. R. Crocker, C. Sabitson, & M. McDonough (Eds.) *Sport and exercise psychology: A Canadian perspective* (4th ed., pp. 116-117). Pearson Canada
- Liu, D., Chen, X.-P., & Yao, X. (2011). From autonomy to creativity: A multilevel investigation of the mediating role of harmonious passion. *Journal of Applied Psychology, 96*(2), 294 – 309, <https://doi.org/10.1037/a0021294>
- Lui, J., Dalton, A. N., & Lee, J. (2021). The “Self” under COVID-19: Social role disruptions, self-authenticity and present focused coping. *PLoS ONE 16*(9): e0256939, <https://doi.org/10.1371/journal.pone.0256839>
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*(2), 130-149, <https://doi.org/10.1037/1082-989X.1.2.130>

- Mageau, G. A., Vallerand, R. J., Charest, J., Salvy, S.-J., Lacaille, N., Bouffard, T., & Koestner, R. (2009). On the development of harmonious and obsessive passion: The role of autonomy support, activity specialization, and identification with the activity. *Journal of Personality, 77*(3), 601 – 646, <https://doi.org/10.1111/j.1467-6494.2009.00559.x>
- Marjanovic, Z., Struthers, C. W., Cribbie, R., & Greenglass, E. R. (2014). The conscientious responders scale: A new tool for discriminating between conscientious and random responders. *SAGE Open*. <https://doi.org/10.1177/2158244014545964>
- Markusa, M. (November 24, 2021). Information Radio – MB [Radio broadcast] *U of M masters student investigates why hockey parents behave the way they do* (6:06), <https://www.cbc.ca/listen/live-radio/1-29-information-radio-mb/clip/15880333-u-m-masters-student-investigates-hockey-parents-behave>
- Marsh, H. W., Vallerand, R. J., Lafrenière, M.-A. K., Parker, P., Morin, A. J., Carbonneau, N., Jowett, S., Bureau, J. S., Fernet, C., Guay, F., Abduljabbar, A. S., & Paquet, Y. (2013). Passion: Does one scale fit all? Construct validity of two-factor passion scale and psychometric invariance over different activities and languages. *Psychological Assessment, 25*(3), 796–809. <https://doi.org/10.1037/a0032573.supp>
- McNabb, L. (November 18, 2021). The Start [Radio broadcast] *Snow Business* (20:14), <https://omny.fm/shows/cjob-morning/snow-business>
- Merriam-Webster. (n.d.). *Merriam-webster.com dictionary*. Retrieved June 30, 2021, from <https://www.merriam-webster.com/dictionary/>
- Muthén, L. K., & Muthén, B. O. (1987 – 2017). *MPlus User’s Guide*. Eighth edition. Los Angeles.

National Association of Sport Officials. (2017). *NASO National Officiating Survey*.

<https://www.naso.org/survey/>

Philippe, F. L., Vallerand, R. J., Richer, I., Vallieres, E., & Bergeron, J. (2009). Passion for driving and aggressive driving behaviour: A look at their relationship. *Journal of Applied Psychology*, 39(12), 3020 – 3043. <https://doi.org/10.1111/j.559-1816.2009.00559.x>

Ramirez, J. M., & Andreau, J. M., (2003). Aggression's typologies. *Revue Internationale de Psychologie Sociale*, 16(3), 125 – 141.

Rigby, S., & Ryan, R. M. (2011). *Glued to games: How video games draw us in and hold us spellbound*. Praeger.

Rip, B., Vallerand, R. J., & Lafreniere, M-A. K. (2012). Passion for a cause, passion for a creed: On ideological passion, identity threat, and extremism. *Journal of Personality*, 80(3), 573 – 602; <https://doi.org/10.1111/j.1467-6494.2011.00743.x>

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, self-development, and well-being. *American Psychologist*, 55(1), 68 – 78. <https://doi.org/10.1037//0003-066x.55.1.68>

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. The Guildford Press.

Schellenberg, B.J.I., Bailis, D. S., & Crocker, P.R.E. (2013). Passionate hockey fans: Appraisals of, coping with, and attention paid to the 2012-2013 National Hockey League lockout. *Psychology of Sport and Exercise*, 14(6), 842 – 846. <https://doi.org/10.1016/j.psychsport.2013.06.004>

- Schellenberg, B. J. I., & Gaudreau, P. (2020). Savoring and dampening with passion: How passionate people respond when good things happen. *Journal of Happiness Studies*, 21, 921–941. <https://doi.org/10.1007/s10902-019-00114-w>
- Schellenberg, B. J. I., Gaudreau, P., & Crocker, P.R.E. (2013). Passion and coping: Relationships with changes in burnout and goal attainment in collegiate volleyball players. *Journal of Sport and Exercise Psychology*, 35(3), 270 – 280. <https://doi.org/10.1123/jsep.35.3.270>
- Schellenberg, B. J. I., Verner-Filion, J., & Gaudreau, P. (2020). We are the champions, but how do we respond? Savouring and dampening in response to championship victories among passionate sports fans. *Journal of Sport and Exercise Psychology*, 42(3), 261-264. <https://doi-org.uml.idm.olc.org/10.1123/jesp.2019-0271>
- Schemelleh-Engel, K., Moosbrugger, H., & Muller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23 – 74
- Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science* 8(4), 379 – 386. <https://doi.org/10.1177/1948550617715068>
- Scotiabank. (2021, October, 12). *Hockey for all* [Video]. YouTube. <https://www.youtube.com/watch?v=s6NOwKg7VjQ&t=4s>
- Sport Manitoba. (2020, September 2). *No ref, no game*. www.sportmanitoba.ca/no-ref-no-game-2/
- Statistics Canada. 2017a. *Focus on Geography Series, 2016 Census*. Statistics Canada Catalogue no. 98-404-X2016001. Ottawa, Ontario. Data products, 2016 Census.

Statistics Canada. 2017b. *Manitoba [Province] and Canada [Country] (table). Census Profile.*

2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released

November 29, 2017. <https://www12.statcan.gc.ca/census-recensement/2016/dp->

[pd/prof/index.cfm?Lang=E](https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E) (accessed May 5, 2022).

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics, 7 ed.* Pearson

Tóth-Király, I. Böthe, B., Márki, A. N., Rigo, A., & Orosz, G., (2019). Two sides of the same

coin: The differentiating role of need satisfaction and frustration in passion for screen-

based activities. *European Journal of Social Psychology*49(6), 1190 – 1205,

<https://doi.org/10.1002/ejsp.2588>

Vallerand, R. J., Mageau, G. A., Ratelle, C., Leonard, M., Blanchard, C., Koestner, R., Gagne,

M., & Marsolais, J., (2003). Les Passions de l'Âme: On obsessive and harmonious

passion. *Journal of Personality and Social Psychology*, 85(4), 756 - 767.

<https://doi.org/10.1031/0022-3514.85.4.756>

Vallerand, R. J., Mageau, G. A., Elliot, A. J., Dumais, A., Demers, M. A., & Rousseau, F.,

(2008). Passion and performance attainment in sport. *Psychology of Sport and Exercise*,

9(3), 373 - 392. <https://doi.org/10.1016/j.psychsport.2007.05.003>

Vallerand, R. J. (2015). *The psychology of passion: A dualistic model.* Oxford University Press.

Verner-Filion, J., Schellenberg, B. J. I., Rapaport, M., Bélanger, J. J., & Vallerand, R.J. (2018).

“The thrill of victory...and the agony of defeat”: Passion and emotional reactions to

success and failure among recreational golfers. *Journal of Sport and Exercise*

Psychology, 40(5), 280 – 283. <https://doi.org/10.1123/jesp.2017-0316>

- Wakefield, K. L., & Wann, D. L. (2006). An examination of dysfunctional sport fans: A method of classification and relationships with problem behaviours. *Journal of Leisure Research*, 38(2), 168 – 186. <https://doi.org/10.1080/00222216.2006.11950074>
- Wann, D. L., Carlson, J.D., & Schrader, M. P. (1999). The impact of team identification on the hostile and instrumental verbal aggression of sport spectators. *Journal of Social Behaviour and Personality*, 14(2), 279 – 286.
- Wann, D. L., & Sherman, M. R., (2019), The verbal aggression of spectators at youth baseball games: Investigating the impact of competition level, team identification, and fan dysfunction. *Journal of Amateur Sport* 5(1), 96 - 112.
<https://doi.org/10.17161/jas.v5i1.6761>
- Webb, T., Dicks, M., Thelwell, R., van der Kamp, J., & Rix-Lievre, G. (2020). An analysis of soccer referee experiences in France and the Netherlands: Abuse, conflict, and level of support. *Sport Management Review*, 23(1), 52 – 65.
<https://doi.org/10.106/j.smr.2019.03.003>
- Williams, N. (2021, March 03). *Campaign aims to end abuse of minor hockey officials in eastern Ontario*. CBC News. <https://www.cbc.ca/news/canada/ottawa/eastern-ontario-hockey-abuse-campaign-1.5934083>

Appendix A

Copy of the consent form used for this study.

Hockey Parent Study

PRINCIPAL INVESTIGATOR:

Julie Brodeur

M.A. Student

University of Manitoba

Faculty of Kinesiology and Recreation Management

Winnipeg, MB, Canada

Email: brodeujf@myumanitoba.ca

Masters Thesis advisor:

Dr. Benjamin Schellenberg

University of Manitoba

Assistant Professor Faculty of Kinesiology and Recreation Management

Winnipeg, MB, Canada

Email: ben.schellenberg@umanitoba.ca

This consent form, a copy of which you may print for your reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

What is the purpose of this study?

The goal of this study is to learn about how people feel and behave while being a hockey parent, and how being a hockey parent relates to other parts of people's lives.

Do I qualify for this study?

You qualify for this study if you are the parent/guardian of a child who is currently playing organized hockey. We also ask that only one person complete this survey from each household.

What will I be asked to do?

You will be asked to complete an online survey that asks questions about being a hockey parent, your satisfaction of different needs in your life, and how you tend to behave toward on ice officials. The online survey will take approximately 15 minutes to complete. At the end of the survey, there will be a page debriefing you about a few more details of the study, including how we plan to analyze the responses.

Are there any risks if I participate?

We are aware of no risks of participating in this study.

Will I be compensated?

To thank you for your contribution to this research project, you will be entered into a draw for a chance to win one of five \$50 Amazon.ca gift cards. You will be entered into the draw even if

you choose not to answer some of the questions. If you agree to participate in the study and provide your email address you will be entered into the draw.

How can I see the results?

You will have the option of receiving a summary of the results once we have completed this study. If you are interested, please contact the primary investigator (at the email address above), or provide your email address below and we will send you the result once the study is over (which will be approximately in August, 2022).

Yes, I want to provide an email address to receive the results of the survey. (1)

My email address: (1) _____

Who else will see the research results?

The results from this study will be presented in my master's thesis, scientific journals, book chapters, and/or at conferences and public lectures. The results will be presented in aggregate and will not focus on any individual's responses.

Will my answers be anonymous? How will they be stored?

If you choose to provide your email address for a summary of the results or for entry into the gift card draw, it will be stored in a separate data file and will be permanently deleted after the results are distributed and the gift cards are distributed, which will be approximately in August, 2022. Before this data file is deleted, it will be accessible only by Julie Brodeur (principal investigator) and Dr. Ben Schellenberg (thesis advisor), and stored on a password-protected

computer in a locked laboratory at the University of Manitoba Fort Garry Campus.

The other survey questions will not ask you any questions to identify yourself (e.g., your name, phone number) – your responses will therefore be anonymous. The anonymized data file of survey responses will be stored, indefinitely, on a university network drive, a desktop computer in a research laboratory, and on an external hard drive. These three locations are password-protected. The desktop computer and external hard drive are physically located in a locked room at the University of Manitoba Fort Garry Campus.

To facilitate open science and collaboration between researchers, the anonymized data file, or parts of the file, will be shared with other researchers or posted on public data repositories. Sharing anonymous research data is a best practice in data management, and is in compliance with national research data archiving policies. It is important to emphasize that data shared in this way will be anonymous, meaning that the chances that your response could be linked back to you personally is extremely low.

Can I withdraw from this research?

You are not obligated to respond to any questions that you do not want to answer. You are also free to refuse to participate and to withdraw from the study, by closing your browser, at any time without being penalized – if you do so, we will remove your responses from all data files.

Withdrawing prior to submitting your email address or survey items, even if blank, will not enter you into the draw.

It is important to note that, once you have completed the survey, you will no longer be able to withdraw from the study.

INFORMED CONSENT

Selecting “I Agree” on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba may look at your research records to see that the research is being done in a safe and proper way. This research has been approved by the Education/Nursing Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator at 204-474-7122 or humanethics@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

If you would like to participate, please select the following three statements, and continue to the survey.

1. I currently have a child playing hockey. (1)
2. I am the only member of my household to complete this survey. (1)
3. I AGREE TO PARTICIPATE IN THIS RESEARCH. (1)

If you agree to participate in this study, click the “Continue” button below to proceed to the survey. We strongly encourage you to print this consent page for your own records.

Press CONTINUE to continue to the survey!

Appendix B

In this survey, an initial number of participants required, as per a power analysis, specified that to see medium effects, a sample of $N = 442$ was needed. Once the survey was distributed via email and Facebook recruitment campaigns, the number of participants quickly grew. In all a total of 1630 responses were received over a one-month period. The unexpected and large response to this survey raised concerns that some participants may be bots. In order to reduce the likelihood that bots influenced the responses, conservative exclusion criteria were adopted (see the main text for details). Figure 2 shows a “flow chart” of the exclusions used on this data set.

Bots are automated responses to survey items. Sometimes bots are set up in order to take advantage of survey remuneration. In particular, it has been noted that Amazon’s Mechanical Turk (MTurk) has issues with bots (Agely et al., 2021), mostly because participants are paid without verifying that respondents are real. In these cases, bots that automatically, and quickly, respond to many surveys can provide income for someone controlling the bot. The design of this survey did not base participant remuneration on survey completion, but rather on a chance to win one of five gift cards.

The issue with bots is twofold; first data quality and integrity are affected by untrue responses, and second, the scamming aspect of bots both in remuneration for completing surveys and in access to lotteries for survey participation can affect survey responses. According to Agely et al. (2021) bots can affect research through a number of avenues. As researchers with limited budgets, the open survey is an inexpensive and quick way to reach a lot of potential participants, but the risk of payment for poor quality data can skew results.

Ways to detect bots in a data set can be simple or complex depending on how a survey is set up. A quick look at a data set can reveal bots simply through the provided start and end times of a survey. If several participants are beginning and ending a survey at the same time, one can suspect that these are not true responders. Additionally, survey response times that appear to be very short can also be attributed to bots. For example, if a survey is created and is projected to take approximately 10 minutes to complete, a response in the range of 30 seconds would indicate that the response is not a true response. Another easy way to detect bots in your data set is through the use of text answers to quality control questions. Often bots respond to text required questions with nonsense answers.

In this research I took several steps to reduce the risk of analyzing responses provided by bots. First, any data that had less than 50% of the responses to the survey completed were removed. This step removed incomplete results but also eliminated those who would be considered as “speeders”, respondents completing the survey in a notably short time frame. Second, any participants missing any one the scales of interest were removed. Then, those who did not reply “yes” to the honesty question were removed. In this step, it was apparent that bots were completing the survey as some text answers were non-sense. Finally, those who failed to correctly answer four out of five of the conscientious responder scale were eliminated. An additional check to preventing bot participants is to use the built-in Qualtrics function to not allow “ballot box stuffing, or multiple responses by the same link.