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THE MENTAL HEALTH CULTURE IN HOCKEY: A SCOPING REVIEW

By

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A research paper in partial fulfilment of the requirements for the degree of Masters of
Arts

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Abstract

In any major Canadian city, one can find hockey arenas, outdoor rinks, or a *Tim Horton* coffee shop on every corner. Between September and April, many Canadians will adorn their favourite players jersey or their favourite teams toque, exuding team pride, further strengthening the idea that Canadian culture is entangled within the world of hockey.

Due to hockey's role within Canadian identity, this study conducted a scoping literature review in order to conceptualize what we know of mental health within hockey literature.

There were three overarching research questions that guided this study: 1) How is mental health defined, measured, or used within hockey literature?, (2) What does the literature tell us about Canadian cultural attitudes towards addressing mental health issues in hockey?, and (3) How is mental health discussed within scholarly literature pertaining to hockey? To answer these questions, 21 journal articles, that fit specific criteria were extracted from SCOPUS and SPORTDiscus. Not one article was the same, resulting in a very heterogeneous body of articles to analyze. As a result three themes were distinguished: (1) a gendered demographic, (2) the loss of the hockey identity, and (3) mental health as a main focus within the research design. All three themes highlight a greater understanding of what we know about mental health within hockey, as well as determine the potential expansion opportunities within academic research.

Keywords: mental health, hockey, Canadian identity, gender

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In memory of
Winnie Dormer
2012-2020

Introduction

Ice hockey, especially the style played in North American, is a violent sport that is known to result in troubling physical, psychological, and emotional outcomes. This study will expand on the body of literature that explores those troubling links by carrying out a scoping review to better understand what the literature says about mental health and hockey. Three research questions will guide this study: (1) How is mental health defined, measured, or used within hockey literature?, (2) What does the literature tell us about Canadian cultural attitudes towards addressing mental health issues in hockey?, and (3) How is mental health discussed within scholarly literature pertaining to hockey?, The intent of this review is to increase our understanding of how mental health is discussed and addressed in hockey and support the creation of policy within Canadian hockey to help protect and promote mental health among hockey participants.

Literature Review

This study hopes to provide a clear snapshot of the state of mental health within Canadian hockey literature, as it will allow for the understanding of how mental health is studied and talked about within the sport. A scoping review provides a great foundation for understanding how mental health issues intersect with hockey, the different ways in which hockey participants think about mental health, and the ways scholars study mental health in hockey. This study will also help illuminate the potential for further studies on mental health in hockey, as well as generate a better understanding of the state of mental health in Canadian sport, which can be used to influence mental health policy in the sporting sector.

After defining mental health, four main themes emerged within the current literature that provide the context needed for this scoping review: (1) Canada's relationship with

hockey, (2) hockey and masculinity, (3) sport psychology, and (4) the mental well-being of athletes. All four themes are inter-related and demonstrate the importance of mental health research in hockey specifically and sport generally. This study aims to fill in some of the existing gaps within the literature by presenting important cultural and symbolic connections that hockey has to the ongoing construction of Canadian identity, especially as it relates to males, and the real consequences these ideological connection have for hockey participants.

Defining Mental Health

As mental health is an essential component of this study, it is important to understand how mental health is defined. This study utilized the definition of mental health from the World Health Organization (WHO), the Government of Canada, and the U.S. Department of Health and Human Services. All three sources define mental health as anything pertaining to the well-being of an individual that encompasses any aspect of their emotional, psychological, and/or social well-being (Government of Canada, n.d., “Mental Health and Wellness”; U.S. Department of Health and Human Services, 2019, “What is Mental Health?”; World Health Organization, n.d., “Mental Health: Strengthening Our Response”).

According to WHO (n.d.):

Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community (paras. 2).

Further to that, the Government of Canada (n.d.) makes an important distinction between mental health and mental illness. Mental illness is defined as “...the reduced ability for a person to function effectively over a prolonged period of time...” (Government of

Canada, n.d., “Mental Health and Wellness”). Mental illness can surface due to the feelings of losing control because of stress, changes in mood, changes in thought processes, changes in behaviour, isolation, and sadness (Government of Canada, n.d., “Mental Health and Wellness”).

Therefore, this study defines mental health as anything pertaining to the mental well-being of an individual and the resiliency or the ability to cope with stress. Stressors can come from work life, the environment, or personal relations (ex. family or friends). Mental health also involves the ability to contribute to one’s community and therefore, when an individual is unable to do so due to the inability to cope with stress, will be considered to be at risk for mental health issues. Furthermore, this study defines mental illness as the inability to cope with stress and contribute to the community for long periods of time due to changes of mental well-being, as well as the prolonged struggle to find healthy coping mechanisms.

Van Slingerland et al. (2019) asserts the importance of establishing a common language and set of terminology within mental health research and outreach in the Canadian sport community, as it aids in the reduction of stigma, develops a particular set of values, beliefs, and customs in regards to mental wellness within the sporting community, and can be used by other sporting practitioners when developing mental health care programs. Therefore establishing a clear definition of mental health and mental illness within this study was essential, as it aligns Slingerland et al.’s (2019) notion of using a common language within Canadian sport research, but also aligns with Atkinson’s (2019) inclusive approach to mental health studies and sport. Atkinson (2019) argues that sociological thought and practice is essential for addressing the complex

issues that emerge because of sport. As such, mental health studies within the sporting community should be inclusive rather than exclusive, meaning that any issue surrounding emotional and psychological well-being should be investigated, as it can aid in the “myth-destroying” of mental health stigmas within sport. Therefore, this study recognizes the difference between mental health and mental illness, but will include both throughout the review in order to conceptualize the ways in which mental well-being is researched within scholarly literature.

Disentangling Hockey’s Role in Canadian Identity

Sport has always been an important part of Canadian culture. Today, many Canadians, no matter which segment of society they come from, engage in sport for a variety of reasons, including wanting to be healthy by leading an active lifestyle (Government of Canada, n.d., “Sport in Canada”). The Government of Canada invests heavily in sport as a way to foster healthy lifestyles and to drive community economic growth (Government of Canada, n.d., “Sport in Canada”). In fact, the federal government is the largest investor in the Canadian amateur sport system. It also creates programs, policies, and regulations for sport (Government of Canada, n.d., “Sport in Canada”). Although this study acknowledges the importance, popularity, and impact that sport has on Canadians and their health, this study focuses on ice hockey because it occupies a central place in the Canadian imaginary.

Hockey generates a meaningful amount of cultural and symbolic capital within the Canadian context, thus proving why it was chosen as the focal point within this study. Up until the 1990’s, there was little scholarly research on hockey, even though it was

clear that hockey played a substantial role in Canadian culture (Holman, 2009¹; Lorenz, 2015). Since then, hockey has become a popular area of research, so much so that there now exists a body of literature known as “hockey studies,” which explores hockey’s complex role in the Canadian cultural fabric, past and present (Lorenz, 2015). When analyzing hockey in a critical way, it is important to understand that the game is a site where different groups of people struggle over the meanings and practices associated with being Canadian (Holman, 2009). In other words, this means that hockey studies analyze conflicts that arise from the intersection of class, race and ethnicity, gender, religion, and nation, or any other important contextual factor.

Hockey is thus a site of cultural contestation, which makes it more than just a game or a form of mass entertainment. It is a site where symbolic power relations are exercised on a daily basis, be it on the ice, in the dressing rooms, through media, and technical rules and policies. In other words, hockey is a space where multiple stories unfold and compete for attention and dominance. These stories provide insight into to how individuals negotiate or perform their identities as Canadians and, equally important, what Canadians value (Holman, 2009). Robidoux (2002) argues that:

...hockey is more than a mythological construct; it is a legitimate expression of Canadian national history and identity. Hockey does speak to issues of gender, race, ethnicity, and region in this nation, albeit not in an entirely positive manner. For this reason, hockey moves beyond symbol and becomes more of a metaphoric representation of Canadian identity (p. 218-219).

¹ It should be noted that I was unable to find a copy of the original source due to COVID-19.

Robidoux (2002) argues that hockey has surpassed symbolism and is now a full blown metaphorical representation of Canadian identity. Hockey is a complex social phenomena that promotes a sense of collective identity as well as conflict in Canada. By understanding how hockey is woven into Canadian culture, this study aims to strengthen our scholarly understanding of the relationship between mental health, hockey, and Canadian identity. Looking at how hockey has historically been consumed within Canada creates a good basis on which to understand those linkages.

In the early 19th century, attempts to import games of European origin, such as curling and cricket, were part of the modern sport movement within hockey (Robidoux, 2002). Robidoux (2002) suggests that modern sport is a term used by sport sociologists and historians to refer to the shift from local games and contests towards highly organized, routinized events. This shift included the development of systematic rules and sanctions, and included the development of governing bodies to oversee the growth of sport – all of which was based on and reinforced particular notions of gender, race, class, and culture (Robidoux, 2002). Canadian modern sport has roots in the British Victorian era and, therefore, most early forms of modern sport in Canada aimed to uphold the ideologies of the “bourgeois sportsmen,” which would disassociate itself with anything pertaining to the working class or ethnic minorities (Robidoux, 2002). For example, in Britain, churches and school officials realized that organized sport was an efficient means of social control and conditioning; therefore, sport was often used in the British colonies to “correct” rough and vulgar masculinities (Robidoux, 2002). This eventually changed, as middle class reformers started to advocate for an expanded version of physical activity for the middle-class youth and would therefore, surpass the upper class exclusivity that

was found in sport at the time (Robidoux, 2002). Thus, the cultural acceptance of sport emerged, due to the growing accessibility to Canadians whom were from varying socio-economic classes.

Sport grew in popularity in the late 1800s due to three main factors. First, with the spread of industrialization, leisure time for the working class was created and thus organized sport was used as a form of social control (Robidoux, 2002). Second, sport was a way to reduce class conflict, as male participants could participate in competition in a controlled environment while on an equal playing field (Robidoux, 2002). Third, organized sport promoted healthier lifestyles for the working class, which was believed to increase productivity in the workforce (Robidoux, 2002). Today, sport is often tied to discourses about health.

Gender ideology is an important part of hockey's history. As the sport grew in popularity during the 19th and early 20th century, it provided sites in which different forms of non-European masculinity could be performed. Hockey was born out of post-confederation Canada and, therefore, allowed for a nation that was divided by language, religion, and ethnicity, to communicate via a common language (Robidoux, 2002). Even though other sports, such as lacrosse and baseball, were more popular than hockey in the late 19th century (Lorenz, 2015), by the early 20th century hockey quickly grew because it appealed to the rugged sense of masculinity that came to define life in early Canada (Robidoux, 2002).

In addition, scholarly research that investigates the early emergence of hockey culture often looks at historical media records to conceptualize the amount in which hockey was talked about, how hockey was talked about, and when hockey was talked

about (Lorenz, 2015; Lorenz, 2015; Lorenz, 2015). The role of newspaper columns and telegraph reporting helped to the spread the game (Lorenz, 2015) and popularize its violence (Lorenz & Osborne, 2017).

The tradition of media producing a specific form of Canadian identity through hockey continues. In the early 1960's, the television program *Hockey Night in Canada* swept the nation, drawing over 5.5 million Canadian viewers every Saturday (Langley, 2003). *Hockey Night in Canada* became a national ritual and aided in the spread of cultural values. Televising hockey games became a fitting way to broadcast the fast transitions, amplify the on-ice battles, and expand on the rhythm of the game² that occurs on and off the ice (Earle, 1995). While the fast-paced images of players battling on the ice attracted many viewers, so did the commentary. It influenced how viewers interacted with the game by producing emotional responses to certain situations (Earle, 1995), especially in terms of what were considered to be desirable male cultural norms.

As already mentioned, hockey is a rich symbolic space that is made up of many stories that are produced and consumed by multiple social actors. It is within these stories that an understanding of Canadian culture and identity is formed in regards to its relationship with hockey. Understanding hockey's relationship with Canadian culture and identity can help us understand the health outcomes of being involved in the game. Health outcomes in sport generally has long been a topic of concern in Canada. Today, this concern is clearly stated in federal policy. The current *Canadian Sport Policy*, in

² Rhythm of the game is hockey slang for when teams are working really well together, when teams get bursts of energy, or when teams seem to not be able to find possession and control of the puck during a game; therefore, looking scattered.

force till 2021, provides direction to the Canadian sport community on the broader health benefits of sport participation. It states,

Canadians participate in sport activities in a manner that strengthens their personal development, provides enjoyment and relaxation, reduces stress, improves physical and mental health, physical fitness and general well-being, and enables them to live more productive and rewarding lives (p. 4).

Importantly, the *Canadian Sport Policy* encourages Canadians to be more active because sport is known to improve mental health and psychological well-being (2012). However, as suggested previously, sport does not always equate to positive mental health outcomes. Participating in sport does not automatically mean better mental health. This may be especially true for hockey.

Hockey and Masculinity

Over the past several years, several scholars have used R.W. Connell's concept of hegemonic masculinity to study sport. This term is sometimes used interchangeably with hypermasculinity and refers generally to the embodiment of overt traditional heterosexual masculine characteristics in sport (MacDonald, 2014). Hegemonic masculinity can be summarized as the expectation that individuals, within a particular context (such as sport), are expected to follow four social rules: (1) reject traits considered to be feminine, (2) compete to win, no matter what the cost to health, (3) exemplify independence, confidence, strength, and toughness, and (4) embody violence, aggression, bravado, and resistance to authority (Brannon, 1976). All four rules find can be found in hockey and it is because of this that more mental health research is need in hockey specifically and sport generally.

Violence and aggression are thus historically rooted in hockey. Traditionally a male dominated sport, hockey's norms and expectations tend to revolve around an aggressive masculinity (Gee, 2009; Gilenstam, Karp, & Henriksson-Larsén, 2007). Hockey is notoriously more violent than basketball, baseball, and American football, the three other mass-consumed North American professional sports. Rockerbie argues (2012) this is partially due to the small surface area, speed of the game, and strength of the players. However, other scholars have clearly demonstrated the broader historical and cultural context that makes the sport violent in spite of Rockerbie's assertion. In other words, the smaller surfaces and other technical components of the game are a result of how team owners, media, and the public think the game should be played. By way of comparison, women's hockey, which is played on the same surface as men's hockey and is equally fast-paced (some would argue even faster than men's hockey), is not nearly as violent because traditional ideas about femininity have shaped how women play the game (e.g., with no body contact to preserve their reproductive ability and their 'looks').

According to Statistics Canada (2019), hockey is presently the most popular sport in the country. This means that many Canadians who participate in hockey are being socialized to accept hypermasculine behaviours (Allain, 2008). As young players grow-up playing the sport, they internalize norms that are rooted in negative masculine behaviours, such as violence. Players who are able to convey proper hockey masculinity are usually rewarded by media, their peers, coaching staff, and spectators. For example, a player who constantly engages in hard-hitting and competitive fast play is often rewarded with more media, ice time, loud cheering from fans, and respect from their teammates.

What is more, many players are financially rewarded for their aggressive playing style. There is even a specific position in hockey, called the “enforcer,” that players are drafted into for the sole purpose of protecting other players. According to John Scott, former NHL enforcer, the role of the enforcer is to “keep peace on the ice,” “make other teams nervous,” and “make sure star players don’t get taken advantage of” (Bennett, 2017). Enforcers playing in the National Hockey League (NHL) receive wage premiums for being more physically violent (Burdekin & Morton, 2015). Burdekin and Morton (2015) found in their study that enforcer salaries were positively related to penalty minutes, demonstrating that keeping the “peace” requires breaking hockey’s formal rules (necessitating the penalty minutes).

Aggression and violence in hockey are often seen in the form of body-checking. Body checking, described by Hockey Canada (2011), is:

A player's attempt at gaining the advantage on the opponent with the use of the body. Checking results when two opposing players collide while skating in opposite directions or when positioning and angling allow the checker to use the force of the body to gain the advantage (p. 6).

Body checking is the most common form of aggression in hockey and can have detrimental effects on both the culture of the game and on the health outcomes of players. Emery, McKay, Campbell, and Peters (2009) found in their quantitative study that players who played in body checking leagues were more willing to induce harm on other players while playing the game. Furthermore, they found no significant difference between body checking and non-body checking players in regards to rates of aggression on the ice, according to the Buss-Perry Aggression Questionnaire. This suggests that although body checking plays a

large role in aggression and violence in hockey, it is not the only thing that contributes to the embodiment of aggression on the ice.

Body checking sanctioning is often debated within hockey due to the rise of injuries that occur. Some believe that body checking increases the excitement of the game, as it adds another challenging component on top of the speed and strength of players and fast-paced movement of the puck (Rosenberg & Stevens, 2013). Other pro-body checking views often argue that young players should be taught how to body check at younger ages because it will allow young players to learn to safely hit and safely receive a hit (Macpherson, Rothman, & Howard, 2006; Rosenberg & Stevens, 2013). Furthermore, Todd, Soklaridis, Treen, Bhalerao, and Cusimano's (2019) qualitative study shed light to the cultural problem in hockey regarding youth safety. They interviewed stakeholders in several Canadian hockey organizations to investigate attitudes towards creating a safer game for youth. Their results showed that stakeholders held the naturalistic perspective on body checking in hockey, which is the belief that body checking is a 'natural' aspect of the game, thus impossible to erase completely. The stakeholders also believed that body checking should be taught 'properly' in order to reduce injury and keep the game true to its nature. This demonstrates how difficult it can be to encourage sport leaders to change the game, especially when they believe they are making a 'naturally' violent sport 'safer' for youth.

Macpherson, Rothman, and Howard (2006) examined the injury rates of players to better understand whether or not teaching players how to body check at a younger age was beneficial to their physical health throughout their career. The study used two different cohorts of players to compare injury rates. The first cohort included players in the Ontario Hockey Federation, which, in 1998, was part of a five-year pilot project that allowed

competitive leagues to sanction body checking by the age of ten (Macpherson, Rothman, and Howard, 2006). The pilot project aimed to teach children how to body check and how to receive a body check in the hopes of decreasing the number of injuries in later years. The second cohort included players in the Quebec's minor hockey league, where body checking was not sanctioned until the age of fourteen. The authors found that early exposure to body checking techniques actually created greater odds of attaining an injury from being body checked, as well as higher odds of sustaining a concussion in later years of play. This study thus challenges arguments that support teaching youth how to body check at younger ages since it actually causes more injuries (that they would not have otherwise sustained).

Further studies have illuminated on the risk to physical injury to hockey players (especially youth) in regards to violence, in the form of body checking and traumatic head injury, while playing the game. Emery et al. (2019) found within a two-year cohort study, that when issuing a policy banning the use of sanctioned body checking in leagues involving 13-14 year old boys, there was a 54% less chance of reported injuries and a 61% less chance of reported severe injuries. Typically, contact sports result in more injury rates, which can impact lower body, upper body, and brain health (Emery, Hagel, Decloe, & Carly, 2010; Matic et al., 2015).

Violence and aggression are not the only forms of hypermasculinity that need to be critiqued. The rejection of feminine characteristics, the pursuit of success regardless of the cost to health, and the demand to be independent and tough find themselves within hockey, furthering the need to research health outcomes of participants. Certain forms of masculinity can socialize and influence an individual's ideology, potentially changing behavioral patterns (Ramaeker & Petrie, 2019). If individuals are being subjected to a

masculinity that ideals toughness, emotional detachment, and strength, individuals are more likely to experience a decrease of psychological well-being, interpersonal conflict, and behavioral concerns (Ramaeker & Petrie, 2019). Ramaeker and Petrie (2019) compared male athlete and non-athlete masculine ideologies. They found that male athletes were more likely to conform to masculine norms than males who were non-athletes. The male athletes were thus more inclined to focus on winning during competition, which the athletes viewed as a form of success (Ramaeker & Petrie, 2019), engaging with Brannon's (1976) second rule of hypermasculinity, striving for large amounts of success no matter the (health) consequences. Interestingly, however, the study found that regardless of being an athlete or not, men who scored high on the Conformity to Masculine Norms Inventory, were less likely to seek out mental health care and were also more likely to have negative attitudes towards help-seeking practices, which suggest that masculine ideologies impact health behaviours regardless of the environment.

Although the literature suggests there is little difference in athletic and non-athletic conformity to masculine norms in regards to mental health behaviours (ex. being emotionless), research indicates that athletes may be subjected to greater mental health stigma (Breslin, Shannon, Ferguson, Delvin & Haughey, 2019; Ramaeker & Petrie, 2019; Steinfeldt & Steinfeldt, 2012). Scholarly research of mental health within sport, more specifically hockey, becomes evidentially more complex due to barriers such as hypermasculinity, stigma, and the likelihood of negative health behaviours. As such, this review looks to showcase the current mental health research in hockey and examine whether or not gender is affluent characteristic considered within the research.

The Role of Sport Psychology

Understanding the mental health trials that athletes face aids in the understanding of how mental health is framed within the sporting context. Physical activity and sport are tools used to help promote positive health behaviours and outcomes, as they usually reduce stress, increase energy, and help prevent chronic diseases, mental health issues still occur. As such, when athletes come across mental barriers or mental health trials, sport psychology and psychologists are often utilized because of their knowledge and training. According to the American Psychological Association (2008), sport psychology is:

[the use of] psychological knowledge and skills to address optimal performance and well-being of athletes, developmental and social aspects of sport participation, and systemic issues associated with sports settings and organizations (para. 1).

This knowledge and skill set can be applied to participants of sport, coaches, administrators, or parents and aid in three principle areas: (1) cognitive and behavioural skill training for performance enhancement (ex. focusing techniques, game/competition anxiety) (2) counselling and clinical intervention for participants with declining mental health or for the appearance of mental illness, and (3) consultation and training involving team building, conflict management, and/or overall mental development (American Psychological Association, 2008; Ryba & Wright, 2005).

Dating back as early as the late 19th century and than into the 1960's, sports psychology scientists (researchers) and practitioners were mainly made up of psychologists and/or sport scientists (most of which had a background in physical education) (Petrie & Harmison, 2012; Ryba & Wright, 2005). Historically, both psychologists and sport scientists clashed with one another, as they both believed that their version of sport psychology was more practical and insightful, in regards to the ways in which they researched, theoretical

approaches that were used, and the application of sport psychology techniques (Ryba & Wright, 2005). With neither of the two conceding, sport psychology in the mid 20th century missed the opportunity to become a multi/interdisciplinary field and continued to struggle for credibility as an emerging discipline (Ryba & Wright, 2005). However, in the 1980's the application of sport psychology saw the blending of psychological practice with knowledge grounded in physical education (Ryba & Wright, 2005). Ryba and Wright (2005) discuss how sport psychologists started to understand the correlation with an athlete's mental state and attitudes with kinaesthetic performance, a concept predominately used in physical education, as an asset to sport performance training and psychological understanding. Further to that, sport psychology in the late 1990's established the importance of the "mental game" in sport performance and its link to mental training via sport psychology, thus sparking researchers and practitioners to be critical of a narrow minded form of sport psychology (Ryba & Wright, 2005). Rhys and Wright (2005) hold that future directions for sport psychology may also merge with other fields to create an even more interdisciplinary approach. Feminist approaches, cultural studies, (Ryba & Wright, 2005), and sociological approaches (Atkinson, 2018) are amongst the proposed disciplines in which to draw from in order to understand the mental health of sport participants. Sport psychology is an essential aspect of this review, as many of the scholarly articles may be found from sport psychology literature. Furthermore, sport psychology gives this review context in regards to how sport, in general, frames the treatment of mental health issues that derive from one's participation in sport (ex. performance enhancement related), the types of mental health issues that may arise from participating in sport (ex. burnout), and the prevalence of mental health issues amongst athletes.

Mental health and wellness in Athletes

Athletes are at risk for overtraining, injury, burnout, cardiovascular conditions, iron deficiency, and the onset of mental illness while pursuing sport (Hughes & Leavey, 2012). At certain levels of sport, athletes sacrifice both their physical and mental well-being in pursuit of their athletic goals. Hughes and Leavey (2012) suggest that one way athletes become more vulnerable to mental illness is the inability to become autonomous from their “athlete personality”, resulting in identity-foreclosure. Identity-foreclosure, which is the loss of independence and the feelings of disempowerment for an athlete, often results in overtraining and athlete burnout, which is strongly correlated with Major Depressive Disorder (Hughes & Leavey, 2012). Additionally, Hughes and Leavey (2012), also mention that eating disorders (ED) and the development of risk-taking behaviours are risks that come from of being an athlete at a certain level. Rice et al. (2016) conducted a systematic review that looked at the documented mental health impacts that elite sport participants face. In this review, Rice et al. (2016) found that out of the 60 included scholarly articles, only four investigated the prevalence of anxiety in athletes. Although all four studies focused on performance anxiety as opposed to generalizable anxiety/non-competitive anxiety, performance anxiety was still correlated with negative perfection behaviours, resulting in low-levels of self-esteem (Rice et al., 2016). This review also found that ten studies focused on ED and body image issues, finding that there are athlete specific factors that increase the risks of developing an ED and/ having body image issues. These risk factors included the desire for an athlete specific body-type demand, being of a young age, and being a female (Rice et al., 2016). Mood disorders, anxiety disorders, and substance abuse were also

prevalent within this review, yet the review still called to action the need for more peer-reviewed literature in regards to mental health and well-being for elite athletes.

Although Rice et al.'s (2016) review mapped out the extent to which scholars are examining mental-wellness in athletes, it did conclude that the strength in understanding mental health within the sporting context was poor and some what inconclusive. Lack of strong peer-reviewed studies, lack of variability among scholarly literature, and heterogeneous sample populations, contribute to the review's discussion on the need for more mental health research in sporting communities (Rice et al., 2016). This review will contribute to the lack of literature regarding mental health in sport by implementing a sport specific focus within the research design and questions. Sport can be a very broad topic, with many different aspects including, but not limited to: team sport versus individual sport, contact sport versus non-contact sport, elite sport versus recreational sport, men's leagues versus women's leagues, and summer sport versus winter sport. Furthermore, sociological factors such as nation, class, gender, sexuality, and race/ethnicity may impact the behaviours seen within a sport. As such, narrowing down to a specific sport will help bring focus to this review, as it will be able to consider the dynamics mentioned above in a more detailed manner, as well as investigate the impacts of a cultural phenomenon within Canada.

Methodology

Because this study aimed to conceptualize the current notions regarding mental health in the Canadian hockey context, a scoping review was deemed the most suitable and efficient mode in which to do so. Arksey and O'Malley (2005) demonstrate the nature and practice of completing a scoping review in their article *Scoping Studies: Towards a Methodological Framework*, which influenced the methodological strategies

within this study. Scoping reviews allow for the strategic organization of complex concepts, which can be derived from a variety of disciplines, in order to answer broad research questions (Arksey & O'Malley, 2005, p. 21). Arksey and O'Malley (2005) propose that scoping reviews typically follow a five stage process when conducting: (1) creating research questions, (2) compiling a broad amount of relevant literature using key terms, (3) creating variables that allow researchers to choose which articles will be included in the study, (4) 'charting' the data or thematically organizing key themes and concepts found throughout the literature, and (5) reporting the results to present the narrative of the current literature (p. 23- 27). Therefore, this study employed these five stages in order to create a thorough and all encompassing body of work regarding the state of mental health within the Canadian context in academic literature.

Search Strategies

To keep true to mental health and hockey, several decisions were made to work within the confines of time and resource constraints. Hockey can be understood as a broad and complex topic and therefore, at the beginning of this scoping review, scholarly literature that was directly associated within the Canadian context was sought after because of hockey's influence within Canadian culture. However, after searching through the databases, using search terms that would place articles caught within the Canadian context, the catch resulted in a very miniscule amount of articles. Therefore, this scoping review utilized hockey literature with no geographical boundaries, allowing for the ability to include a variety of articles. This does not negate the importance or the prevalence of hockey in Canada, as Canadians are still mass consumers of the sport. For example, Canadians make up approximately 48% of the National Hockey League (NHL), which

can be argued is the most popular professional hockey league (CTV, 2018) and potentially be prevalent within the demographics of the studies caught for this review. Secondly, this review will include any topic that relates to or focuses on mental health and mental illness, as they defined earlier. Currently, there is no study of this kind, keeping the topic of mental health broad was essential, as it allowed this review to showcase the complexity of mental health within hockey. Thirdly, Scopus and SPORTDiscus were the two main databases used due to their large amount of article access and its inclusion of various fields, including but not limited to the social sciences, medicine, natural sciences and the sport sciences. During the initial test searches, additional databases including PsychINFO, Scopus, and SPORTDiscus were explored. However, the articles that fit the vetting criteria in PsychInfo often overlapped with what was found within Scopus, resulting in a large amount of duplicate articles. Thus for the purpose of time and efficiency, Scopus and SPORTDiscus were chosen as the main cornucopia for useable articles to ensure all possible articles were ‘caught’.

Selection Process

Test searches were completed before the actual process of compiling happened to help comprehend what types of scholarly pieces have been published, where and when they have been published, and the amount of articles that might surface for this review. A large amount of search terms, which are outlined in Table 1., were used during the initial test searches in order to ensure the possibility of including all articles from the databases, but would later be reduced to warrant efficiency during the final searches. These search terms were developed with the help of a Health Sciences librarian at the University of Western Ontario, as well as from my previous knowledge on the topic.

Along with the search terms, three themes were initially established in order to aid in the development of final search terms and in the organization of articles within my personal storage. These themes were cultivated through the initial test searches, as the articles that ‘popped up’ in those searches naturally grouped together in regards to particular focus points. The three themes used are described below:

Table 1

Test Run Key Words

Anxiety	Men
Aggression	Mental Health
Burnout	Mental Illness
Canada	Mood
Canadian	Mood Disorders
Common Mental Health Disorders	National Hockey League (NHL)
Coping	North American
Depression	Obsessive Compulsion Disorder
Depressive Symptoms	Psychological Training
Distress	Post Traumatic Stress Disorder
Eating Disorders	Resilience
Female	Sadness
Flourishing	Self-esteem
Gender	Self Percieved Mental Health
Gender Differences	Shame
Guilt	Suicide
Hockey	Suicdial
Hypermasculinity	Suicidal Ideation
Ice Hockey	Toxic Masculinity
Male	Violence
Masculinity	Women
Mental Disorder	Worry

Along with the search terms, three themes were initially established in order to aid in the development of final search terms and in the organization of articles within my personal storage. These themes were cultivated through the initial test searches, as the articles that ‘popped up’ in those searches naturally grouped together in regards to particular focus points. The three themes used are described below:

1) Hockey: Any type of participation in ice hockey. This can include being a player, retired player, coach, spectator, volunteer, or parent (of a child participating in minor hockey). This category may also include any form of media (social media, broadcasting, or newspaper) that focuses on hockey.

2) Mental Health: Can include any condition, trauma, or situation that results in the change of an individual’s mental well-being (both positively and negatively).

Although mental illness is defined separately from mental health, it was included in this category, as negative mental health issues may lead to mental illnesses. Mental illnesses can include anything that affects the ability to function for a prolonged period of time (Government of Canada, n.d.).

3) Gender: A category, which can include anything related to gender and hockey. There are large amounts of literature that examine how hockey is highly gendered (Adams & Leavitt, 2018; DiCarlo, 2015; Gee, 2009; Plaza, Boiché, Brunel, & Ruchaud, 2017); therefore gender may be useful in grouping and organizing the literature. Furthermore, gender often illuminates on differences in health behaviours and well-being of individuals (Courtenay, 2000) and would add another dimension to the review.

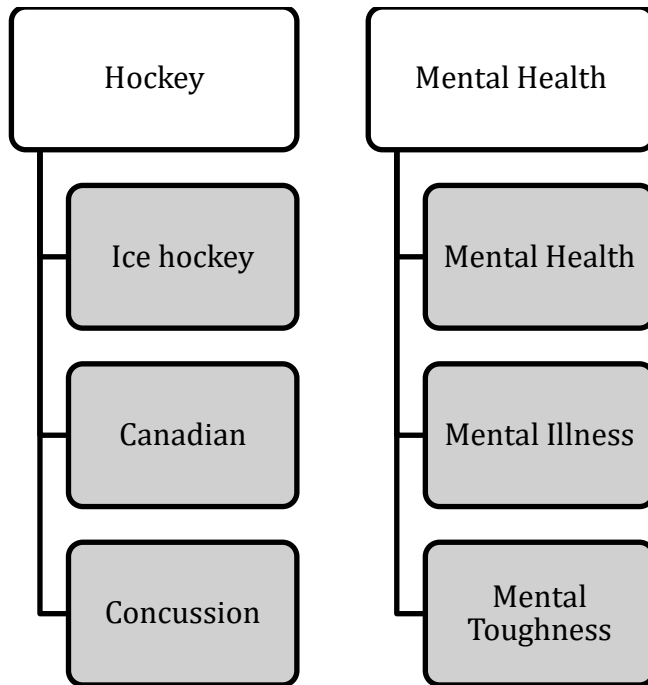
Mental health within the context of hockey is a fairly under-researched area, and therefore generated a limited amount of relevant scholarly articles within the confines of

the initial search terms, resulting in the elimination of extraneous terms. The terms were eliminated not because they were deemed unimportant or irrelevant to the mental health of hockey players, but due to the lack of research on those particular topics. The lack of articles within these initial searches within the three original databases used in the test searches lead to trying the search in two other databases, MEDLINE (Ovid) and PsycARTICLES, but again, results were non-existent or duplicates. Furthermore, after deliberation, the “Gender” theme was also eliminated due to the lack of literature that explicitly combined Mental health, hockey, and gender. Although “Gender” was eliminated, it was still used and referenced during the thematic analysis.

A final draft of terms and themes found in Table 2., were created and organized in order of importance or in order of what might “catch” the most relevant articles in Scopus and SPORTDiscus after the initial test searches were conducted. Table 2. outlines the final terms and themes used during the final searches for the review. However, the initial search terms were kept on hand in order to make reference to particular focuses within the articles.

Table 2.

Themes with their Designated Search Terms



The process in which articles were chosen as “selected articles” happened in two steps. The first step was to identify whether or not the title, abstract, or key words of the scholarly article matched up with any of the key terms found within the two themes. This means that the article’s title, abstract, or key words had to either include the key search terms, have nuances of the research themes, and/or the ability to potentially help answer the research questions. After compiling the articles that made it through step one, a thorough read through was completed in order to ensure that it met the following requirements: (1) have some sort of involvement with hockey, hockey culture, or hockey players, and (2) deals with mental health in any form. If the article met the previous requirements, it was then included within the review.

Charting

After the data was collected, a thematic analysis was done in order to group and organize topics from various articles into specific categories. Using a thematic analysis

allowed me to highlight the main focus points that the scholarly articles had in regards to mental health and its association with hockey. The thematic analysis also helped with creating a clearer picture of the state of mental health within sport research, the patterns in which researchers are taking in regards to studying mental health (ex. types of methodology, participant demographics, discipline), and what recommendations should be made pertaining to future research in mental health.

Results

Data Extraction

As outlined in Fig. 1, both Scopus and SPORTDiscus produced a total of 91 articles that were identified using the outlined search terms. Once the duplicates were removed, 82 articles remained. After screening the titles and abstracts for relevance, 31 articles were left for a more detailed investigation. This number was reduced even further because, although several articles seemed to have one aspect of the review's criteria, they failed to intersect the other criteria points that were crucial in answering the research questions. For example, one article mentioned ice hockey and mental toughness, focusing

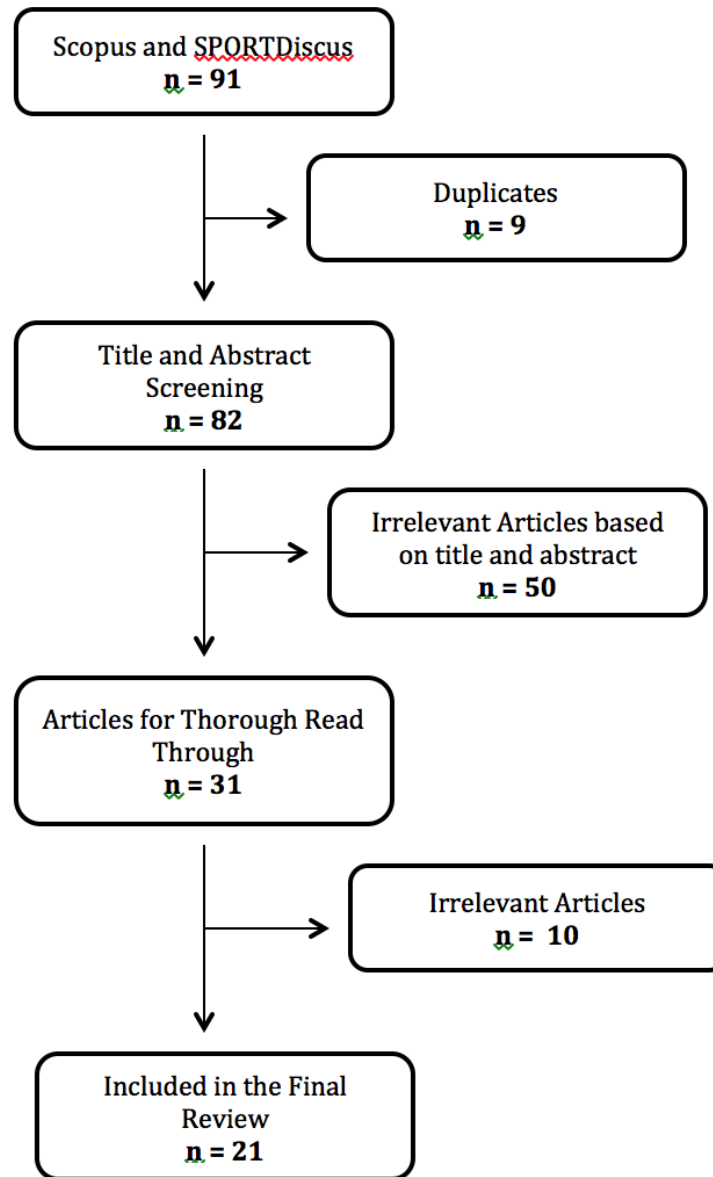


Fig. 1 Database Extraction Results

on the association between coach satisfaction and mental toughness (Rodahl, Giske, Peters, & Høigaard, 2015). While mental toughness is one of the search terms used to capture articles, this study failed to include aspects of mental health as defined within this review.

Furthermore, three articles mentioned hockey and mental health; however, after further investigation, it was found that these articles referred to field hockey and floor hockey (Brooks & Bull, 2001; Holt, Scherer, & Koch, 2015; Forsdike, Sawyer, & Marjoribanks, 2019), making them no longer eligible for the review. Additionally, three articles were systematic reviews. Two out of the three reviews did not fit the criteria for this review, as they focused on topics outside the realms of this study's research objectives. For example, Cunningham et al.'s (2020) systematic review on cognitive health outcomes of retired athletes did not include mental health aspects (as defined within this review) and therefore was eliminated. Furthermore, the reference lists of these two reviews were thoroughly investigated to provide any additional articles that may have been missed during the database search. However, this yielded no new articles for inclusion. The third systematic review provided great insight into mental health and mental illness within the discussion and conclusion sections,, as well as the concern about a potential mental health crisis within the hockey community (Parizek & Ferraro, 2016) and therefore was deemed relevant. As such, a total of 21 articles were chosen for deeper analysis.

Descriptive Overview

Of the 21 articles included in the review, six used qualitative methods, 14 used quantitative methods, and one used a mixed method approach. The six qualitative articles employed methods such as interviews, media analysis, photovoice, and systematic review. The quantitative studies used various types of statistical testing for their studies. The most used tests were *t*-tests, Pearson's correlation coefficient, and ANCOVA to test the relationship between their variables. Some studies gathered their data from

questionnaires made by the author and/or through an existing questionnaire. For example, Pluhar et al. (2019) created their own survey which would outline their demographics, past injuries, sport, reason for playing sport, and self-reported levels of anxiety or depression. On the other hand, some studies utilized pre-existing questionnaires and scales. For example, Gouttebarga and Kerkhoffs (2017) created a survey using several existing questionnaires such as the 12-item General Health Questionnaire. Only one study was found to use secondary data, which was from the Canadian Health survey (Kitchen & Chowman, 2016). Not every quantitative article described which statistical programs they used to run their tests, but Stata or SPSS were the two main programs mentioned. Caperchione et al. (2017) was the only study that utilized a mixed methods approach, having participants fill out a questionnaire and then were asked to complete a follow-up phone interview in the following weeks. An in-depth review of each article can be seen in Table 3., and it describes the various scales and tests used for each study.

Table 3.

General Overview of Articles Included within the Review

Author and Year Published	Journal	Objectives	Methods and Participants	Results
Amiot, Sansfaçon, & Louis. (2013)	Psychology of Sport Exercise	To examine why hockey fans use derogatory behaviours against opposing fan and rival players.	Three studies were conducted to understand the complexities of violence by sport fans. All studies conducted quantitative work and were conducted in different leagues. Several scales were used to identify frequency of derogatory behaviour, motivation of derogatory behaviour, positive and negative affect, social identification, self-actualization, and conflict. Participants included both men and women over the age of 18 years old.	The study found that engaging in derogatory behaviours against the out-group out of self-determined motivation was important to the individual and their values, thus equating for a more positive wellbeing. However, engaging in derogatory behaviours against the out-group in the non self-determined motivation manner, lead to the lower wellbeing of the individual.
Aston, Filippou-Frye, Blasey, Johannes van Rossel, & Rodriquez. (2020)	Canadian Journal of Behavioural Science	Firstly to understand whether or not retired professional hockey players experience common depressive symptoms as much as active players and the general public. Secondly, to examine the difference in perceptions of social support and normative male alexithymia (NMA) between retired and active players. Thirdly to examine if there is a relationship between NMA, perceived social support, and depressive symptoms in retired and active players.	The quantitative study used the Depression Anxiety Stress Scale to report on depression, anxiety and stress. The Brief Form Normative Male Alexithymia Scale was used to measure NMA. The Multidimensional Scale of Perceived Social Support was used to measure perceived social support. Participants included 234 retired professional hockey players and 175 active professional hockey players, all of them men.	Depression was active in both retired and active players. Retired players had significantly more depressive symptoms than the general population, whereas active players did not significantly differ from the general population. There was a significant association between self perceived social support and depressive symptoms, NMA and depressive symptoms, and self perceived social support and NMA in retired players. Similarly, in active players, there was a significant association between self perceived social support and depressive symptoms and NMA and depressive symptoms. Retired players were twice as likely to endorse moderate to severe depressive symptoms.

Carré, Muir, Belanger, & Putman. (2006)	Physiology & Behaviours	To investigate the pre-game physiological and psychological states of elite athletes in both home and away games. To see if there is a relationship between salivary cortisol measures and state somatic anxiety.	Data was collected for 5 games (3 home and 2 away) in from October to January. All saliva were collected between 6:45pm-9:30pm. Psychological data was measured using the Competitive State Anxiety Inventory-2. Post-game assessments were also collected via the head coach giving a subjective assessment of each players performance. The study had 17 male Jr. A hockey players from Northern Ontario, aged 16-20 years old.	Any difference in pre-game physiological and/or psychological levels were not attributed to the quality of the opposing team. Although no statistical significance was found, the salivary cortisol levels were higher for games played in the home arena. There was a positive correlation between psychological states and performance and location - meaning that self confidence plays a role in psychological states and performance. No significant association with pre-game cortisol and pre-game somatic anxiety.
Davis IV & Zaichowsky. (1998)	Perceptual and Motor Skills	How mental toughness and assessed causal explanations for positive and negative reactions to imagined events. How emotional and cognitive responses to disappointing athletic events may result in poor training and future performances. To see whether players who showcase increased mental toughness in their on-ice behaviour are different then those who showed less.	Used Attributional Style Questionnaire. Scouts were used to rate mental toughness. Five on-ice behaviours were used: (1) adversity response, (2) over-achievement, (3) effort, (4) enthusiasm, and (5) skill. There were 38 players with a min. age of 17.8 years and had to be (a) eligible for the NHL entry draft - predicted by scouts to go within the first 3 rounds OR (b) in their first season of IHL.	Players who rated higher on mental toughness were significantly more Pessimistic explanatory styles than their counter parts. The explanatory style found within most players are consistent with being a risk factor for depression. Pessimistic behaviours are linked to a fear of failure and can result in depression.

Debnath et al. (2003)	The Journal of Bone and Joint Surgery	To assess the outcomes in regards athletes who underwent a repair of spondylolysis using a modified Buck's fusion or the Scott wiring technique to return back to sport.	The quantitative data was collected and mental health scores were measured with Short-Form 36. Between 1994 and 1999, 22 young athletes who were treated for spondylitis. There were 15 men and seven women with a mean age of 20.2 years. Duration of symptoms was 9.4 months. This study included 13 professional footballers, 4 professional cricket players, three hockey players, one tennis player, and one golfer.	Mental health scores were high before surgery, but two years after surgery, the mean score for the mental component of health improved from 39.0 (SD 3.97) to 55.4 (SD 6.34) with a $p < 0.001$.
Gouttebarga & Kerkhoffs (2017)	The Physician and Sportsmedicine	To determine the prevalence of comorbidity and 6-month incidence of symptoms of common mental health disorders. Evaluate the relation between potential stressors and CMD	This study used a two part questionnaire. The first part was completed by 258 participants and 158 completed the follow-up. Current or retired professional male hockey players who had to be apart of the national ice hockey players' union from Denmark, Finland, Norway, and Switzerland.	Current players were exposed to more life events that equated for higher levels of life dissatisfaction and were five times more likely to report symptoms of CMD. Retired players with injuries were seven to eight times more likely to report symptoms of CMD compared. Both groups stated that there are enough support systems in place to help deal with CMD during or after career.
Johnson et al. (2020)	Psychology of Sport and Exercise	To explore the psychological well-being and multi-cultural adjustment experience of relocating for Indigenous athletes.	Grounded in an Indigenous research framework, this study utilized a case study approach. The stories came from the two female athletes, their parents, and the billet parents. Data generation came from five different faucets: (1) conversations via interviews with the athletes', (2) conversations via interviews with the parents, (3) Photovoice exercise, (4) Photovoice reflection with	The Athlete' experienced several emotions in regards to relocating: emotional stress, challenges coping, anxiety, disappointment, nervousness, and fear. However, the athletes' also experienced happiness, excitement, and pride. Coping strategies became a theme of the study and researchers found that avoidance was a coping mechanism found in both the athletes and their parents. A sense of belonging in the athletes' relocation experiences, while

			the athletes', and (5) conversations via interview with the billet parents	maintaining cultural connections was highlighted as an important tool for the better adjustment of the relocation of Indigenous athletes.
Kennedy & Silva. (2000)	Punishment and Society	How using a crime model in popular culture (sport) can frame certain ideologies amongst the athletes and the fans, thus allowing for the potential of negative consequences in terms of identity formation.	Gathered data from mass media searches in the Factiva database for longest suspensions in the NHL. Use of media discourse and the league's disciplinary models work in synch to contribute the public's knowledge/understanding of violence, crime, and punishment within hockey. Used suspensions in the 80's, 90's, 00's, and 10's.	What are the consequences of a neoliberal capitalist system on athletes? How violence and treating violent "offenders" may have links to mental and physical health issues within the league (NHL), therefore the ways in which the hockey uses criminal justice rhetoric's to understand on-ice deviance leads to financial, chronic physical and mental health issues, and early death
Kitchen & Chowhan. (2016)	Journal of Sport Sciences	To discuss the ways in which ice hockey (as a high intensity sport) can be promoted within less active adults and people who are new to the game. The paper argues that compared to the high cost of youth hockey, adult recreational hockey is quite affordable.	Conducted statistical tests using the Community Health Survey.	The study found that 91% of Canadians who were 22 and over that played hockey in 2011-2012 were male. Most participants who played hockey were in a higher SES. Found that there was no association between playing hockey and self-assessed mental health and perceived life stress.
Livingston, Tugwell, Korfuzan, Cianforne, & Coniglio. (2013)	Social Psychiatry and Psychiatric Epidemiology	To evaluate the effectiveness of a mental health campaign, <i>In one voice</i> , on raising awareness and improving attitudes by using prominent male sport athletes/figures.	Two samples completed an online questionnaire either before or 2 months after the campaign was launched. Using a market research company to survey respondents and administer online questionnaires, the campaign was featured at a Vancouver Canucks home games, NHL all stars game, Canucks for Kids telethon, and Hockey Night in Canada to understand the effectiveness of mental health promotions.	After campaign the organizations website increased in awareness (significantly) from 6% to 15.6%. However, it did not increase in non-white groups and individuals who self-reported have a mental health issue. Having a sport-focused campaign was effective at reaching young males.

Mack. (2019)	Journal of Sport Behaviour	The overarching purpose of the research project was to examine the relationship between mental toughness and concepts associated with mental toughness. <i>Focus will be put on the third study.</i> To examine the correlation between mental toughness and coaches' ratings of a team of 24 hockey players.	MeBTough was used to measure mental toughness, alongside with the coaching staff rating players in 3 hierarchical groups: most mentally tough, average mentally tough, least mentally tough. The participant group consisted of 24 members of a hockey team. The male team had a mean age of 18.5 years and were part of a Tier 1 circuit hockey team.	The overall mean of the MeBTough score was 147.1 (<i>SD</i> - 11.8); however, there was no significant difference between MeBTough Score and coaching staff objective grouping and ranking of players.
McFadden, Bean, Fortier, & Post. (2016)	Cognet Psychology	What are the differences in regards to psychological needs satisfaction (PNS), psychological needs dissatisfaction (PND), mental health or mental illness within youth hockey players? Does youth's PNS and/or PND predict mental health and mental illnesses and if so, does specialization play a role?	Youth were also asked to complete separate online questionnaires. Participants were english speaking, male youth hockey players (13 and 18 year olds) and one of thier parents . There were 61 bantam and midget hockey players in South Eastern Ontario, Canada.	PND was significantly different across all groups and early specializers reporting greatest PND. PNS and PND did significantly predict mental health and mental illness, but specialization did not significantly contribute to the prediction. Participants (most of) reported good mental health and low mental illness. This may be due that most of the sample were involved in other sports. It is important to discuss that PND was significantly different amongst all groups of specialization, and that early specialization increases the likelihood of PND.
Orr et al. (2018)	Journal of Neurotrauma	To examine the changes in neuroimaging associated with a history of concussion that occurred beyond the acute symptoms, which can result in an elevated risk for negative outcomes later one.	The study utilized the Post-concussion symptom scale, the Achenbach System of Empirically Bases Assessment, and neuroimaging (in the form of a MRI). There were 29 males (14-23 years old) from ice hockey training camps and 16 reported that they have had a concussion.	The results suggested that within the current study that athletes with a history of concussion reported external symptoms that correlated with iFC and DMN. These external symptoms included motional and behavioural irritability, stubbornness, and liability.
Parizek & Ferraro (2015)	Current Sports Medicine Reports	A systematic literature review that summarizes, compares, and evaluates current literature on concussions/Traumatic	Looked at recent studies from 2005-2015 regarding ice hockey and concussion as a medium for exploring the	Sports related concussion and traumatic brain injuries may produce a major mental health crisis, both from an emotional well-being and financial point of view - in regards to medical

		brain injury and hockey.	short-term and long-term effects of concussion on athletes. Used an age range from school-age children to collegiate level athletes.	costs, loss of work and productivity, and the link between early-life concussion and late-life consequences.
Pluhar et al. (2019)	Journal of Sports Science and Medicine	To determine: (1) how many athletes have mental health diagnoses and (2) what motivates an athlete to partake in either team or individual sport.	A cross-sectional study of athletes who were part of an injury prevention evaluation at a sports injury prevention center. Filled out a questionnaire, which outlined d past injury, common sports, reason for playing sports, BMI, and self-reported anxiety or depression. A total of 765 athletes, mean age of 13.5 +/- 2.6. 426 female and 330 male. Predominately Caucasian.	As a cohort, only 8% of athletes reported that they suffered from physician-diagnosed anxiety or depression, below the national average. A significantly higher proportion of individual sport athletes suffered from anxiety or depression. However, playing an individual sport was not the only factor that caused anxiety or depression, as gender may be a factor that illuminates a vulnerable population or that individual sport athletes reported training year round for their sport potentially equating for athlete burnout.
RosenSmokler, Carrier, Shafer, & McKeag (1996)	Journal of Athletic Training	This study sought to examine the seasonal affective disorder syndrome (SAD) in athletes. Furthermore, this study wanted to provide an assessable method of identifying seasonal affective disorder syndrome in athletes, as well as provide data on hockey players who have seasonal affective disorder syndrome.	This study used the Seasonal Pattern Assessment Questionnaire throughout the year; however, they used retroactive assessments as well. Additionally, a supplemental questionnaire was also used to help reduce the chances of exaggeration due to the players season of play.0	The prevalence of SAD within the hockey players (located in the north) are approximate with the national norms. SAD experiences and mood intensity vary among individuals. Use appropriate therapy (such as phototherapy) can help reduce SAD symptoms thus being able to identify SAD in athletes may allow athletic trainers to administer such treatments. This is important as along with SAD, competition and time commitment of collegiate athletes makes them vulnerable to negative changes in behaviour.
Schuring et al. (2016)	Knee Surgery, Sports Traumatology, Arthroscopy	To understand whether there is an association between osteoarthritis (OA) and common mental disorders (depression, anxiety, distress, sleep	A cross-sectional analysis using five different cohorts: Ice hockey, rugby, football, Gaelic sports, and cricket. Athletes filled out a baseline questionnaire including	Results confirm an association between OA and symptoms of common mental health disorders are prevalent in former athletes. OA and its physical consequences may result in the higher risk of experiencing

		disturbance, adverse alcohol use) in former athletes.	measures for Distress, Anxiety and depression, Sleep disturbance, and Adverse alcohol use. A total of 624 male, participants with a mean age of 37 +/- 6. Out of the cohort, 61 or 10% of them were former hockey players.	symptoms of common mental health disorders. Ice hockey was the only sport where there was a significant association between OA and Distress, Anxiety/Depression, Sleep Disturbance, Adverse Alcohol use, and Comorbidity.
Todd, Bhalerao, Vu, Soklardidis, & Cusimano. (2018)	PLOS One	To examine the impact that concussions have on hockey players in regards to their mental health using qualitative methods.	Interviews were conducted with hockey stakeholders. The participants were 20 different stakeholders (3 women and 17 men) who were 16 years or older or had a guardian present and had at least 10 years of experience with ice hockey.	Hockey plays an integral role in the lives and upbringing of the Canadians interviewed. Becoming a hockey player is a transformative process, starting at a young age and includes ritualistic steps. Hockey was an aspect of everyday life and incorporated its cultural aspects into their identities and mental strength was an aspect of that culture. Mental strength was associated with resilience through hardship, maintaining motivation, and being calm, as well as a crucial part of being successful. However, players who suffered a concussion felt alienated by their peers and support systems. Furthermore, they felt as if their injury was not validated or acknowledged as an actual injury. Most players experienced post-concussion depression, anxiety, and PTSD.
Willer et al. (2018)	Jounral of Head Trauma and Rehabilitation	To compare retired professional contact sport athletes with same aged noncontact sport athletes to measure executive function and mental health	Used a case-control as part of a larger study of retired athletes. Used tested for assess self-reported executive function, working memory, motor skills. Personality, and mental health (including depression and anxiety). The participants were from contact sports, including 21 NHL and NFL players (mean age of 56.7 years old) and 21 non-contact sports group, including recreational leagues	Contact sport athletes scored significantly worse than non-contact athletes on the mental health assessment. Clinical anxiety was the only significant clinically diagnosed mental illness. The differences between the groups were related to unusual beliefs and experiences. Contact sport athletes were in a normal range for psychoticism; however, non-contact were significantly below the normal range.

			and associations (mean age of 55.4 years old).	
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As well, 17 of the articles used a sample population within North America, including nine from Canada, four from the United States, and four from both Canada and the United States (referenced as North America). One article included a sample size exclusive to Denmark, Finland, Norway, and Switzerland and one article included a sample population made up of both North Americans and Europeans. Two articles either did not specify a geographical location or it was not applicable to the study.

Fig. 2 illustrates the time periods in which every article was published. It can be seen that mental health in hockey was initially examined within scholarly literature in the mid 1990's; however, it was not until the late 2010's that mental health gained more interest among researchers. That is not to say that mental health issues in hockey are not addressed in the literature prior to the mid-1990s, but rather that mental health was not used as an explicit focus point at that time. This only becomes more challenging when hockey reproduces a culture of silence in regards to psychological and emotional well-being. When players are expected to ignore or suppress their mental health issues, as a researcher, it may become more difficult to accurately study the mental health culture of hockey players. As such, within the confines of this review, in regards to (a) how it defines mental health and mental illness, (b) how it searches for mental health aspects within the databases, and (c) the resources available, sifting through older hockey literature for essences of mental health was not feasible and thus a limitation to this study.

Moreover, seeing that it was not until the mid 2000's that several professional hockey players published autobiographies, which described their struggle with alcoholism, depression, suicide, anxiety and post-traumatic stress disorder (Olsen, 2016), publically admitting to mental health issues not popular and therefore, may have not been

seen as a research focal point. It is this studies recommendation that future researchers use the results of this study, along with support from disciplines such as sport psychology and cultural studies, to create a group of coded words that may be present in earlier hockey articles to potentially expose essences of mental health in earlier research. A common mental health language in sport research is needed and will be impetrative to future endeavours, as it will help create a consistent and cohesive dialogue amongst a topic that seems to be inherently interdisciplinary.

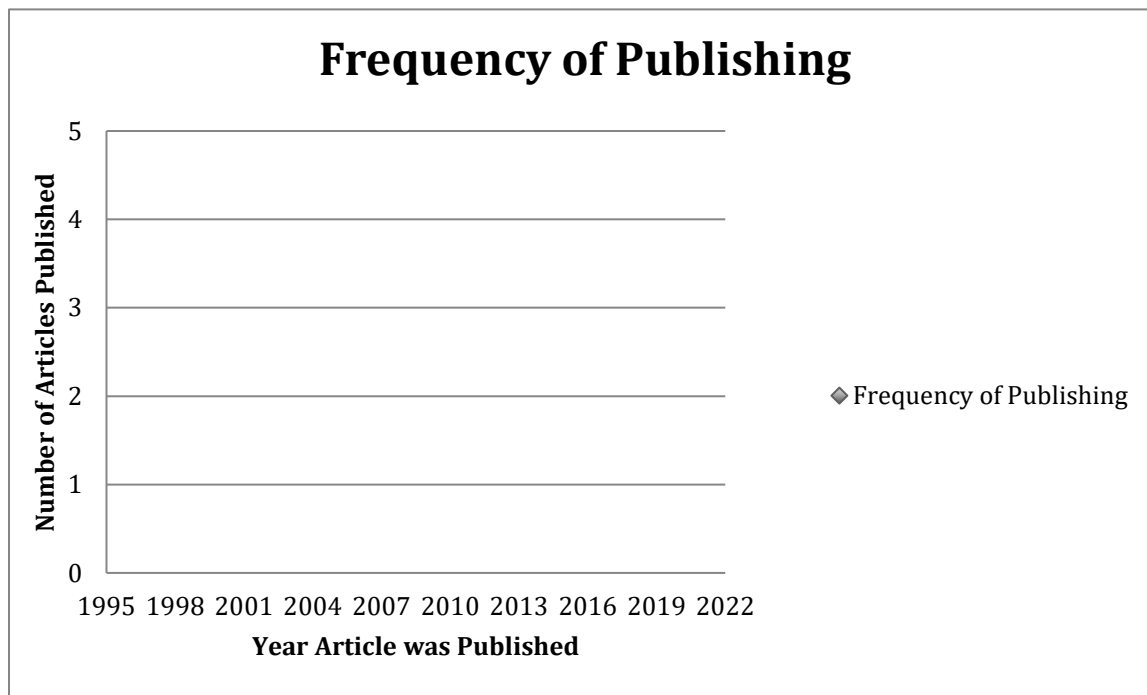


Fig. 2 History of Publication

Discussion

Throughout the review it was found that no study was alike. As each study used different methods, research designs, research questions, and samples, demonstrating the heterogeneous nature of the literature. Although there were many differences amongst the articles, several common themes emerged, expanding our knowledge on mental health

and illuminating on the potential for future research endeavours. This scoping review sought to investigate scholarly literature that examined mental health within hockey and the individual description of each article, shown in table 2., allowed for the formation three main themes: (1) a gendered demographic, (2) the loss of the hockey identity, and (3) mental health as a main focus within the research design. Some of the content within the thematic analysis was not explicitly discussed in the articles, but was still present, even if less pronounced. For example, identity in relation to mental health was not explicitly studied in any of the articles included within this review, but studies that looked at changes in identity did identify aspects of mental health as a result (Aston et al., 2020; Gouttebarga & Kerkhoffs, 2017; Parizek & Ferraro, 2015; Schurring et al., 2016; Todd et al., 2018; Willer et al., 2018). Additionally, some articles had nuances of more than one theme and were therefore used to help examine and present that theme(s) accordingly.

Within each theme, recommendations for future research will also be discussed, as each theme helps highlight the potential for future research opportunities. Recommendations may include changes to variables, methodological approaches, and/focus points to help better understand mental health in hockey and to aid in expanding scholarly literature on the topic.

A Gendered Demographic: Who Is (Not) Included

Although the demographics of the articles are described in the above section and in Table 3., the lack of variation within the samples presented itself as its own theme. Despite the heterogeneous body of literature, most samples had very similar demographics, most notably being that most participants were male/men. There was only

one study that included an all female sample; however, this was a group of mothers and not hockey players (Bean, Fortier, & Chima, 2019). Therefore, not one study implemented an all female hockey player or hockey coach participant group, leaving a large gap in the literature, affect the ways we ‘know’ the hockey experience, and impact the perceptions of being a hockey player, that would otherwise be exploring how gender works in relation to sport and mental health. Furthermore, Schaal et al. (2011), female athletes are more likely to experience and be diagnosed with a mental illness than their male counterparts. Furthermore, Schaal et al. (2011) found that there are varying socio-environmental risk factors associated with different sports and when combined with a gender variable, can pose higher risks of mental health issues, mental illness, or clinically diagnosed psychological disorders. Although Schaal et al. (2011) did not include hockey players within its sample population, it does help expose the importance of utilizing gender as a variable that may cause changes in mental health patterns within hockey research.

Table 3., also reveals that only one study was found to be exclusive to women; however, the women within the sample were not hockey players, but mothers of elite hockey players in Bantam (13-14 years old) and Midget (14-18 years old) hockey leagues (Bean, Fortier, & Chima, 2019). Thus, not one study focused exclusively on female hockey players. Furthermore, 11 studies focused exclusively on men, while seven studies included a mixed-gender population. It should be noted that of the seven mixed-gender studies, four used non-player samples, leaving only three studies that examined any aspect of female hockey players and their experience with mental health in hockey.

It is not to say that the studies in this review did not include females, as a number of articles included both men and women, but out of the studies that included a mixed gendered participant group, only one was found to use gender as a variable to discuss gendered behaviours. In Pluhar et al.'s (2019) study, it was found that there is a correlation between gender and individual sport participation (ex. swimming or equestrian) in regards to mental health outcomes. The study found that, although there was a higher correlation between playing an individual sport and having depression and anxiety compared to playing a team sport, most of the individual sport participants within the study were female. Pluhar et al. (2019) believes that this demographic variable is too hard to ignore and that levels of expressed depression and anxiety in athletes may be gendered. As a result, there is a dearth of information on the relationship between female hockey players and mental health. Additionally, the mixed gendered studies only used gender to describe the demographics of the population (ex. whether they were male or female) in mental health behaviours or outcomes amongst hockey players (Amoit, Sanfaçon, & Louis, 2013; Debnath et al. , 2003; Johnson et al., 2020; Livingston, Tugwell, Korfuzan, Cianforne, & Coniglio, 2013; Todd, Bhalerrao, Vu, Soklaridis, & Cusimano, 2019).

Unsurprisingly then, most study samples were either all male or predominantly male. Hockey is a male dominated sport that privileges male hockey accomplishments. By contrast, women in hockey struggle to attract media attention, funding, adequate salaries, and administrative opportunities (Rutherford, n.d.). By looking at which population is being studied, it is not hard to see how the scholarly literature reinforces male dominance in hockey since it their experiences with mental health that form the

basis for knowledge and action. Neglecting the experiences of female hockey players means their mental health issues will remain unacknowledged and unaddressed. Research that focuses on the mental health and well-being of girls and women who play hockey is clearly needed.

This review demonstrates the need to consider gender when investigating mental health within hockey, especially in among female hockey players. According to Hockey Canada (2019), approximately 105,959 female hockey players were registered for the 2018-2019 season, which is roughly a 22% increase in registration rates for females from the previous season. When hockey expands from its traditionally male dominated history, factors such as gender need to be seen as a characteristic that might impact mental health within academic research. More to this is that along with hockey, mental health is also gendered, as gender is known to cause differences in mental health behaviours and mental health outcomes (McLeod, Uemura, & Rohrman, 2012). The lack of female-based studies, as well as the lack of considering gender as a variable that may contribute to differences or to certain patterns amongst hockey players in regards to their mental health, may be negating certain variables and factors to consider when creating mental policy, researching mental health in Canadian sport, and potentially treating mental health within hockey.

The Loss of the Hockey Identity

Identity was the second major theme of this review, as it was found that challenges to one's hockey identity, such as injury or retirement, played a role in the appearance of mental health issues within the hockey community. As early discussed, hockey is an integral aspect of Canadian national identity because of its roots in Canadian

history and mass consumption. The hockey identity encapsulates Canadians on many levels, including, but not limited to the micro level. Individuals who take on the hockey identity, tend to embody the hockey through a means of participating in the sport, watching the sport, and mimicking their favourite players. Allain (2008) believes that individuals tend to embody hockey superstars such as Sidney Crosby, a highly skilled and highly celebrated Canadian player in the NHL, because of his talent and character on and off the ice. It is argued that superstar players like Crosby, are widely influential in regards to the reproduction of hockey identity in Canada, as they demonstrate the civilized gentlemen off-ice identity while simultaneously acting in a warrior like fashion while on the ice (Allain, 2008). Furthermore, according to Todd, Bhalerao, Vu, Soklaridis, and Cusimano (2018), the embodiment of the ‘hockey identity’ is a life-long practice and integrated into almost every facet of their everyday lives, even as children. This may include playing hockey year round (ex. street hockey, hockey pools, hockey video games), worshiping their favourite players, and continuously being involved in hockey, even when they phase out (retire). However, it is the disruption to this process (of identity formation) where some studies within this review noticed changes to mental health.

Injury was the most prevalent disruption to a hockey player’s identity within this review. Several studies discussed the ways in which being injured impacted the ways in which participants thought of themselves in relation to their identity as a hockey player. For example, Todd et al. (2018) found that players who were diagnosed with a concussion found that they felt alienated from their peer group and family members while on injury reserve. One participant described that they did not feel like they were even apart of their team anymore due to the fact that they were not allowed on the ice, while

another player felt that because of their injury, they were not able to perform the physical aspects of the game that is expected of them from their coaches, teammates, and/or families (Todd et al., 2018). This led to players experiencing emotional exhaustion and isolation while on injury reserve or while phasing back into normal team activities after being injured (Todd et al., 2018). The inability to perform the expected behaviours of the identity that the players have taken on was a common theme amongst the body of literature within this review (Parizek & Ferraro; 2015; Schurring et al., 2016; Todd et al., 2018). Additionally, although Willer et al. (2018) did not focus on identity as a variable to cause mental health issues, they did find that contact sport players, who are hypothesized to experience more injury, had higher depression scores compared to non-contact sport, potentially suggesting a correlation between sports that have higher chances of experiencing injury and mental health issues. However, Willer et al. (2018) were not able to specifically investigate the connection between contact and non-contact sport mental health within that capacity, but did suggest further investigation.

Retirement was another disruption to one's hockey identity and also changed the mental health of players amongst the literature included in this review. Retired players had worse mental health outcomes than current players in two different studies, both of which examined mental health symptoms in hockey players (Aston et al., 2020; Gouttebarga & Kerkhoffs, 2017). Gouttebarga and Kerkhoffs (2017) found that retired players are seven to eight times more likely to show symptoms of common mental health disorders due to the increase of medical procedures, career dissatisfaction, and adverse alcohol use compared to current players. Furthermore, Aston et al. (2020) found that retired players are twice as likely to experience moderate to severe depression symptoms

then current players. Both studies believed that retired players are more vulnerable to mental health issues due to the lack of support from family, friends, and/or the National Hockey Player Association after their retirement from the league, suggesting the greater need for support programs and policies for players phasing out of their careers (Aston et al., 2020; Gouttebarga & Kerkhoffs, 2017).

Both injury and retirement caused changes in the identities of the participants within some of the studies included in this review (Aston et al., 2020; Gouttebarga & Kerkhoffs, 2017; Parizek & Ferraro, 2015; Schurring et al., 2016; Todd et al., 2018; Willer et al., 2018). The inability to fulfill the typical ‘duties’ of being a hockey player seems to cause negative impacts on a hockey player’s mental health and must be considered when researching mental health, creating mental health policy for hockey players, and/or the creation of out-reach programs for players who are phasing out of their hockey careers. McFadden, Bean, Fortier, and Post (2016) also argue that to tackle identity foreclosure, sport development during childhood development should take a non-specialized approach to sport reducing the likelihood of mental health problems because they will be able to associate their identities with other activities. They indicated that minor hockey players who specialized in hockey at a young age had higher psychological needs dissatisfaction than recreational hockey players, indicating that making hockey the sole focus has psychological downfalls. While this does not suggest that children and youth should not follow their passion for hockey more seriously, it does suggest that taking a holistic approach to sport may aid in the construction of one’s hockey identity and the transition out of it, as it gives hockey players exposure to other aspects to pull from for their identity formation, giving them a more holistic picture of themselves.

Hockey identity and its relation to mental health is still a relatively new area of research, especially in light of the substantial body of literature on hockey generally. This leaves a great deal of room to explore mental health issues in hockey specifically and sport generally. One creative example is a study by Bean, Fortier, and Chima (2019) who found that hockey, as a family identity marker, negatively impacted the mental health of hockey mothers. The study argues that when hockey is directly associated with everything in the family's life, it disrupts relationships, self-care practices, and family dimensions, equating to the lower mental well-being of mothers. As such, this review suggests expanding from male hockey player participant groups to female players, coaches, and newly retired players in regards to identity formation and/or loss, as it may allude to gender specific patterns in regards to sport identity. Furthermore, by expanding the types of populations being used, this review advises for the further exploration of (1) the intersections of gender, (2) identity formation in hockey, and (3) mental health outcomes, the process of phasing out, and the impacts of transitioning from player to administration roles (a common transition within the hockey community). In conclusion, hockey identity in relation to mental health outcomes is still under researched and this review does not believe that, at this time, there is sufficient evidence within scholarly literature that specifically links hockey identity loss/change to mental health issues, but does believe that further investigation would be beneficial.

Mental Health as a Main Focus

The main focus of this review was to understand the scope of mental health research within hockey and therefore asked research questions specifically regarding mental health. Although every article included in this review had to incorporate some

aspect of mental health, only 13 out of the 21 studies had research objectives directly correlating with mental health in hockey players,(Aston et al. 2020; Bean et al., 2019; Caperchione et al., 2017; Carré et al., 2006; Gouttebarga & Kerkhoffs, 2017; Jonson et al., 2020; Mack, 2019; McFadden; Parizek & Ferraro, 1996; Pluhar et al., 2019; Schuring et al., 2016; Todd et al., 2018; Willer et al. 2018), suggesting that, although the 21 articles included in this review mentioned mental health, there is a need for more research that can better understand the multiple overlapping factors that shape the mental health of athletes. For example, Aston et al. (2020) investigated whether or not retired professional hockey players experience common mental health disorders more frequently than active professional players and/or the general public. This study, along with the other 12, had research objectives/questions that specifically focused on mental health within hockey, rather than measuring mental health as a secondary variable.

There were eight studies included in this review did not have research objectives directly correlating with mental health, but still had components of mental health, as they often included some form of measurement within their scales (Amoiti et al., 2013; Davis & Zaichkowsky, 1998; Debnath et al., 2003; Parizek & Ferraro, 2015; Kennedy & Silva, 2000; Kitchen & Chowhan, 2016; Livingston et al., 2013; Orr et al., 2016). For example, in Debnath et al's (2003) quantitative study, the research objectives were to assess the outcomes of health for athletes who underwent treatment (surgery) for spondylolysis. Although the research objectives did not include a clear focus on mental health, mental health was still a variable measured and discussed within the study, most likely to add nuance to the results and conclusion of the research project (Debnath et al., 2003).

There three were qualitative studies used mental health as a variable but did not state this explicitly within their research objectives (Johnson et al., 2020; Kennedy & Silva, 2000; Parizek & Ferraro, 2015). For example, Kennedy and Silva (2000) conducted a mass media analysis on hockey discourse in newspapers to understand how framing punishment within a crime model in sport can have negative identity outcomes. Although the research objectives did not focus on mental health, they found that when hockey culture uses criminal justice rhetoric to understand on-ice deviance, players are more likely to experience mental health issues, chronic pain, and financial troubles.

Even though mental health was explored in all 21 studies within this review, it should be noted that only 57% of scholarly literature pertaining to hockey and mental health, specifically sought to understand mental health within the sport (ex. having research questions directly focused on expanding our knowledge on mental health). That is to say, that there is still a limited focus on mental health in regards to designing research projects or asking research questions that are specifically aimed at disentangling mental health within hockey. Hockey's hypermasculine culture makes looking at all aspects of health outcomes and health behaviours paramount due to the potential health risks stemming from this gendered environment, which are related to gendered behaviours. According to Mahalik, Burns, and Sydek (2007), although there are many contributing factors to living a long health life, such as access to health care and biology, health behaviours can be the largest determinant for either extending or shortening longevity. Furthermore, gender differences in health behaviours are the most consistent finding within scholarly literature that explain why men, on average, have shorter life-spans than women (Mahalik, Burns, & Sydek, 20117). Additionally, Courtenay (2000)

explains how the socialization of gender and the ways gender is stereotyped can indicate the social pressures to endorse masculine ideals regarding health, including the idealization of strength, being self-reliant, being emotionless, and exuding toughness. Therefore, understanding the negative influence that gender can have on health behaviours and understanding the idealization of hypermasculinity in hockey, all aspects of health, especially mental health, should be examined with a more critical lens for its participants. Therefore, this review recommends that future research projects use mental health as a main focus within their research questions, as well as acknowledging the influence that gender has within mental health culture in hockey, to better understand state of mental health within the sport.

Conclusion

This review provided an intriguing scholarly journey through the state of mental health literature in hockey. Mental health awareness spread throughout the 2000's and the scholarly literature reflected that, giving this review a variety of articles to include from the last 25 years. With an interest in providing a comprehensive commentary on mental health research in hockey, this review sought to highlight main themes in scholarly literature to encapsulate mental health culture in the sport. Utilizing the 21 articles included within the review, this review was able to construct a clearer picture of mental health within hockey, including the understanding that: (a) although gender was not a variable used explicitly to examine mental health, it still plays a prominent role within mental health and hockey research, (b) that hockey is a unique Canadian cultural phenomena that aids in identity formation and therefore injury or retirement should be looked at more critically, and (c) that mental health research in hockey should be more

focused on mental health specific research questions in order to encapsulate the culture of mental health in hockey. Along with a general overview of the scholarly literature, this review highlighted the limited research that has been conducted in regards to mental health and the world of hockey, including the lack of heterogeneous participant groups, the lack of making mental health the main component of the research questions, and the exponential amount of research possibilities for future projects. Identifying the trends within mental health research in hockey allows for the greater exploration of mental health for future research endeavours, which can therefore, expand our understanding of mental health in hockey, give a voice to those impacted by mental health in hockey, and to better formulate policy that protects mental health for hockey participants.

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