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## Risk Factors for Boating Incidents in Inuvik, Northwest Territories, Canada

Catherine TR Glass

University of Ottawa, cglas007@uottawa.ca

Audrey R. Giles

University of Ottawa, agiles@uottawa.ca

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### Abstract

Injury prevention programs that focus on boating and water safety in the Northwest Territories (NWT) have existed for decades; however, rates of boating incidents are much higher in the NWT than southern Canada. To better understand this health disparity, we engaged in community-based participatory research informed by postcolonial feminist theory to examine Aboriginal men's understandings of the risk factors that contribute to boating incidents in Inuvik, NWT. Participants identified four main risk factors for boating incidents in Inuvik: 1) Gender, 2) age, 3) place, and 4) lack of boating safety education. As a result of these findings and the ways in which they are strongly related to culture, we argue that local community-based approaches should be employed to design and implement boating safety strategies in communities in the NWT.

*Keywords:* injury prevention, public health, health promotion, risk messaging, boating, gender

In general, Aboriginal peoples experience poorer health outcomes than non-Aboriginal Canadians (Statistics Canada, 2015a). Further, Aboriginal men in particular suffer from worse social conditions than their female counterparts. As a result, Aboriginal men are one of the most socially excluded populations in Canada (Ball, 2010). Despite well-documented knowledge of these challenges, which are often historically rooted in colonialism (Czyzewski, 2011), there continues to be an absence of social advocacy, research, and health programs targeted towards Aboriginal men (Ball, 2010; Statistics Canada, 2015a).

The crude death rate for Aboriginal men in Canada is about 30 percent higher than for Aboriginal females, largely due to intentional and unintentional injury (Health Canada, 2008); for Aboriginal males, injuries such as suicides, motor vehicle accidents, suffocation and drowning, and homicide are the leading causes of premature death (Health Canada, 2009). Unintentional drowning, in particular, disproportionately affects Aboriginal peoples in Canada (Canadian Red Cross [CRC], 2013). Males are also overrepresented in drowning statistics, with males in Canada being more likely to be involved in boating fatalities than their female counterparts (CRC, 2014). In the Northwest Territories (NWT), males account for 90% of all drowning victims (NWT Health and Social Services, 2015). Boating-related incidents make a large contribution to these drowning statistics. Between 1991-2010, the average rate of boating fatality in the NWT was 9.6 per 100,000, compared to the Canadian average rate of 0.6 per 100,000 (CRC, 2014). Despite the elevated rates of drowning and boating incidents for residents in northern Canada, water and boating safety, and injury prevention resources produced by organizations such as the Lifesaving Society of Canada, the Canadian Red Cross, and the Canadian Power and Sail Squadron continue to be developed in southern Canada and typically fail to reflect specific risk factors pertaining to the northern context (Giles et al., 2010; Giles et al., 2013; Giles et al., 2014b) or groups at elevated risk, including Aboriginal men.

The World Health Organization (WHO) defined a risk factor as “any attribute, characteristic, or exposure of an individual that increases the likelihood of developing a disease or injury” (WHO, 2016b, para 1). There is little knowledge of Aboriginal men's perceptions of the specific risk factors that they believe contribute to boating incidents in northern Canada. Indeed, even though Aboriginal men suffer from worse health outcomes than Aboriginal women, most scholarship, policies, education, and health promotion efforts focus on Aboriginal women's issues (Ball, 2010; Innes & Anderson, 2015; McKegney, 2014). To make a contribution that addresses the high rates of boating-related incidents in the NWT, together with my research

partners and funding from Transport Canada and MITACS Canada, we employed community-based participatory research to gain insight into Aboriginal men's understandings the risk factors that contribute to boating incidents in Inuvik, NWT.

### **Literature Review**

To situate our research in the current body of literature, below we provide an overview of Aboriginal men's health in Canada, including their prevalence of injury. Next, we discuss the impact of colonialism on Aboriginal peoples' health.

#### **Aboriginal Peoples' Health**

Injuries are recognized as a major public health concern for Aboriginal peoples in Canada (Health Canada, 2008; National Aboriginal Health Organization, 2006; NWT Health and Social Services, 2015). Aboriginal peoples may be at elevated risk for injury due to isolated residence, physical environment, crowded housing conditions, and poor social conditions (CRC, 2013). Additionally, Aboriginal men are at higher risk for injury deaths than their female counterparts (Health Canada; 2001; Health Canada, 2008; National Aboriginal Health Organization, 2006).

In particular, drowning is the second most frequent cause of injury death in many Canadian Aboriginal communities (CRC, 2013). Aboriginal peoples are overrepresented in drowning statistics, with drowning rates up to 10 times higher than non-Aboriginal Canadians (CRC, 2013). The leading causes of drowning for Aboriginal and non-Aboriginal Canadians are boating, swimming or wading, and falls into open water (Health Canada, 2001). Risk factors for boating incidents include environmental factors, such as cold water, current, strong winds, and rough water; high risk behaviours; alcohol consumption; poor swimming ability; and failure to wear a lifejacket (CRC, 2005). Additionally, colonialism continues to have damaging effects on Aboriginal peoples' health (Loppie-Reading & Wein, 2009) and can be related to many of these risk factors.

#### **Impact of Colonialism on Aboriginal Peoples' Health**

While health outcomes may be understood as being based on individual behaviour, such as the failure to consult a physician or to engage in healthy behaviours, this represents a limited point of view that reflects the neoliberal belief that individuals are to blame for their own circumstances, rather than understanding health as being produced within particular social, political, and historical contexts (Giles, Brooks-Cleator, McGuire-Adams, & Darroch, 2014). The WHO (2014) defined the social determinants of health as follows:

The conditions in which people are born, grow, live, work, and age, including the health system. These circumstances are shaped by the distribution of money, power, and resources at global, national, and local levels, which are themselves influenced by policy choice. (para 1)

Aboriginal peoples experience inequities in the determinants that influence their health when compared to non-Aboriginal Canadians. In general, Aboriginal peoples have lower rates of education attainments, lower socioeconomic status, lower quality housing, fewer employment opportunities, and weaker community infrastructure (Health Canada, 2009). Researchers who have investigated the Aboriginal social determinants of health have identified colonialism, discrimination, and loss of traditional health practices as additional factors that have and

continue to have devastating impacts on Aboriginal peoples' health (Loppie-Reading & Wein, 2009).

Colonialism is defined as “i) the control or governing influence of a nation over a dependent country, territory, or people; ii) the system or policy by which a nation maintains or advocates such control or influence” (Czyzewski, 2011, p. 1). This narrative provided and continues to provide the guiding force that has manipulated the social, historic, economic, and political contexts that shape Aboriginal and non-Aboriginal relations (Czyzewski, 2011). Therefore, the impacts of colonial relations must be acknowledged when considering approaches to improve Aboriginal men's health.

### **Theoretical Framework**

Postcolonial feminist theorists strive to “expose, describe, and change ideological and social structures that maintain inequities between Aboriginal and non-Aboriginal populations” (Smith, Edwards, Varcoe, Martens, & Davies, 2006, p. 31). Generally, postcolonial perspectives also bring particular attention to the systematic forces that maintain unequal relations of power (Anderson, Khan, & Reimer-Kirkham, 2011; Reimer-Kirkham, 2003). A postcolonial theoretical perspective allows researchers to critically examine the modern demonstrations of colonialism and to decentre the dominant Western culture (Browne, Smye, & Varcoe, 2005).

In addition to these issues, postcolonial *feminist* scholars also attend to issues pertaining to gender. Academics and activists employ a postcolonial feminist lens to consider the agency of non-Western women as well as their historical positioning, class, race, and gender (Chilisa, 2012). While postcolonial feminist theory is often used to examine women's experiences, it is also a useful tool for investigating the experiences of men who have experienced colonialism.

A cardinal principle of postcolonial feminism involves the examination and uncovering of Eurocentric biases (Racine, 2003). Eurocentric biases do not allow for the validation of different knowledge systems or epistemologies, such as Aboriginal ways of knowing (Kovach, 2009). An example of Eurocentric bias may be demonstrated by the development of “expert” boating safety guidelines that have been established in southern Canada and applied in the North without accounting for geographical differences, cultural differences, or Aboriginal knowledge systems. Failure to recognize alternative knowledge systems relating to health that differ from biomedical or mainstream approaches reflect unequal relations of power in determining who is able to hold “expert” knowledge and create, implement, and evaluate injury prevention programs.

Postcolonial feminist theory is complementary to community-based research approaches because researchers who use both strive to challenge dominant researcher/research participant relations of power, and instead work to support marginalized knowledge systems (Darroch & Giles, 2014).

### **Method**

This study was conducted in Inuvik, NWT, which is located 200km north of the Arctic Circle (68°21'N, 133°43'W) on the Mackenzie River Delta. Inuvik has a population of 3,265 (NWT Bureau of Statistics, 2016). Its Aboriginal residents comprised 62% of the population: 18.4 % Gwich'in (First Nations), 38.9% Inuvialuit (Inuit), and 4.7% Métis peoples, while the remainder

of the population was non-Aboriginal (Statistics Canada, 2010). The population was almost equally distributed by gender: 49% of the population was male and 51% was female (NWT Bureau of Statistics, 2016).

### **Methodological Procedures**

We employed a community-based participatory research (CBPR) approach to identify the risk factors associated with boating incidents in Inuvik. This project was part of a larger study in three communities (Inuvik, Deline, and Fort Simpson, NWT) that was funded by a grant from Transport Canada's Boating Safety Contribution Program to a partnership between the Northwest Territories Recreation and Parks Association (NWTRPA) and the University of Ottawa. CBPR approaches involve collaborative partnerships with community members, researchers, and stakeholders in all phases of the research process (Israel, Schulz, Parker, & Becker, 1998). By working alongside community members, CBPR teams were able to address issues that residents identify as being important (Israel, Cummings, Dignan, & Heaney, 1994). This project involved collaboration between the Town of Inuvik, the Inuvik Hunters and Trappers Association, the NWTRPA, and the first and second author. The NWTRPA's Aquatic Committee, which included water safety experts from across the Territory, agreed to serve as a research advisory group. Approval for this project was obtained from the Research Ethics Board at the University of Ottawa and the Aurora Research Institute (which issues research licenses for the NWT on behalf of the Government of the NWT). The first author, a Euro-Canadian graduate student who grew up in Toronto, spent May to August of 2015 living in Inuvik.

### **Participants**

The advisory committee agreed that focus groups (Kvale & Brinkmann, 2009) and semi-structured interviews (Fontana & Frey, 2005) would be appropriate research methods. The first author hired two local research assistants to assist with the project, a 19-year-old male and a 40-year-old female. The research assistants and the first author used snowball sampling to identify participants (Cohen & Arieli, 2011). Inclusion criteria included that participants had to be over the age of 18 and have extensive boating experience in and around Inuvik, such as hunting, travelling, guiding, and/or recreational boating. The first author conducted 11 semi-structured interviews and two focus groups with 10 participants (which included two individuals who had also participated in the semi-structured interviews), for a total of 19 participants, 16 of whom were Aboriginal. The interview and focus group participants ranged in age from 18 to 85. Seventeen participants identified as Aboriginal. Interview participants included 2 adult females and 9 males, and the focus groups consisted of 10 males. The first focus group consisted of older males aged 30 to 85; the second focus group consisted of younger males aged 18 to 25. Notably, participants included local hunters, harvesters, and recreational boaters, three local lifeguards, the leader of the Inuvik canoe club, the leader of the Inuvik Qayaq club, and employees of Parks Canada. The interviews focused on identifying who was typically injured during boating incidents, the risk factors contributing to boating incidents, the content and effectiveness of previous boating safety campaigns, and obtaining input into a boating safety program developed by community members for community members.

All interviews and focus groups were digitally recorded and then transcribed verbatim by the first author. The interview and focus group transcripts were returned to participants to provide feedback; however, none of the participants made edits to their transcripts. Participants' names appeared with their permission and due to the need for Aboriginal peoples to be

recognized for their expert contributions to research processes (Giles & Castleden, 2008). The first author used Braun and Clarke's (2006) six-stage approach to thematic analysis, supported by NVivo10™ software, to analyze the interview and focus group transcripts. The first author returned to Inuvik in March 2016 and was able to review the preliminary findings with participants.

### Results

Based on the analysis and supported by feedback from participants, the first author identified four main themes that related to the research objective of identifying boating incident risk factors in Inuvik, NWT: 1) gender; 2) age; 3) place (with sub-themes physical environment and a lack of enforcement); and 4) lack of boating safety education. The themes and subthemes are discussed below.

#### Gender

Male participants, particularly those aged 18-25, referred to social pressure on men to act "like a man." As a result, most participants agreed that women were more likely to engage in safety behaviours in boats, such as wearing a lifejacket, than men. Nineteen-year-old Ryan stated, "I see a lot more women wearing lifejackets as opposed to men." Matthew, a local lifeguard stated, "I feel like men are kind of hard to reach out to, because if you want to be a tough guy and show off to other people, then you can't be a wimp and wear a lifejacket." Similarly, Ethan, an 18-year-old male, explained that his friends' are not likely to wear a lifejacket due to the "I'm a macho man" mentality. Chris, a 19 year old male agreed: "You don't want to be *that* dude wearing a lifejacket."

Richard, an adult male, felt that it was the woman's duty to be concerned about safety while the man typically navigates the boat: "That's a woman's caring duty, right? That's what they're going to do. With kids moving around in the boat, the woman's going to say 'sit down', because the man is too busy observing and controlling the boat." Matthew expanded on this sentiment: "Guys [are] either showing off for their guy friends or showing off for the girls, definitely. I think girls are more [likely to say], 'okay guys, quit being stupid. Wear a lifejacket.'"

Kyle, an adult male and owner of a local touring and guiding business, agreed that pressure to act like a man may play a part in risk-taking behaviours, but also noted that men may be at higher risk for drowning as a result of a boating incident because they are more frequently out on the water. He stated,

I think it has to with the macho-ness... but, the reason why I think it's that high of a statistic for men [in boating incidents] is because the men are the ones who are out travelling, right? They're the ones travelling 10 times more, so they drown.

#### Age

Participants indicated that those most likely to engage in unsafe boating behaviours and thus be involved in more boating incidents were those ranging in age from teenagers to their early thirties. Matthew explained that younger people are more likely to take risks and not consider the future consequences of their actions: "I think when you're 18-34, you're kind of in your cool phase and it's like, 'I can't swim, but I'm not going to wear a lifejacket.'... [Men] don't think before we do!" Additionally, participants referred to an individual's risk-taking behaviours in

relation to the person's stage in life; specifically, they felt that individuals are less likely to take risks once they have children. Diana, mother of two explained, "[Men] don't have fear [when they're] younger. I think that once a person has children, then the fear sets in." Jimmy, a local hunter and guide, attested that once he became a father, he became more conscious of his safety: "I don't think about myself anymore, because I think about those other people that depend on me to come back home."

Elder participants repeatedly expressed their concern for the "younger generation's" vulnerability to boating related incidents, particularly as the younger generation is more engaged in recreational boating as opposed to traditional subsistence hunting or travelling. Richard explained,

The younger generation...are more recreational... They got the sea-doods...and the boats today are faster...When we were growing up, we learned [to travel safely]. But today, you try to tell someone that - they've got earphones in them and they're not paying attention to you.

Diana agreed: "I think more of the boats [today] are used for leisure, not just going out for work, like going to the camps for hunting. A lot of [boats] now are just used for recreation for the younger guys anyway." Mervin, an adult male, also stated, "It's getting younger - young people are travelling between communities, and they get lost, or they run into trouble, and they panic. They've got three foot signs between here and Aklavik [a nearby community] and they still get lost!" Jimmy referred to risks associated with the shift to more recreational boating: "I think the changes from travelling on the land [for necessity] to more recreation is where the problems and where more accidents are happening, because when they're more into recreational boating, that's when alcohol and stuff like that is involved too."

## Place

**Physical environment.** Participants referred to local water and weather conditions as posing risks for boating incidents. Specifically, participants referred to cold water, strong currents, dangerous weather conditions, and changing water depths. John, an adult male, explained, "It's cold and scary to fall in...When you first jump in, it takes your breath away. I wouldn't want to fall off the boat." Matthew referred to the current: "They're like 'oh, I can swim in the pool' and then they fall in the river and the river just takes them away and they can't get out, 'cuz it's so strong." Gerry, an Elder who runs a local guiding company explained, "It is a great Delta out there and a great country, but you've got to be *so* careful. The weather and conditions out there can become very extreme very quickly and we are a long way [from help]."

Participants also referred to changing conditions in the physical environment as posing threats to safety. Gerry explained:

Things are changing; every year you notice it a little bit more. The water levels are lower than what it has been over the years and we are seeing a lot of erosion out in the Delta. The water also seems quite warm compared to other years.

Richard noted that more extreme weather events are beginning to take place: "[Safety] is all about experience, because our weather is changing, you know. Storms are *severe* storms now. It's all changing."

**Lack of enforcement.** Participants referred to the lack of enforcement of laws, such as carrying required boating safety equipment and those concerning alcohol and boating, as

contributing factors to boating incidents in Inuvik. Kevin, a local recreational boater and guide, explained, “There’s no enforcement. Look at the territory. Look how poorly enforced a lot of laws are. Seatbelts. People driving without insurance. It just goes on and on and on. I mean, people just think they’re above that.” Tom also stated, “The police don’t enforce any of the rules...You are supposed to have a flashlight and an anchor and lots of things [while boating], but nobody checks them.” Kyle found the lack of enforcement troubling:

The rest of Canada has to abide by it, and we spend way more time in boats here, in way more dangerous conditions, so why? It seems like we are forgotten. [The police are] just like, “oh fuck, who cares if they drown?” I mean, how else are we supposed to look at it when people are drowning 10 times more [in the North].

### **Lack of Knowledge and Preparedness**

Participants identified boating incidents as occurring due to lack of safety equipment, overloading boats, or running out of gas/getting lost, all of which were attributed to a lack of knowledge and a lack of preparedness. Gerry stated:

People do get turned around because it is a huge Delta out there. It is not like following a street sign, like you are driving a car in the city...There are no numbers and no names out there, and it is just a very large piece of land, and a large piece of water, and it is not the easiest.

Kyle also stated that individuals who travel by boat are often unprepared due to a lack of education: “There’s no real training available or education that’s been put forth - water-safety education. People buy just enough gas to get where they’re going. So then they’re like ‘oh, I’m not spending \$50 on a lifejacket, why? I don’t need it.’” Participants commonly stated that while individuals might have lifejackets in the boat, they were not commonly worn. Tom explained, “I mean lots of [local residents] have lifejackets, but they never use them.”

### **Discussion**

To address boating incidents in Inuvik and to provide relevant health promotion and injury prevention strategies, an examination of the specific risk factors relating to boating incidents was required. In this study, the participants identified four main risk factors that male residents of Inuvik believed to be associated with men’s boating incidents in Inuvik, NWT: gender, age, place, and lack of enforcement, knowledge and preparation. While the risk factors of gender (Giles et al., 2013; Jardine et al., 2009), age (Giles et al., 2013), and place (Young et al., 2016; Durkalec et al., 2014) have been previously identified by researchers as being important in terms of understanding risk-taking behaviours in northern Canada, these factors have not been assessed together in a specific community and cultural context, in relation to boating safety, and through a postcolonial feminist lens. Importantly, understanding the specific risk factors from Aboriginal men’s perspectives may lead to health promotion or injury prevention activities that are culturally safe and thus more effective for residents.

### **Gender**

Participants in Inuvik referred to social pressure to “act like a man” as influencing their safety behaviours. Gender characteristics (McDowell, 1999) and risk perspectives (Kasperson et al., 1988) were recognized as being socially constructed, meaning they are shaped by a society through social, cultural, and historical practices at a given time and place. Aboriginal cultures are deeply connected to the land (Loppie-Reading & Wein, 2009), including waterways. Within northern communities, subsistence hunting and fishing activities are important activities for

males in terms of economic and social benefits (Bodenhorn, 2000; Condon, Collings, & Wenzel, 1995; Searles, 2002). Additionally, hunting and fishing provide northern males with the continuation of traditional activities, rest and relaxation, and an opportunity to re-establish connections with the land (Condon et al., 1995). Through a postcolonial feminist lens, we argue that as practices on the water are particularly important in terms of how Aboriginal men's gender is portrayed and reinforced in northern communities, health researchers and programmers should consider northern boating activities from Aboriginal males' perspectives and take into account the social benefits related to Aboriginal identity, mental health, and self-esteem associated with hunting and fishing (Bodenhorn, 2000; Condon et al., 1995). Acknowledging the cultural factors associated with Aboriginal masculinity may result in health promotion or injury prevention campaigns that are more relevant and meaningful to communities.

Masculinities, or characteristics of men, may also be understood in relation to femininities, or characteristics of women (Pyke, 1996). For example, participants stated that it was women's duty to be concerned about safety, while men were more prone to risk-taking behaviours. Male participants explained that it was their wives, mothers, or girlfriends who would be more likely to tell them to put on a lifejacket. Additionally, male participants reported engaging in risky behaviours to show off not only to other women, but also to other men. This is consistent with previous studies with rural non-Aboriginal men (e.g., Courtenay, 2011; Fellows, 1996), which have indicated that social practices that undermine rural men's health behaviours (or lack thereof) are often signifiers of masculinity and the instruments men use not only in negotiating social power in relation to women, but also hierarchies of other men (Pyke, 1996).

As the rates of boating fatalities are much higher for Aboriginal men than women in northern Canada (CRC, 2014), consistent with postcolonial feminist theory, those working in health promotion and injury prevention in this region should consider Aboriginal masculinities when creating strategies to appeal to local residents. For instance, merely telling men to wear lifejackets as an injury prevention strategy is unlikely to be effective, as men may perceive this as adopting a behaviour that undermines their masculinity, and more particularly their Aboriginal masculinity. Instead, messages that draw on Aboriginal men's identity as providers for their families of traditional foods might be more effective (e.g., wear a lifejacket so the beluga meat makes it back to your family). In addition to gender, participants indicated that age was also an important risk factor that contributed to boating incidents.

### **Age**

Participants explained that young males ranging in age from teenagers to their early thirties were the most likely to be involved in boating fatalities in Inuvik. This age range is consistent with data on Aboriginal peoples in Canada involved in boating fatalities, where males aged 20 to 49 years were found to have the highest fatality rates (CRC, 2013). Participants felt that younger men were more likely to show off to their friends and to not consider the potential dangers or long-term consequences of risk-taking behaviours while boating.

Risk-taking behaviours have been previously studied among males in the United States (e.g., Byrnes, Miller, & Schafer, 1999; Irwin & Millstein, 1991). Increased risk-taking behaviours among American teenagers have been attributed to biological immaturity, greater sensation seeking, and/or impulsive behaviours (Husted et al., 2006). While researchers at North American universities have typically looked at participants of European decent (e.g., Husted et

al., 2006), this study demonstrated that important similarities exist between Aboriginal and non-Aboriginal young men in their risk-taking behaviours.

Despite similarities with non-Aboriginal men, important differences existed between Aboriginal men, too, a point emphasized by postcolonial feminist theorists. Many older participants in Inuvik expressed concern for the safety of members of the younger generation while boating or travelling on the Mackenzie Delta. Similar findings have been identified amongst residents in Igloolik, Nunavut, and Ulukhaktok, NWT who expressed similar concerns about youth and their exposure to environmental risks and hazards (Ford, Pearce, Gilligan, Smit, & Oakes, 2008). In Igloolik and Ulukhaktok, increased risk-taking behaviours of younger community members were associated with a loss of land-based skills and incomplete knowledge of safe hunting (Ford et al., 2008). As participants identified that younger men were more likely to engage in risky behaviours while boating, specific strategies should be developed to appeal to this group and that also account for place, which we discuss in the next section.

### **Place**

Boating in the Western Canadian Arctic is considerably different when compared to the rest of Canada. Participants in Inuvik referred to the unique characteristics of the physical environment of the Mackenzie Delta region as posing risks for boaters. For example, participants explained that cold water, strong currents, changing water depths, and dangerous weather conditions could lead to boating incidents, even for experienced travelers and boaters. Giles and colleagues (2010) suggested that water and boating safety education in the NWT could be more appropriate if water safety programmers from southern Canada decentered their expertise and engaged with approaches that consider the environmental context. Based on the challenges participants indicated, such as navigating the channels of the Mackenzie Delta or cold-water temperatures, boating safety advocates could work with community members to create meaningful strategies that educate the population about the specific physical features of waterways near Inuvik.

Participants noted that current boaters lacked the knowledge to navigate the challenging geography around Inuvik. With access to more advanced technologies, residents of northern communities are now travelling and hunting in conditions that may have been considered dangerous in the past (Ford et al., 2008). Risk-taking has been linked to technological developments in northern communities (Ford et al., 2008). For example, residents in Igloolik and Ulukhaktok indicated that carrying GPS systems or VHF radios may provide a safety net if an incident occurred; however, the devices have also resulted in overconfidence and less caution towards dangerous conditions by the users (Ford et al., 2008). Aporta and Higgs (2005) noted that the reliance on locating devices, such as GPS, could also result in disengagement from Aboriginal knowledge concerning safety and local geography. Importantly, health researchers and programmers should acknowledge local residents' expert knowledge of place (Furgal et al., 2002; Giles et al., 2010), while also considering that forms of knowledge change over time (Giles et al., 2013). For example, health programs that employ or promote new communication or location technologies in concert with local knowledge may be an effective way to engage northern men in addressing their safety practices.

### **Lack of Enforcement**

Participants explained that the lack of enforcement of laws such as those that require specific safety equipment on board and those prohibiting alcohol consumption while boating likely

contribute to boating incidents in Inuvik. Some residents of Inuvik attributed this lack of enforcement to a lack of concern about Aboriginal peoples' lives – a clear reflection of beliefs that colonialism continues to have an impact on Aboriginal peoples' health. Enforcement is one avenue that could be pursued, but it would require a significant investment in resources and would also put the responsibility for Aboriginal peoples' activities in the hands of what some might view to be colonial authorities.

Another way to promote lifejacket use would be to ensure that these items are better designed to meet community members' needs. For example, the Alaska Eskimo Whaling Commission, the United States Coast Guard, the Alaska Native Tribal Health Consortium, and Mustang Survival collaborated to manufacture white float coats (which are essentially the top half of survival suits) to meet an Alaskan community's cultural needs (Barber, 2010). The float coats were produced in white to reflect Alaskan whalers' belief that brightly coloured flotation devices would scare away whales, while the white would allow them to camouflage with ice floes (Barber, 2010). The white float coats that were designed based on the target community members' local beliefs were immensely popular (Barber, 2010). The results from this project in Alaska demonstrated that safety equipment designed based upon northerners' input and designed for the specific environment has the potential to result in stronger uptake of injury prevention behaviours. Community members best understand their local beliefs and local environments and it is therefore essential for the local residents to be involved in the identification of risk factors and the development and implementation of health programs and resources. In Inuvik, future research could also be conducted with community members to adapt existing resources or safety equipment and to take a community-based approach to the reduction of drinking and boating.

Notably, alcohol has been consistently identified as a major risk factor contributing to boating accidents in Canada, particularly among Aboriginal populations (e.g., CRC, 2005; CRC, 2013); however, with a few exceptions (e.g., mention of the lack of enforcement of laws concerning alcohol consumption while boating), participants in Inuvik did not refer to alcohol as an important risk factor for boating incidents within the community. The lack of discussion of alcohol and boating may be due to participants' social desirability bias (Randall, Huo, & Pawelk, 1993). Social desirability is understood as a "tendency of individuals to deny socially undesirable traits or behaviours and admit socially desirable ones" (Randall et al., 1993, p. 186).

As the first author is a non-Aboriginal outsider and female, participants may have tried to present themselves and their community to her in a favourable light. Certainly, within Canada, there are numerous racist stereotypes associated with Aboriginal peoples, including the prevalence of alcohol addiction (Backhouse, 1999; de Leeuw, Kobayashi, & Cameron, 2011). Many non-Aboriginal Canadians' attitudes and beliefs towards Aboriginal peoples remain heavily entrenched in colonial stereotypes (Bourassa, McKay-McNabb, & Hampton, 2004). Notably, Statics Canada (2015a) found that 34% of Inuit and 29% of First Nations people did not consume alcohol in the past year, in comparison to 24% of Non-Aboriginal Canadians. Inaccurate or inadequate education about Canada's colonial history and role in creating inequalities and inequities that Aboriginal communities currently face transfers responsibility of social, economic, and health issues to Aboriginal peoples' failure to adapt, rather than the damaging effects of colonialism and racism (Harding, 2006). Loppie, Reading, and de Leeuw (2014) pointed out, "If decades of trauma are to be healed, systems such as justice and health need to address racial prejudice at all levels and move towards embracing the unique cultural

traditions, healing, and needs of Aboriginal people” (p. 9). In the future, having a local and well-known community member lead the focus groups or interviews may mitigate this potential form of bias and enable participants to discuss the sensitive topics of alcohol and boating. In addition to lack of enforcement, participants also stated that lack of knowledge and preparation for boating activities also led to boating incidents within the community.

### **Lack of Knowledge and Preparation**

Many participants in Inuvik believe that a lack of knowledge and preparation concerning boating contribute to boating incidents. Understanding what equipment or knowledge community members deem important may lead to creative and culturally safe solutions to dealing with this lack of knowledge and preparation. For example, Giles and colleagues (2013) worked with community members in Pangnirtung, Nunavut, to try to improve boating safety. The campaign involved designing thermoses and refrigerator magnets that doubled as checklists with Transport Canada’s “Minimum Safety Equipment Requirements” (Transport Canada, 2014). The checklists included equipment that was not on Transport Canada’s list, but was identified as important by community members (e.g., harpoons, rifles, and ammunition) and printed in English and Inuktitut (Giles et al., 2013). By informing the research team of their own safety needs, the community members were involved with designing injury prevention strategies that reflected their culture and met their self-identified needs (Giles et al., 2013). In Inuvik, health programmers could also work with residents to co-create culturally safe resources that reflect the informational needs that residents have highlighted as important, such as promoting the use of lifejackets within the community. Individuals, including Aboriginal men, may develop a strong sense of cultural identity by participating in the design and implementation of health strategies that meet their community’s and individual needs (Buchanan, 2000).

As levels of low income and education are strongly linked to vulnerability to drowning (CRC, 2013; NWT Health and Social Services, 2004; Salomex & Vincent, 2004), these complex issues, which are tightly tied to colonialism, will also need to be considered by future researchers while addressing high rates of boating fatalities. Researchers or health programmers working alongside community members to design injury prevention resources that reflect the risk factors that residents have identified and acknowledge the social, political, and cultural contexts – particularly the legacy of colonialism, that contribute to boating incidents will be an important next step in helping to promote community members’ boating safety.

### **Conclusion**

Residents in Inuvik identified risk factors for boating incidents in the community as gender, age, place, lack of enforcement, and a lack of knowledge and preparation. While the factors of gender (Giles et al., 2013; Jardine et al., 2009), age (Giles et al., 2013), and place (Young et al., 2016; Durkalec et al., 2014) have been previously identified as important to understanding risk-taking behaviours in northern Canada, these factors have not been considered in combination with each other, or through the perspective of northern Aboriginal men.

Given the proximity to and strong relationships between communities within the Beaufort Delta region, research that identifies whether the risk factors identified by community members in this research are similar to those of community others in neighbouring communities should be conducted. Future research should also be undertaken in Inuvik to further assess differences in risk factors pertaining to different groups (e.g., Gwich’in, Inuvialuit, Métis, and non-Aboriginal

peoples) to enable the further refinement of injury prevention efforts, as well as the role of women in mitigating men's risk-taking behaviours in northern communities.

We argue that more holistic, community-based approaches to understanding boating incidents in the NWT have the potential to better address Aboriginal men's high rates of boating fatalities in the NWT. The results from this study demonstrate that Inuvik community members hold expert knowledge about their own health and safety needs and, importantly, that they are concerned about and interested in addressing boating incidents in culturally safe ways.

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