

EXPLORING PERCEPTIONS OF SEDENTARY BEHAVIOUR MESSAGING AMONG THE
DISABILITY COMMUNITY

VICTORIA MOUSSES

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Abstract

Approximately 10% of Canadians report having some form of physical disability. People with physical disabilities (PWD) accumulate more sedentary behaviour (SB) time than people without disabilities, which can have a detrimental effect on health and well-being. This was the first known study to explore the perceptions of SB messaging campaigns and messaging preferences among PWD. Participant preferences and messaging needs were identified using a qualitative approach. The social issue advertising believability model (SIABM) guided the project given that it is a useful framework for understanding persuasive messaging as a tool to change behaviour. A thematic analysis (TA) was conducted. The results of this work will inform recommendations for national health promotion agencies (i.e., ParticipACTION) such that they are guided in developing SB messages that are inclusive of PWD.

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Introduction

Low levels of Physical Activity and high levels of Sedentary Behaviour among People with Physical Disabilities

The Canadian Survey on Disability reported that over 6 million Canadians are living with a disability (2017). Physical disabilities are the most prevalent type of disability with people with physical disabilities (PWD) making up more than half of Canadian people living with a physical disability (Choi, 2021; Martin Ginis & Hicks, 2007). Although physical activity (PA) presents a wide range of benefits for PWD, PA participation rates among PWD are very low (Jaarsma et al., 2019; Williams et al., 2014). For example, while 40% of able-bodied adults report engaging in one or more sessions of PA per week, only 17% of PWD engage in one or more sessions of PA per week (Ma & Martin Ginis, 2018). For the majority of PWD, PA participation is hindered by numerous barriers (physical, social, and systemic) which render PA recommendations impractical and prevent PA recommendations from being met by many PWD (Aaberg, 2012; Martin et al., 2016; Shields et al., 2012).

In comparison to people without disabilities, it has been found that PWD accumulate more sedentary behaviour (SB) (Melville et al., 2017). For the purpose of this study, SB will be defined as any waking behaviour when the body's large muscle groups are under relaxation (Tremblay et al., 2017). Indeed, there are high rates of SB among PWD (Carroll et al., 2014). Increased SB presents greater mortality risks from all causes, including higher metabolic risk factors, cardiovascular disease, type 2 diabetes risks, and certain types of cancer (Biswas et al., 2015; Chomistek et al., 2013; Park et al., 2020). There has been growing recognition that SB has a detrimental effect on health, and contributes to poor health outcomes (Lynch et al., 2022). In 2020, the first global public health guidelines on PA and SB for PWD were released by the

World Health Organization (Carty et al., 2021). These guidelines highlight the benefits and importance of limiting SB for PWD such that PWD could experience many benefits from decreasing their SB time (Carty et al., 2021). A review of systematic reviews discovered that reducing SB has many health benefits (Lynch et al., 2022; Rezende et al., 2014). As such, strategies to promote decreased SB among PWD are necessary.

Persuasive Messages to Motivate Decreased Sedentary Behaviour

Persuasive messages are one strategy that may be useful in promoting decreased SB among PWD. The purpose of persuasive messages is to influence message recipients' attitudes and intentions using a variety of strategies (Rezai et al., 2017) that in turn result in behaviour changes (Falk et al., 2010). There is extensive research on the use of persuasive messages to promote PA. For example, participants have identified the most persuasive PA messages as those that promoted PA benefits (Rezai et al., 2017). Additionally, it has been found that motivation to upkeep a physically active lifestyle can be increased when PA guidelines are accompanied by persuasive messages (Latimer et al., 2010). A scoping review of PA messaging compared the effectiveness of different types of messaging on improving PA intentions (Williamson et al., 2020). For example, among pregnant women with gestational diabetes, persuasive PA messages resulted in increased PA related outcomes and intentions, whereas appearance and health-based messages were ineffective (Williamson et al., 2020). It was found that for messages to be effective and persuasive, they should be gain-framed; focusing on achieving the desirable outcome, or avoiding the undesirable outcomes, additionally messages should highlight short-term outcomes and be tailored towards the target audience (i.e. PWD) (Williamson et al., 2020). Persuasive messages aim to convince the audience to adopt a behaviour or attitudes, differently appearance-based messages focus on and emphasize a visual appeal, and health-based messages

promoting a behaviour by highlighting the impact on one's health and well-being (Williamson et al., 2020). Although there has been less empirical research examining the use of persuasive messages targeting SB, it has been suggested that persuasive messages may be one effective strategy for promoting decreased SB (Aldenaini et al., 2022). Indeed, this notion was corroborated based on the findings of a systematic review of persuasive strategies to increase PA and reduce SB. In analyzing literature (N=198 studies) regarding the effectiveness of different persuasive strategies, 70 studies out of 198 utilized textual messaging as a persuasive strategy (Aldenaini et al., 2022). Of the 70 studies, 58 (83%) reported having successful outcomes (38 fully successful, 20 partially successful), suggesting these strategies were effective to motivate increased PA and decreased SB (Aldenaini et al., 2022). This suggests that the use of persuasive messages may be highly effective in motivating decreased SB. Additionally, only one study (1%) reported messages to be unsuccessful. The existing research evidence suggests that the use of persuasive messaging is an effective strategy for reducing SB.

One limitation of the existing SB messaging research is that there is no known published literature focused on promoting decreased SB among PWD specifically. In creating optimally effective messages, it is important that messages target the specific audience, and captures their unique psychological, demographic, and behavioural characteristics such that messages are perceived as relevant and inclusive (Rollo & Prapavessis, 2020). In creating health behaviour messages, it is important that aspects of relevancy and inclusion are considered, and research is conducted to ensure that the developed messages are persuasive and effective (Larocca et al., 2022; Rollo & Prapavessis). There is currently no known research regarding the development of SB messages that are inclusive of PWD and there is a need for research to fill this gap.

Inclusive messages avoid using bias, slang, and expressions that exclude groups of people (American Psychological Association, 2022; Larocca et al., 2022). The use of inclusive messages will reach more audiences by communicating in a manner that makes the message feel relevant to everyone. When messages include bias, slang, or expressions that may be irrelevant or outright discriminatory, certain groups of people are excluded. For example, messages used such as “sit less, move more” (Smith et al., 2021) would not be relevant and inclusive to some PWD who do not have the option to “sit less” (Smith et al., 2021). Inclusive messages should use strategies that foster relevancy, create strong attitudes towards reducing SB, increase the amount of attention paid to the message, increase believability and involvement among all audience members including PWD (Larocca et al., 2020, O’Cass & Griffin, 2006), and ultimately evoke feelings of motivation to reduce SB time. For PWD, effective inclusive SB messages should elicit higher feelings of motivation to reduce SB compared to exclusive SB messages that do not consider the messaging needs and preferences of PWD. There is a need for research to inform the development of inclusive SB messages to motivate decreased SB among PWD, as there is currently no known literature that examines effective SB messages for PWD (Smith & Wightman 2021).

Sedentary Behaviour Messages and Ableism

Although previous research has explored the effects of SB messages among people without disabilities, there is currently no known research exploring effective SB messaging among PWD. In a recent commentary, it was observed that many SB messages used in popular health promotion campaigns use terminology that is non-inclusive, discriminatory, and ineffective towards PWD (Smith & Wightman, 2020). Some of these messages are not only exclusive but also support notions of ableism. “Ableism” is the act of discriminating against a

specific social group, such as PWD, as well as the adopted ideology that able-bodied individuals are superior to disabled individuals (Friedman & Owen, 2017, Wolbring, 2008). Ableism can be perpetuated and PWD can be negatively impacted if SB messages are not inclusive and do not consider the needs of PWD. In fact, many definitions of SB such as ‘excessive sitting’ can hold ableist ideologies towards the lived experiences of PWD who may require the use of a wheelchair but are able to reduce SB in ways that are not limited to reducing the amount of time spent sitting. For example, SB messages such as “Time to stand! Stand up and move a little for one minute!” and “Stand more! Sit less!” reinforce ableist attitudes towards PWD. These types of messages suggest there is one best way to reduce SB and ignore that there are alternate ways that PWD may reduce their SB time that does not involve standing more or sitting less. Some PWD may be incapable of standing more or sitting less and these messages may feel discriminating and promote feelings of exclusion for PWD. Ultimately, these exclusive type messages are unlikely to evoke feelings of relevancy, believability, or motivation among PWD. Alternatively, more inclusive SB messages do not make assumptions about the best ways in which one can move and include examples such as “Time to move! Be active in your own way and try to move your body for one minute.” Although these messages are similar in promoting decreased SB, it would appear that these messages are inclusive of PWD and avoid ableist assumptions. Notions about the effectiveness of various SB messages have not been explored among PWD. That is, there is no known research to explore SB messages within the context of considerations of PWD and ableism.

Importance of Inclusive Sedentary Behaviour Messages

Existing SB messages disseminated by reputable organizations are largely exclusive and unrepresentative of the lived experiences of PWD (Smith & Wightman 2021). Although there is

research to suggest that SB messages may be effective among people without disabilities, commonly disseminated SB messages are not inclusive or relevant to PWD, and therefore are not universally effective, and require improvements (Martin Ginis & West, 2021). It is important to incorporate inclusive language, as well as fight ableist prejudices towards PWD, which in turn will promote decreased SB and the associated health benefits (Carty et al., 2021; Faught et al., 2022; Martin, 2013). An important approach in developing messages that are inclusive and relevant to PWD is to include the perspectives of PWD in research. In accordance with the motto by disability rights advocate James Charlton “Nothing about us, without us”, PWD should be actively involved in the development of messages that are aiming to be inclusive for PWD (Charlton, 2011). In doing so, the perspectives of PWD can be better understood and inform the development of inclusive messages that promote increased motivation to decrease SB time for PWD.

Social Issue Advertising Believability Model

The Social Issue Advertising Believability Model (SIABM; O’Cass & Griffin, 2006) may be useful in guiding research regarding the perspectives of PWD in informing the development of inclusive SB messages. The SIABM theorizes that one’s motivation and intentions towards a behaviour and message are influenced by: (1) attention paid to the message, (2) believability of the message, (3) involvement in the social issue, (4) attitudes toward the issue (i.e., message content and the desired behaviour), and (5) intention to perform a certain behaviour (O’Cass & Griffin, 2006).

Attention

The attention of the target audience must be captured for a message to be successfully processed (Greenwald & Leavitt, 1984). According to Hawkins et al. (2008), tailoring a message

to the preferences of the target audience can enhance attention to a message and consequently improve processing, interpretation and understanding of the message. It is crucial to develop messages that capture the target audience's attention. O'Cass & Griffin (2006) measured attention to messages by asking respondents how often they ignore messages about a social issue, how much attention they pay to messages about a social issue, and how often they turn off ads about a social issue. Larocca and colleagues (2020) found that messages may be most effective in motivating PA when they capture one's attention. Additionally, they found that when people perceived a message to be relevant, it was associated with greater attention being paid to the message; concluding that highly relevant messages elicit high levels of attention (Larocca et al., 2020). Barry and colleagues (2014) suggested that high levels of message attention were a predictor of PA following message exposure. That is, when participants had high levels of attention to a PA message, this led to high rates of PA following message exposure (Berry et al., 2014). There is no known research examining attention in relation to SB message effectiveness among PWD.

Believability

The target audience may decide to accept or reject a message after it has attracted their attention (Cacioppo et al., 1986). One factor in determining whether to accept or reject a message is the perceived message believability, which is the degree to which the audience perceives a message to be true (Beltramini, 1982). A higher level of believability increases the acceptance of the message content, which in turn can influence one's attitudes toward a target behaviour (O'Cass & Griffin, 2006). Believability has been measured by asking respondents if they found messaging to be believable, trustworthy, convincing, credible, reasonable, honest, unquestionable, conclusive, authentic, and likely (O'Cass & Griffin, 2006). Message

believability has been explored in relation to cigarette warning labels, which presented specific health warnings. It was found that when participants were involved with the social issue (e.g., smokers) there were high levels of believability (e.g., smoking is bad, cigarettes are harmful) compared to people who were not involved. There is no known research examining believability in relation to SB message effectiveness among PWD.

Involvement

Involvement of a message is determined by the degree to which a person perceives the social issue to be relevant to their personal needs, values, and interests (Zaichkowsky, 1985). Involvement is characterised as the degree of significance or relevance of the social problem in the person's life (O'Cass & Griffin). People are more likely to pay attention and comprehend a message if it is perceived as personally meaningful (Petty & Cacioppo, 1979). By targeting the specific needs of the target audience, message involvement can be heightened (Aeffect, 2000). O'Cass & Griffin (2006) measured involvement by asking respondents if they found the message to be important, of concern, relevant, mean a lot to them, matter to them, interesting, significant, and needed by them. Researchers have manipulated levels of message involvement and found that message attention was greater in those in a high-involvement group compared to those in a low-involvement group (Laczniak et al., 1989). This suggests that when a message is of high involvement or relevance, it will elicit attention towards the message. There is no known research examining involvement in relation to SB message effectiveness among PWD.

Attitudes

A person's attitudes regarding a behaviour play a significant role in whether or not they engage in it (Fishbein & Ajzen, 1975; Sheppard et al., 1988). Attitudes are important to assess, predict, and understand individuals' intentions towards a behaviour (Ajzen, 1991; Fishbein &

Ajzen, 1975). O'Cass & Griffin (2006) measured attitudes by asking respondents how they felt about various messages, such as if they liked or disliked them, if they felt strongly in their view, or felt the message to be wrong, if they approved the message, or disapproved, and if they believe the behaviour will harm or improve their health. Lacrocca and colleagues (2020). found that when youth with physical disabilities were exposed to PA messages, those with low baseline attitudes about PA experienced a positive effect on attitudes after message viewing, whereas those with higher attitudes about PA at baseline experienced negative effects, concluding that PA messages may be effective at improving attitudes for those with low attitudes at baseline. One's motivation and reason for adhering to a message and carrying out the behaviour is influenced by attitudes about the issue at hand (Gallagher & Updegraff, 2011). Previous studies have discovered that attitudes are important in determining one's behaviour outcomes following message exposure (Gallagher & Updegraff, 2011; Larocca et al., 2020). This suggests that when one has positive or favourable attitudes towards a health behaviour message, they are more likely to carry the behaviour out since attitudes have been shown to predict intentions and outcomes.

Intention

The most proximal predictor of behaviour is intention (Fishbein and Ajzen, 1975). A person's drive to engage in behaviour is what indicates their intention (Ajzen, 2002). One's intention and motivation to adhere to a message and engage in the behaviour is influenced by their attitudes and beliefs about the issue (Ajzen, 1991).

In the context of SB messaging, the SIABM posits that a message would be most effective if a) the message recipient pays attention to the message, b) the message evokes positive attitudes about decreasing SB, c) the message recipient believes the message, d) the message recipient feels a sense of involvement in the issue of SB, and e) the message recipient

develops an intention to decrease SB (O’Cass & Griffin, 2006). Although there is no known research using the SIABM to explore SB messaging per se, past research has utilized the SIABM to understand PA messages and predict intentions to engage in PA among youth with physical disabilities. The SIABM guided an understanding regarding the PA messaging needs and preferences of youth with disabilities (N=60) who viewed three different types of PA messages; (1) neutral, (2) exclusive, and (3) targeted (Larocca et al., 2020). Targeted messages included personal relevance, and in turn were viewed as more believable, and compared to neutral or exclusive messages, were preferred for motivating youth with physical disabilities to engage in PA (Larocca et al., 2020). Indeed, targeted messages may be a particularly effective messaging strategy for motivating health behaviours such as PA and decreased SB among PWD. However, when developing national mass media campaigns to promote decreased SB among *all* Canadians, a targeted approach becomes impractical. Instead, large health promotion agencies such as ParticipACTION may benefit from using inclusive messaging approaches such that the message content is relevant and meaningful for all individuals including those with PWD. Inclusive messages may elicit similar feelings to targeted messages given that inclusive SB messages will feel relevant to PWD and thus capture their attention, evoke positive attitudes regarding SB change, avoid ableism, and create an impact on the broad population. This study will be guided by the SIABM to understand the perceptions of PWD regarding prototype SB messages that are more traditional and exclusive versus prototype SB messages that are intended to be more inclusive. For example, if a SB message evokes feelings of exclusion, then it may thwart attention, minimize perceptions of believability, negatively impact attitudes, and ultimately fail to influence motivation to decrease SB. This knowledge could be invaluable to national health promotion agencies in informing SB messaging campaigns that reach the most

Canadians and in particular include considerations for PWD. There is no known research to examine the perspectives of PWD regarding SB messages. By considering the perceptions and preferences of PWD we have the opportunity to inform inclusive messages (Larocca et al., 2020), that may work to motivate decreased SB among PWD.

Filling Gaps in the Literature

This study addresses several gaps in the literature by examining the perspectives of PWD regarding the development of SB messages (Smith & Wightman 2021). Understanding the perspectives and preferences of PWD can inform the development of inclusive SB messaging that encourages PWD to reduce their SB. There has not been any research to seek the perspectives of PWD on the development of inclusive SB messages. Addressing this gap is important given that the lack of accessible SB information is a significant barrier reported frequently by PWD (Jaarsma et al., 2019). It is important for PWD to have accessible and inclusive messaging that promotes and motivates them to reduce their SB time.

Objective

Guided by the SIABM, the purpose of this study was to examine perceptions regarding prototype SB messages from the perspective of PWD. The secondary purpose was to seek insight regarding SB messaging preferences from PWD. This work will inform recommendations for national health promotion agencies (i.e., ParticipACTION) such that they are guided in developing SB messages that are inclusive to PWD.

Methods

Recruitment

Initial recruitment efforts entailed recruiting online through social media in partnership with The Canadian Disability Participation Project. Our community partners posted an invitation to participate in the study and invited interested individuals to complete an eligibility survey. Unfortunately, we received a large number of fraudulent survey responses (>240). We were able to determine that these individuals were fraudulent based on their survey responses, email addresses, and behaviour. Some of these individuals even joined Zoom meetings only for us to determine they were not PWD. This was disheartening and frustrating. Fraudulent participants are those who use dishonest tactics to manipulate or falsify data in online research projects. Fraudulent participants often falsely claim that they meet the inclusion criteria in order to participate in the study, which typically results in receiving financial compensation. Some fraudulent participants may participate multiple times in the same study. The use of fraudulent participants could jeopardize the validity and reliability of the findings, presenting challenges for researchers. Several studies have been affected by fraudulent participants over the past few years, and it is likely that an increasing number of studies will be influenced by fraudulent participants as technology advances.

Hancock and colleagues (2004) examined the behaviour of fraudulent participants in an online environment and found that individuals were more likely to engage in deceptive practices when communicating online compared to face-to-face interactions (Hancock et al., 2004). In-person recruitment is one way of attempting to eliminate fraudulent participants (Hancock et al., 2004). Other strategies for preventing fraudulent participation involve incorporating pre-screening questions or additional pre-screening surveys into the recruitment process to filter out

any possible dishonest individuals (Hancock et al., 2004). Additionally, adding a component such as pre-screening phone calls or virtual meetings prior to data collection can help to ensure participants fulfill the studies inclusion criteria (Mason & Suri, 2011). By using efficient techniques during the recruitment process, researchers can improve the validity and reliability of research projects.

To combat fraudulent participants in this specific study, the research team decided to pause online recruitment and make the following adjustments: first, permission was received from the Research Ethics Board to implement a screening phone for interested participants. Second, recruitment efforts were shifted to engage in face-to-face recruitment via community programs that serve PWD. Specifically, partner organizations from the Canadian Disability Participation Project invited their community members (i.e., PWD) to join the study.

Canadian adults who self-identified as PWD (N=6) were recruited through face-to-face engagement via partner organizations. Eligibility criteria included: a) being over the age of 18 years, b) living with a physical disability, c) ability to read and write in English. Interested individuals completed a brief survey via SurveyMonkey to determine if they were eligible to participate in the project and were then contacted to complete a follow-up demographic survey and focus group.

Participants

Participants in the study included six PWD (N=6). This included three males, and three females, aged 50-75. All participants included in the study have been involved in a PA program. Participation throughout the entire study was voluntary. Informed consent was obtained prior to data collection in the focus groups. Participants received a \$20 gift card as an honorarium for their participation.

Protocol

After screening for eligibility, participants provided informed consent followed by the completion of a demographic. Questions about SB and PA were created based on Canada's 24-Hour Movement Guidelines (Canadian Society for Exercise Physiology, 2021). Prior to answering questions, participants were given a brief explanation of the 24-Hour Movement Guidelines and prompted with definitions of moderate-to-vigorous PA, and SB. Moderate-to-vigorous PA was defined as activities that take physical effort and require you to breathe more than normal, and as previously mentioned, SB was defined as any waking behaviour when your body's large muscle groups are under relaxation (Tremblay et al., 2017). The PA behaviour questions included: "during the last 7 days, how many days did you do moderate-to-vigorous intensity PA in bouts of 20 mins or more?", "how much time did you usually spend on one of those days doing moderate-to-vigorous physical activities?" The SB question included "during the last 7 days, how much time did you spend sedentary on a weekday?" Sleep was also measured with a single item "how many hours do you sleep on an average night?" After completion of the eligibility screening and demographic questionnaire, participants were scheduled for focus groups which were conducted via Zoom. Two focus groups took place with two participants per group. Upon request, participants could select to participate in a one-on-one interview, rather than a focus group. Two participants requested a one-on-one interview.

A qualitative research approach is optimal for understanding the perceptions and preferences of PWD in regard to messaging (Larocca et al., 2020). A qualitative research approach allowed for the identification and understanding of the perspectives and preferences of individuals following the examination of messages (Bassett-Gunter et al., 2017). Conducting focus groups and one-on-one interviews allowed participants to share their experiences,

perspectives, and preferences about various SB messages and provide rich data to inform inclusive SB message development. The focus groups and one-on-one interviews took approximately 45 minutes each. A semi-structured interview guide was used (see Appendix E). To ensure the focus groups were effective and relevant data were collected, the SIABM guided the development of the interview guide. Each question was carefully crafted to ensure alignment with each construct within the SIABM. to understand how the inclusive and exclusive prototype messages impacted participants' attention, believability, attitudes, involvement, and intention. Additionally, the research questions were considered throughout the development of the interview guide.

The focus groups and one-on-one interviews began by briefing the participants on SB and asking questions regarding their SB. The first question asked participants if they are familiar with the term “sedentary behaviour.” If participants were familiar with SB, they were asked to define it in their own words. This was followed by providing the definition of SB that would be used throughout the discussion. After defining SB, participants were asked to share examples of ways that they were currently decreasing their SB time and to share a rough estimate of what proportion of their day they spent sedentary. Next, participants read a series of prototype SB messages that were developed for the study; four of the prototype SB messages were intended to be inclusive and four of the prototype SB messages were intended to be exclusive (see Table 1). Following each set of messages, participants were if they believed the messages were relevant, inclusive, or representative of their lives.

Table 1. Prototype Exclusive and Inclusive Sedentary Behaviour Messages

Prototype Sedentary Behaviour Messages Exclusive	Prototype Sedentary Behaviour Messages Inclusive
Time to stand! Stand up and move a little for one minute.	Time to move! Be active in your own way and try to move your body for one minute.
Move more. Sit less. Sleep better.	Move better. Sit better. Sleep better.
Imagine sitting less every day. Free yourself from our culture of sitting.	Imagine being less sedentary every day. Free yourself from our culture of sedentary behaviour.
Reduce the time you spend sitting – for example, by organising walking meetings, using a standing desk, or enjoying a walk during your lunch break.	Reduce the time you spend sedentary – for example, by changing your seated position frequently, or enjoying a walk or wheel during your lunch break.

First, participants reviewed the prototype SB messages designed to be exclusive and then were asked a series of questions about their perceptions and preferences regarding the messages (see interview guide – appendix E). Next, participants reviewed the prototype SB messages designed to be inclusive messages and answered the same series of questions regarding their perceptions and preferences about the messages. Example questions from the interview guide include: “What is the first emotion or sentiment that you immediately felt after reading the messages?”, “What aspects of the message made you feel this way?”, and “Do you believe that this message is relevant, inclusive, and representative of your lived experience?” After reviewing all of the prototype SB messages, a reflection took place where participants answered questions about how often they encounter various SB messages, and how these various messages impact their intentions to decrease SB.

Prototype Messages

Prototype messages were developed to guide the discussions around SB messages. Specifically, SB messages that were designed to be ‘inclusive’ and ‘exclusive’ were developed and shared with participants during the focus group discussions. The prototype messages were

informed by: a) previous research around health behaviour messaging, b) existing SB messaging campaigns, and c) consultations with SB and PA messaging experts at ParticipACTION, which is Canada's leading PA promotion brand with a mission to support all Canadians to be more active, alongside helping to reduce SB time (ParticipACTION, 2022). In previous research, specific terms used in SB messaging included in the Canadian 24-Hour Movement Guidelines such as "sweat", "step", and "sit" were found to be non-inclusive and terms such as "move" or "change positions frequently" were thought to be more inclusive and meaningful to a disability audience (Handler et al., 2019). For example, the word "step" might not be relevant or meaningful for someone who relies on a wheelchair for mobility and is not able to step. Alternatively, the term "move" might be more relevant in encouraging decreased SB in a way that is best suited for any individual's abilities. These exclusive words (i.e., sweat, step, sit) were replaced with more inclusive words as identified in previous research (Handler et al., 2019). These relatively minor changes in terminology were employed in an attempt to transform SB messages from exclusive messages with ableist ideologies into inclusive messages that are relevant for PWD. These principles and ideas from previous literature and national SB campaigns guided the development of prototype messages for the current study.

Data Analysis

The purpose of qualitative research is to study people's life experiences, as well as the complexities in our social world and the perspectives people hold about their own experiences (Tuffour, 2017). The qualitative design for this study is located within an interpretivist paradigm that calls on researchers to make meaning of human experience through interaction with participants. By using an interpretivist paradigm, the researchers were able to gain insight into the participants' experiences and understand the subjective nature of the participants' experiences. By exploring themes, participants' preferences and perceptions have been presented in a way that has stemmed from their lived experiences. As a researcher with a physical disability, my positionality is shaped by my personal experiences and challenges associated with living with a disability. My positionality may create bias in the interpretation of the participant's data, which may have been done differently than a person without a physical disability would have done. Additionally, I identify as a woman, and I am studying PA as a part of my research training. My personal experiences with experiencing barriers due to my disability have helped to build my dedication to advocating for PWD and promoting disability-inclusive messaging. By leveraging my positionality, I aimed to contribute to research that promotes a positive change, and further advances overall inclusion for PWD.

A thematic analysis (TA) was conducted using a six-phase model: (1) familiarize the data, (2) create initial codes, (3) theme development, (4) review themes, (5) name/define themes, and (6) write-up (Braun & Clarke 2006; Braun et al., 2016). See Table 2 for theme development.

The focus group transcripts were read such that the researcher was familiar with the data and developed a thorough understanding. The transcripts were then searched through, selecting data that was relevant to the research questions and SIABM. Codes were created in line with

constructs of the SIABM: high attention, low attention, no attention, high believability, low believability, high involvement, low involvement, positive attitudes, negative attitudes, no attitudes, high intention, low intention. A deductive coding process was used, meaning that data were searched to fit the model and the SIABM was used to guide coding. The researcher was open to the consideration of new emergent codes that were outside of the SIABM. However, no new codes surfaced. Within the codes, patterns and relationships were identified. It was ensured everything was appropriately defined and that the themes accurately captured the data.

Definitions of each theme were given, along with examples drawn from the manuscripts. A table was constructed to demonstrate the relationships between themes (see Table 2). The results of the thematic analysis were written out, utilizing quotations from the data, providing context for the themes, and including a table to present the results in an easy-to-understand way.

Results

Attention

Participants suggested that the exclusive SB messages were less likely than the inclusive messages to be effective in capturing their attention. Alternatively, the inclusive SB messages were thought to elicit higher attention in PWD. One participant noted that the exclusive SB messages are making assumptions about the abilities of the message recipient and that this triggers them not to pay attention: “If I see that stuff [exclusive SB messages] online it *just turns me off* because it has the wrong messaging... it assumes that everyone can do all the movements, it doesn’t take everything into account... it’s an assumption their making.” The responses suggest that exclusive SB messages do not garner the attention of PWD given that they are not consistent with the lived experiences or abilities of PWD. When participants were asked about how often they encounter SB messages that are exclusive, many of the participants commented that they are encountering exclusive SB messages on a daily basis. They went on to share that little attention is paid to exclusive SB messages given that they felt as if PWD were not intended to be included in these messages.

Believability

Participants expressed that the exclusive prototype messages were less believable than the inclusive messages. The inclusive SB elicited higher believability, as they were found to be relevant, inclusive, and representative of their lives, and felt that there was truth behind the messages.

After reviewing the exclusive prototype SB messages every single participant noted that they did not perceive these messages to be believable. Participants frequently expressed their inability to do what the message was suggesting which gave the messages a sense of

unbelievability: “Reduce the time you spend sitting” ... “organize a walking meeting” ... I mean really!?”, “Use a standing desk”, never going to happen... “enjoy a walk around”, that isn’t going to happen.”, “For some people sitting is just part of their lives and we can’t get away from sitting.” Participants questioned what the exclusive messages were saying, going on to suggest that they did not believe these SB messages, as it was encouraging them to do something that was not possible.

After viewing the inclusive messages, participants shared that they found these messages to be more believable, as they were not suggesting for PWD to do things outside of their abilities. The inclusive messages were described by participants as hopeful and positive. One participant expressed: “This [inclusive SB messages] is better, it sort of encompasses everything.” Another participant shared: “I’d say it’s a much better way of putting it.”

Involvement

Many participants suggested that the exclusive SB messages were irrelevant and lacked meaningfulness and importance. Two participants expressed that these exclusive SB messages are asking them to do things that they *want* to do, but *cannot*: “How can you do that [stand more] when you have MS and you’re in a wheelchair? I would love to do that, and that’s how I was before, but how do I do it now?”, “To stand up and walk that would be nice, but that really doesn’t work in my situation being with a spinal cord injury where you have a C5, and I don’t walk, and I have no feeling below the chest.” Many participants frequently expressed that they felt the messages were targeted towards able-bodied individuals, and that PWD were not considered during the development of the messages. One participant shared: “I can’t walk at all, I can stand... but all those statements about sit, get up, move are not applicable to me there’s actually depressing actually [...] did they have wheelchairs in mind when they said that, made

those statements?” These feelings in turn resulted in the participants having low involvement in the exclusive SB messages. Feelings of low involvement were addressed by a participant who went on to add: “None of those seem like they’re talking to me.” The participants did not believe that the messages were geared towards their lives and abilities, leaving them to feel as if the messages aren’t meant to involve PWD.

Attitudes

Participants had the opportunity to share their attitudes towards the messages immediately after being exposed to both exclusive and inclusive messages. In response to the SB messages designed to be exclusive, participants suggested that they felt excluded, ignored, depressed, and saddened. One participant added: “They are great if you can stand... I can’t stand.”

After having some discussion around specific wording, participants were given the opportunity to share what phrases they felt positive attitudes towards, as well as which particular words they wanted to see more often. Most participants felt poor attitudes towards messages with wording such as sit, stand, and sweat, and favourable attitudes towards messages that focused on movement in general rather than using specific movement words that are not inclusive to everyone’s abilities. Many participants shared that the inclusive SB message “be active in your own way” was favourable to them and evoked the most positive feelings. Additionally, a participant expressed interest in an alternate phrase: “I like the statement “Move better. Sit better. Sleep better”.” A participant added: “Just the word “move” should be in there.” When asked what aspects of these particular messages caused participants to feel this way, it was said: “because it includes people who don’t have a choice.” Participants suggested that words that encompassed everyone of all abilities to do what they are able to do rather than giving specific

instructions made them feel more included and relevant, resulting in more positive attitudes towards those messages.

When asking participants about exclusive words that could be eliminated from the SB messages to make them more inclusive, one participant shared “Well, it’s not so much about what to include, but to eliminate the stereotypical, “get up”, “stand”, “walk”, “run” phrases.” Another participant went on to add: “I believe, first of all those words [sit, stand, sweat] should be deleted, I don’t think they are words that are representative at all. To sit, stand, and sweat ... it’s way beyond sitting, standing, and sweating, I think it’s about participating.” PWD in this study felt as though words included in SB messaging such as sit, stand, sweat, and run were unnecessary, elicited negative attitudes, and ultimately made these messages exclusive towards PWD.

Intentions

Upon reviewing the exclusive SB messages, many participants felt that the exclusive messages did not impact their intent to perform movement behaviours. Participants noted: “Well not personally, personally not me, but I have my own motivation right.” Another added: “It doesn’t even make a mark on me, I just think to tell them to go to heck and be done with it... they just don’t get it, you can’t to explain it to them...” Differently, another participant expressed: “I find them more discouraging... and annoying and depending on my mood, they’ll just get me pissed off, like you know... because they’re only talking to an exclusive dynamic of people... I find the words discouraging.” Participants that did not believe that the exclusive SB messages impacted their intentions to perform movement behaviour all shared that they had their own motivation to carry out movement behaviours. A participant went on to explain: “I move on, and I find with my background and education pre-wheelchair, I’m really motivated to find ways

to change things, so they adapt to me, and I don't think a lot of many other people have that, which saddens me." Ultimately the exclusive SB messages did not appear to have a positive impact on the intentions of participants. Alternatively, when discussing the inclusive SB messages impact on intentions, a participant noted: "Well, that's actually a lot more inclusiveness so... definitely feel like "Oh yeah, I could do that", you know what I mean, move a little bit." It was suggested by participants that SB messages that were inclusive elicited feelings of relevance which elicited motivation in turn increasing feelings of intentions.

Table 2. Themes

Themes	Quotations
Attention	<p>"If I see that stuff [exclusive SB messages] online it just turns me off because it has the wrong messaging... it assumes that everyone can do all the movements, it doesn't take everything into account... it's an assumption their making."</p> <p>"Often times when you look at any of the ParticipACTION commercials or ads it's really more towards those who don't have any mobility restrictions."</p> <p>["Are you used to encountering messages that make you feel saddened or that aren't relevant or applicable to me whatsoever?"] "Everyday"</p> <p>"Am I used to encountering messages that are exclusive? Yes, every day I do, every day."</p>
Believability	<p>"For some people sitting is just part of their lives and we can't get away from sitting."</p> <p>["So then would agree that none of these messages [exclusive] are inclusive or representative?"] "Yeah, not at all... I agree."</p> <p>"Yes, I'd say it's a much better way of putting it" [inclusive messages]</p> <p>"Reduce the time you spend sitting" ... "organize a walking meeting" ... I mean really!?"</p> <p>"Use a standing desk" never going to happen now, "enjoy a walk around" that isn't going to happen."</p> <p>["Do you guys believe that these [exclusive] messages are relevant, inclusive, or representative of your lives then?"] "No, no, I don't think so."</p> <p>["Do you guys then think that these [inclusive] messages are relevant, inclusive and representative of your lives?"] "More so than the previous messages."</p>

“Move, movement, or ... yeah, sit, stand, sweat that just doesn’t make sense for a lot of people.”

[“With that being said, I guess it’s safe to say then that you both believe these messages [exclusive] are not inclusive or representative of your lived experiences?”] “No, they aren’t applicable.”

“These messages [inclusive] are hopeful.”

“This [inclusive SB messages] is better, it sort of encompasses everything.”

“Okay so, they’re [inclusive SB messages] pretty positive I think, I don’t know are they inclusive, I think.”

[“So, you both agree that these [inclusive] messages are inclusive and representative of your lived experiences?”] Yes

[“Do you believe that these [inclusive] messages and mission are relevant of your life? Do you believe they are inclusive or representative?”] “Yeah, I do.”

[“I think it’s safe to say that you don’t think that these [exclusive] messages are relevant, inclusive, or representative of your life?”] “That’s right.”

[“Do you believe that these [inclusive] messages are relevant, inclusive, or representative of your lived experience?”] “Yeah, yes.”

Involvement

“None of those [exclusive SB messages] seem like they’re talking to me.”

“How can you do that when you have MS and you’re in a wheelchair? I would love to do that, and that’s how I was before, but how do I do it now?”

“My brain wants to do it, my head wants to do it, but my body doesn’t want to do it, it doesn’t listen.”

“I don’t think it’s true to say, “for all” because it doesn’t in my estimation reflect situations where you have mobility restrictions where you can’t so it’s not “for all”, these are more geared for those who are able bodied rather than those with disabilities.”

“To stand up and walk that would be nice, but that really doesn’t work in my situation being with a spinal cord injury where you have a C5, and I don’t walk, and I have no feeling below the chest.”

“These are the things that to put in national advertising... they’re nice, but they personally apply to the able-bodied audience.”

“Well, I can’t stand, I’m in a wheelchair, so it’s not really letting me be a participant in that if your telling people to stand, right?”

““Imagine sitting less everyday” ... I imagine that every day... “free yourself from our culture of sitting” ... I don’t want to sit, I want to go out and walk, I was to go out and shop.”

“I can’t walk at all, I can stand... but all those statements about sit, get up, move are not applicable to me there’s actually depressing actually because I

can't, they're not... I don't know... did they have wheelchairs in mind when they said that, made those statements?"

Attitudes

"Much better... it [inclusive SB messages] is definitely much better, definitely because it does include people who don't have a choice."

"I like the "be active in your own way"."

"I do like "be active in your own way", of all of this that is the best phrase out of the whole thing."

["What are the first emotions that you immediately feel after reading these [exclusive] messages?"] "It's great if you can stand... I can't stand."

"Be active in your own way" ... I think that is an excellent phrase... I think more of it should have that."

"That new mission statements better because it doesn't include the words "Sit less and move more"."

"The bottom statement "move more where they live, learn, work, and play" could mean to me that sounds better because it means whether I'm sitting or not, even if I'm involved in a meeting like this, I'm more involved... I think that's where the statement becomes better."

"I like "try to move, be active in your own way, try to move your body for one minute" yup, I like that one."

"Just "move" should be in there."

"Quite frankly I don't have the option of sitting any less."

"The word "help" to me doesn't jump out as an effective word cause they're not helping, they're encouraging people to move more where they live, learn, work, and play."

"I like the statements "Move better. Sit better. Sleep better"."

"I believe, first of all those words [sit, stand, sweat] should be deleted, I don't think they are words that are representative at all. To sit, stand, and sweat ... it's way beyond sitting, standing, and sweating, I think it's about participating."

"One of the biggest things that are barriers for people is that they don't know what's out there and what's available to them whether it be because of resources and so on... I don't know, but there's very little communication within the disability community about what things are available to them."

["What specific phrases would you want to see included in sedentary behaviour messages?"] "Well, it's not so much that you want to include them but to eliminate the stereotypical, "get up", "stand", "walk", "run" phrases."

["What words do you think would be good to replace words like "sit, stand, and sweat" that're getting the same message across but are more inclusive?"] "Just any kind of "get up and move" or "move the best you can" type of thing."

Intention

“I find them [exclusive SB messages] more discouraging... and annoying and depending on my mood, they’ll just get me pissed off, like you know... because they’re only talking to an exclusive dynamic of people... I find the words discouraging.”

“If someone can tell me how to do that [sit less] I will do it.”

“It [exclusive SB messages] doesn’t even make a mark on me, I just think to tell them to go to heck and be done with it... they just don’t get it, you can’t to explain it to them...”

“I think for me, I think exclusive messages make me a little more determined to fix the problem, right?”

“I just move on, ignore [exclusive SB messages] and move on.”

“I move on, and I find with my background, my background and education pre-wheelchair, I’m really motivated to find ways to change things, so they adapt to me, and I don’t think a lot of many other people have that, which saddens me.”

“Well, that’s [inclusive SB messages] actually a lot more inclusiveness so... definitely feel like “Oh yeah, I could do that”, you know what I mean, move a little bit.”

[“Do you think messages like these affect your intentions to perform certain movement behaviours?”] “Well not personally, personally not me no, but I have my own motivation right.”

Discussion

Guided by the SIABM, the purpose of this study was to examine the perceptions and preferences of PWD regarding SB messages. There is no known research regarding SB messaging preferences among PWD, and this study provides an important contribution to the literature. Inclusive language in messaging does matter (Handler et al., 2019). It has been suggested in previous studies that messaging should be representative and inclusive of differences between individuals, such as PWD (Handler et al., 2019). The findings of the current study are aligned with these ideas. PWD give preference to messages that are representative of their abilities and lived experiences.

According to the SIABM if a message elicits high attention, believability, involvement, and positive attitudes then it is most likely to motivate a target behaviour (e.g., decreased SB) (O’Cass & Griffin, 2006). Through discussions with PWD, the following key findings emerged: “Sweat”, “step”, and “sit” were terms participants did not prefer to see included in SB messages, and messages involving these terms elicited little-to-no attention, negative attitudes, and low believability, attitudes, involvement, and intentions. Alternatively, messages that encouraged the audience to move “in your own way” were highly praised, eliciting high attention, believability, attitudes, involvement, and intentions. The prototype inclusive SB messages were preferred by PWD compared to the exclusive prototype SB messages, and were overall believed to be relevant, inclusive, and representative of their lived experience.

Based on discussions with PWD, when a message fails to capture attention then it will be ignored and therefore it cannot be effective. Messages must be believable by including language that is truthful to people of all abilities, if there is exclusive language used, or phrases that are not relevant towards PWD, these messages will elicit low believability. There must be relevance

towards the personal needs, values, and interests of people of all abilities so that the audience can feel a sense of involvement in the message. This study suggested that inclusive messaging elicited positive attitudes towards SB messaging for PWD. When a message is not inclusive and utilizes ableist language or behaviour change suggestions, negative attitudes are held towards those messages making them completely ineffective (Smith et al., 2021). Lastly, creating inclusive messages for PWD is most likely to elicit intentions to create a behaviour change. Creating SB messages to be inclusive to people of all abilities and reducing the use of words that hold ableist ideologies will result in SB messages that are more effective for all people.

In previous research, specific terms used in SB messaging included in the Canadian 24-Hour Movement Guidelines such as “sweat”, “step”, and “sit” were found to be non-inclusive (Handler, 2019). The current study found very similar findings consistent with previous research, in the current study following message viewing the participants noted that the terms “sit, step, and sweat” were exclusive and went on to suggest that these words be removed from future messaging. Handler and colleagues (2019) have suggested replacing these exclusive words with words such as “move” or “change positions frequently” such that the messages can be more inclusive and meaningful to a disability audience. When asking participants in the current study about words they would prefer to see in SB messaging that is inclusive to their lived experiences, all participants suggested including “move in your own way.” The prototype inclusive SB message that included the phrase “in your own way” elicited the highest levels of attention, believability, attitudes, involvement, and intentions from all participants. Additionally, a participant went on to share that they would like to see the focus of SB messages directed towards participating more broadly rather than sitting, standing, and sweating specifically. “I believe, first of all those words [sit, stand, sweat] should be deleted, I don’t think they are words

that are representative at all. To sit, stand, and sweat ... it's way beyond sitting, standing, and sweating, I think it's about participating.”

This study differs from past research and adds to the literature given that this is the first study to seek the perspectives of PWD on the development of inclusive SB messages. This was an important gap in the literature to fill given that the lack of accessible SB information has been reported by PWD to be a significant barrier (Ginis et al., 2016; Jaarsma et al., 2019). It is very important for PWD to have accessible and inclusive messaging that promotes and motivates them to reduce their SB time and is relevant, inclusive, and representative of their lived experiences. It is crucial for community organizations to do better with respect to inclusivity in messaging, but many community organizations are lacking the necessary information and resources to help understand how to develop inclusive messages. As such, this pragmatic research and subsequent knowledge translation plans are very important. Working directly with PWD to understand what specific language is preferred within messaging will not only help guide future SB messaging but also ensure that it encompasses the perceptions and preferences of PWD so that everyone can benefit from these messages. Consistent with Charlton's “Nothing about us, without us” (2011), research must be more inclusive and ensure that the voices of marginalized groups (i.e., PWD) are included and actively involved in research that informs the development of inclusive SB messages.

Implications

These results build on existing evidence regarding the traditional exclusionary nature of health behaviour messages. There have been calls for more inclusive behaviour change messages, such as SB messages, however, there is no known research that has engaged with PWD to seek their perspectives and preferences (Smith, 2021). The results of the current project

should be considered when developing new SB messaging campaigns. While previous research has focused on inclusive SB messages, these results demonstrate the first-hand preferences and perceptions of PWD towards SB messages. The development of inclusive SB messages that are directly guided by the perceptions and preferences of PWD themselves will be extremely valuable to national organizations (e.g., ParticipACTION), such that they are able to develop evidence-based SB messaging campaigns that are inclusive of PWD. Additionally, these findings can be translated to other health-behaviour messages such as PA messages with respect to utilizing inclusive terminology.

This research also advances an understanding of the SIABM and how it can be applied to a novel behaviour (i.e., SB) and within the context of considering social issues around inclusion and ableism. There is no known research to examine SB messages using the SIABM framework. Additionally, this is the first study to apply the SIABM to consider how inclusion may interact with constructs such as attention, believability, attitudes, involvement, and intentions. The study has advanced knowledge about what factors have an impact on message believability, as well as how messages can have an impact on one's perceptions and attitudes. Lastly, this research can serve as a reminder of the importance of seeking the perspectives of PWD themselves given the value of their lived experience with a disability.

Possible contributions of this research could benefit PWD nationwide through a knowledge translation (KT) plan that aims to provide health promotion agencies with evidence-based recommendations to utilize inclusive SB messaging. Health promotion agencies (e.g., ParticipACTION) will be the target audience of this KT plan. PWD, media, and PA organizations will be the knowledge users. These knowledge users will benefit from this research using results to make changes to current SB messaging, promote inclusive SB information and

recommendations, and gain access to SB information that is inclusive and relevant for PWD.

This KT plan will create an academic impact, by making advances in the literature, examining the impact of terminology on PWD, formulating inclusive SB messages based on the perspectives of PWD themselves to ensure it is representative of their lived experiences. This KT plan may also have an impact on health outcomes given that inclusive messaging increases motivation in PWD, and various health benefits will be experienced (Jaarsma et al., 2019, Larocca et al., 2020). As mentioned, the goals of this KT plan are to provide movement behaviour knowledge users with evidence-based recommendations to utilize inclusive SB messaging, as well as ensure PWD have access to inclusive SB information. These goals will be achieved by generating awareness, sharing knowledge, and informing future SB messaging development. This will be done through collaborations and partnerships with national PA organizations (i.e., ParticipACTION), research publications, and through conferences. Having a KT plan is extremely important to ensure that the findings of this research have the ability to make nationwide changes, ameliorate barriers PWD face in regard to accessible and relevant SB messaging and information, and lastly to create a meaningful impact to the literature.

This is the first known study to explore SB message perceptions and messaging preferences among PWD. Throughout this study, it is suggested that SB messages have to be carefully crafted using perspectives of PWD, given that exclusive SB messages may perpetuate ableist beliefs, which can further aggravate the negative stereotypes and discrimination that PWD already face, and reduce the likelihood that a SB message will be effective for PWD. Future research should continue to investigate and explore SB messaging preferences among PWD, to expand the literature and to promote and encourage changes in SB messaging at a national level. Future research should aim to look at how factors of intersectionality in PWD may

impact SB message preferences, such as age, gender, socioeconomic status, and cultural background. These factors can significantly have an influence on individuals' preferences and perceptions of SB messages (Brosso et al., 2021; Shamaskin et al., 2010; Velez & Jessup-Anger, 2022). By considering intersectionality, researchers can further work to develop inclusive messages that address the unique needs and challenges that are faced by subgroups within the disabled community. In order to effectively promote a reduction in SB time and an increase in PA for PWD, revisions to ensure that existing SB messages are inclusive to all is crucial.

Strengths and Limitations

Through focus groups this study captured the perspectives and preferences of PWD, allowing them to share their experiences, as well as talk about their thoughts and feelings when reading various exclusive and inclusive SB messaging. The perspectives of PWD will be very helpful in guiding the development of inclusive SB messaging in combination with previous research (Handler et al., 2019). Previous research has neglected to include PWD in messaging research. Researchers such as Smith and colleagues (2021) have previously considered aspects of inclusion in their work surrounding messaging but did not provide any data from the perspectives of PWD themselves.

One of the primary limitations of this research project is the small sample size. The study was conducted with a limited number of participants (n=6). This was largely due to the number of fraudulent participants that were participating through online recruitment. Another limitation is that all PWD in this study were involved with a PA program. This could have influenced the way participants perceived SB messages. It would be interesting to investigate PWD who are currently not active or in a PA program to see if those individuals respond to SB messages in similar or different ways than active PWD. Although a small number of participants can be

considered a limitation, there was diversity in the sample. Participants included men and women across a 25-year age gap, including people of various disabilities with ranging levels of impairment. The sample included wheelchair users and non-wheelchair users, as well as individuals with congenital and acquired disabilities.

Focus groups were conducted with the option of partaking in a one-on-one interview if preferred by an individual participant. Using both focus groups and one-on-one interviews has pros and cons. Focus groups typically allow and promote participants to engage in conversation with one another, allowing them to expand on their thoughts and ideas, providing rich insight to the researchers. Alternatively, one-on-one interviews do not have the same conversational aspect as focus groups do. One-on-one interviews are often used to provide participants with a safe space to participate without feelings of discomfort. It is important to provide this option to participants when asking them to share details of their live experiences or disability, which could be a sensitive topic for some to discuss in front of others. While using both focus groups and one-on-one interviews may not be ideal, this option allows participants who are not comfortable in a focus group setting to share and provide insight that they would have been reluctant to share in front of others.

Conclusions

In conclusion, this study has provided valuable insight into the perceptions and preferences of PWD with regard to SB messaging and has contributed to the literature surrounding inclusive SB messaging. The findings of this study can help to guide future SB messages and can be utilized by national organizations. Additionally, the SIABM provided an in-depth understanding of message believability, and broke down all of the different factors that goes into message believability, and in turn, effective messages. It is recommended that further research include PWD when developing inclusive messaging or advertising to ensure that it is relevant of the lived experiences of PWD. Future research can build on these findings and further an understanding of the perceptions and preferences of SB messages among PWD.

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Appendix A

Informed Consent – Interview

Below is the informed consent information regarding the project.

Informed Consent – Interview

EXPLORING PERCEPTIONS OF SEDENTARY BEHAVIOUR (INACTIVE BEHAVIOUR) MESSAGING AMONG THE DISABILITY COMMUNITY

Researcher name: Dr. Rebecca Bassett-Gunter. School of Kinesiology and Health Science, York University. Email: rgunter@yorku.ca.

Purpose of the Research: The purpose of this research is to explore perceptions of messaging campaigns that target inactive behaviour and to explore inactive behaviour messaging preferences among people with physical disabilities. A secondary purpose of this research is to develop evidence-based recommendations creating inactive behaviour messages that are inclusive to people of all abilities.

What You Will Be Asked to Do in the Research: First you will be asked a few questions to determine if this project is a good fit for you. If you are eligible, you will be asked to complete a brief survey to tell us a little bit about yourself. This survey will take about 5 minutes to complete. You will then be contacted by a research assistant to schedule participation in a focus group or one-on-one interview via video chat (zoom), depending on your preference. You will receive a \$20 gift card for your participation in the interview.

For people who prefer a one-on-one interview we are able to accommodate this request. This one-time interview will last approximately 90 minutes. During this time, you will review several messages about inactive behaviour and then share your thoughts and feelings about the messages. A Zoom user guide will be emailed to you, which can familiarize you with the program if you have not used it before. The research assistant can also answer any questions you have about using Zoom.

Risks and Discomforts: There are no risks anticipated risks or discomforts associated with participation in this study.

During the focus group/interview video chat, there is a possibility that reviewing the messages and answering the questions may cause you to reflect on your current lifestyle patterns. If you feel upset after the study, please call the Distress Centres of Greater Toronto at (416) 408-4357 (HELP). Additionally, if you change your physical activity patterns after the study, you may experience increased muscle soreness. If physical soreness from a change in your activity patterns persists, please consult a physician. If you are interested in increasing your physical activity levels or reducing your inactive behaviour as a result of this study, please speak with the research assistant and they can refer you to Get in Motion, a telephone-based physical activity coaching service.

Benefits of the Research and Benefits to You: There are no direct benefits to you as a participant in the study.

Your participation will contribute to future research and recommendations that will work to inform improved inactive behaviour messaging that is inclusive of people with physical disabilities.

Voluntary Participation and Withdrawal: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of your relationship with York University either now, or in the future. If you stop participating, you will still be eligible to receive the promised compensation for agreeing to be in the project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research.

Your data will be safely stored on a password protected computer that only the researcher can access. The data files with identifying information such as your name or e-mail address will be stored in files separate from data files wherein identifying information has been removed. Only the principal investigator, and transcribers will have access to the files with identifying information. Data will be kept securely for at least five years and then destroyed securely by deleting and overwriting the files. Data will be deleted from Zoom after being exported and analyzed. Confidentiality will be provided to the fullest extent possible by law.

The researcher(s) acknowledge that the host of the online survey (e.g., Survey Monkey) may automatically collect participant data without their knowledge (i.e., IP addresses.) Although this information may be provided or made accessible to the researchers, it will not be used or saved without participant's consent on the researcher's system. Further, "Because this project employs e-based collection techniques, data may be subject to access by third parties as a result of various security legislation now in place in many countries and thus the confidentiality and privacy of data cannot be guaranteed during web-based transmission.

This study will use Zoom to collect data, which is an externally hosted cloud-based service. When information is transmitted over the internet privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g., government agencies, hackers). Further, while York University researchers will not collect or use IP address or other information which could link your participant to your computer or electronic devices without informing you, there is a small risk with any platform such as this of data that is collected on external servers falling outside the control of the research team. If you are concerned about this, we would be happy to make alternative arrangements (where possible) for you to participate, perhaps via telephone. Please contact Rebecca Bassett-Gunter for further information. Email rgunter@yorku.ca

Recordings (audio/video) will be saved in a password protected file to research team members' local computer, not the cloud based service.

Please note that it is the expectation that participants agree not to make any unauthorized recordings of the content of a meeting / data collection session."

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Rebecca Bassett-Gunter at rgunter@yorku.ca. The research protocol has received ethics review and approval by the Delegated Ethics Review Committee, which is delegated authority to review research ethics protocols by the Human Participants Review Sub-Committee, York University's Ethics Review Board, and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Director, Research Ethics in the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Legal Rights and Signatures:

I consent to participate in Exploring perceptions of inactive behaviour messaging among the disability community conducted by Rebecca Bassett-Gunter. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by agreeing.

- ☐ I consent to participating (takes participant to demographic survey)
- ☐ I do not wish to participate (takes participant out of survey)

Additional consent (where applicable)

1. Audio recording

- ☐ I consent to the audio-recording of my interview(s).

2. Video recording

- ☐ I consent to the video-recording of my interview(s).

Appendix B

Informed Consent – Focus Group

Below is the informed consent information regarding the project.

Informed Consent – Focus Group

EXPLORING PERCEPTIONS OF SEDENTARY BEHAVIOUR (INACTIVE BEHAVIOUR) MESSAGING AMONG THE DISABILITY COMMUNITY

Researcher name: Dr. Rebecca Bassett-Gunter. School of Kinesiology and Health Science, York University. Email: rgunter@yorku.ca.

Purpose of the Research: The purpose of this research is to explore perceptions of messaging campaigns that target inactive behaviour and to explore inactive behaviour messaging preferences among people with physical disabilities. A secondary purpose of this research is to develop evidence-based recommendations creating inactive behaviour messages that are inclusive to people of all abilities.

What You Will Be Asked to Do in the Research: First you will be asked a few questions to determine if this project is a good fit for you. If you are eligible, you will be asked to complete a brief survey to tell us a little bit about yourself. This survey will take about 5 minutes to complete. You will then be contacted by a research assistant to schedule participation in a focus group or one-on-one interview via video chat (zoom), depending on your preference. You will receive a \$20 gift card for your participation in the focus group.

The focus groups will take place with approximately 5-8 participants over video conferencing software (i.e. Zoom). This one-time focus group will last approximately 90 minutes. During this time, you will review several messages about inactive behaviour and then share your thoughts and feelings about the messages. A Zoom user guide will be emailed to you, which can familiarize you with the program if you have not used it before. The research assistant can also answer any questions you have about using Zoom.

Risks and Discomforts: There are no risks anticipated risks or discomforts associated with participation in this study.

During the focus group/interview video chat, there is a possibility that reviewing the messages and answering the questions may cause you to reflect on your current lifestyle patterns. If you feel upset after the study, please call the Distress Centres of Greater Toronto at (416) 408-4357 (HELP). Additionally, if you change your physical activity patterns after the study, you may experience increased muscle soreness. If physical soreness from a change in your activity patterns persists, please consult a physician. If you are interested in increasing your physical activity levels or reducing your inactive behaviour as a result of this study, please speak with the research assistant and they can refer you to Get in Motion, a telephone-based physical activity coaching service.

Benefits of the Research and Benefits to You: There are no direct benefits to you as a participant in the study.

Your participation will contribute to future research and recommendations that will work to inform improved inactive behaviour messaging that is inclusive of people with physical

disabilities.

Voluntary Participation and Withdrawal: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of your relationship with York University either now, or in the future. If you stop participating, you will still be eligible to receive the promised compensation for agreeing to be in the project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Please note that confidentiality cannot be guaranteed in a focus group setting.

Your data will be safely stored on a password protected computer that only the researcher can access. The data files with identifying information such as your name or e-mail address will be stored in files separate from data files wherein identifying information has been removed. Only the principal investigator, and transcribers will have access to the files with identifying information. Data will be kept securely for at least five years and then destroyed securely by deleting and overwriting the files. Data will be deleted from Zoom after being exported and analyzed. Confidentiality will be provided to the fullest extent possible by law.

The researcher(s) acknowledge that the host of the online survey (e.g., Survey Monkey) may automatically collect participant data without their knowledge (i.e., IP addresses.) Although this information may be provided or made accessible to the researchers, it will not be used or saved without participant's consent on the researcher's system. Further, "Because this project employs e-based collection techniques, data may be subject to access by third parties as a result of various security legislation now in place in many countries and thus the confidentiality and privacy of data cannot be guaranteed during web-based transmission.

This study will use Zoom to collect data, which is an externally hosted cloud-based service. When information is transmitted over the internet privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g., government agencies, hackers). Further, while York University researchers will not collect or use IP address or other information which could link your participant to your computer or electronic devices without informing you, there is a small risk with any platform such as this of data that is collected on external servers falling outside the control of the research team. If you are concerned about this, we would be happy to make alternative arrangements (where possible) for you to participate, perhaps via telephone. Please contact Rebecca Bassett-Gunter for further information. Email rgunter@yorku.ca

Recordings (audio/video) will be saved in a password protected file to research team members' local computer, not the cloud based service.

Please note that it is the expectation that participants agree not to make any unauthorized recordings of the content of a meeting / data collection session."

Questions About the Research? If you have questions about the research in general or about

your role in the study, please feel free to contact Rebecca Bassett-Gunter at rgunter@yorku.ca. The research protocol has received ethics review and approval by the Delegated Ethics Review Committee, which is delegated authority to review research ethics protocols by the Human Participants Review Sub-Committee, York University's Ethics Review Board, and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Director, Research Ethics in the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Legal Rights and Signatures:

I consent to participate in Exploring perceptions of inactive behaviour messaging among the disability community conducted by Rebecca Bassett-Gunter. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by agreeing.

- ☐ I consent to participating (takes participant to demographic survey)
- ☐ I do not wish to participate (takes participant out of survey)

Additional consent (where applicable)

1. Audio recording

- ☐ I consent to the audio-recording of my interview(s).

2. Video recording

- ☐ I consent to the video-recording of my interview(s).

Appendix C

Eligibility Survey

Pre-screening Survey - Eligibility Questionnaire

First, we are going to ask you a few questions to make sure that you are eligible to participate in this study.

Please fill in the following information about yourself.

[If answers “NO” to any of questions 1-5, automatically directed to ineligible pre-screening message]

1. Are you 18 years of age or older?
☐ Yes
☐ No
2. Can you read and write in English?
☐ Yes
☐ No
3. Do you identify as having a physical disability?
☐ Yes
☐ No
4. Do you have access to a technological device with internet access and the ability to use Zoom to participate in a focus group?
☐ Yes
☐ No

[Message for ineligible participants]: Thank you for your interest in this study. However, at this time you are ineligible to participate. The following reasons for being ineligible to participate include, but are not limited to:

- Age (<18yrs)
- Unable to read and write in English
- No access to technological device necessary for participation

Appendix D

Demographic Survey

Demographic Questionnaire

Now that you are eligible, please fill in the following information to tell us a little bit about yourself.

1. What is your age in years? _____
2. Which gender do you identify with?
 - ☐ Male
 - ☐ Female
 - ☐ Transgender
 - ☐ Other
 - ☐ Do not wish to specify
3. Tell us a little bit about your physical disability:
4. Do you self-identify as a member of the visible minority population?
 - ☐ Yes
 - ☐ No
 - ☐ Do not wish to specify

If yes, please specify which visible minority population you identify with _____

5. An Aboriginal Person is a North American Indian, Métis or Inuit, or a member of a North American First Nation. An Aboriginal Person may be a treaty status or a non-status, registered or non-registered Indian.

Do you identify as an Aboriginal/Indigenous Person?

- ☐ Yes
- ☐ No
- ☐ Do not wish to specify

The following questions will ask about your movement behaviours.

Recently, Canada released the first 24-Hour Movement Guidelines, which feature daily recommendations for physical activity, sedentary behaviour, and sleep. The guidelines encourage Canadians to “make [the] whole day matter” by emphasizing that various movement behaviours can contribute towards a healthy 24 hours. For example, routine rituals of daily living such as going for a walk, doing household chores, and taking the stairs instead of the elevator contribute towards a healthy 24 hours. To learn more about the guidelines visit: <https://csepguidelines.ca/>

6. Moderate-to-vigorous physical activity includes activities that take physical effort and require you to breathe more than normal. Activities may include, participating in sport,

aerobics or lifting. During the last 7 days, how many days did you do moderate-to-vigorous intensity physical activity in bouts of 20 mins or more?

_____ [0-7] days
 _____ Not applicable

7. How much time did you usually spend on one of those days doing moderate-to-vigorous physical activities?

_____ [0-24] hours per day
 _____ [0-59] minutes per day
 _____ Not applicable

8. Sedentary behaviour is defined as when your body's large muscle groups are under relaxation. This may include time spent lying down or in a seated position. During the last 7 days, how much time did you spend sedentary on a week day?

_____ [0-24] hours per day
 _____ [0-59] minutes per day
 _____ Not applicable

9. How many hours do you sleep on an average night?

_____ [0-24] hours per night

10. Finally, we would like to complete the focus group session at a time suitable to you. Please select the most typically suitable time slots for a 90-minute focus group session. We will contact you via email to confirm scheduling at a later date.

_____ Weekdays
 ☐ Morning
 ☐ Afternoon
 ☐ Evening

_____ Weekends
 ☐ Morning
 ☐ Afternoon
 ☐ Evening

[end of survey]

Appendix E

Interview Guide

Introductory script (research assistant): *To begin, I would like to thank you for taking the time to participate in this study. The purpose of today's focus group is to hear your thoughts and feelings about sedentary behaviour messaging. Further, I would like to work together to brainstorm recommendations for creating messages that are inclusive to people of all abilities. I am going to open the Letter of Information and Consent Form you previously signed online. Please take a moment to re-read it and reaffirm your consent to participate in the study. Just as a reminder, your video recording will not be used for anything, including in the review of data – only your audio recording will be accessed and transcribed. With that said, do I have your permission to audio and video-record this interview? At any time, you may turn off your video, and/or your audio. Do you have any questions for me before we begin? Great. Let's get started.*

Opening Questions about Sedentary Behaviour

1. Are you familiar with the term “sedentary behaviour”?
 - If yes: How would you define it in your own words?

Script: *Thank you for sharing your thoughts. For the purpose of today's study, we are going to define sedentary behaviour as when your body's large muscle groups are under relaxation. For example, this may be when you are lying down. There is evidence that reducing your sedentary behaviour is good for your health and can ultimately increase your lifespan.*

2. What are some examples of ways that you decrease your sedentary time?
3. If you had to provide a rough estimate what proportion of your day do you think most people like you spend sedentary? (e.g., number of hours, percentage of day)

We are going to transition into looking at different examples of messages that provincial and national organizations have created that are meant to motivate you to reduce your sedentary time. After reading the messages, we will go over some more follow-up questions.

Exclusive Messages *(IT WILL NOT BE REVEALED THAT THESE ARE “EXCLUSIVE”)

Time to stand! Stand up and move a little for one minute.
Move more. Sit less. Sleep better.
Imagine sitting less every day. Free yourself from our culture of sitting.
Reduce the time you spend sitting – for example, by organising walking meetings, using a standing desk, or enjoying a walk during your lunch break.

Follow-up Questions

I will give you a moment to think about these statements.

1. What is the first emotion or sentiment that you immediately felt after reading the original vision and mission?
 - Guilty, motivated, responsible, empowered, discoured, offended...etc.
2. What about the revised vision and mission? What is the first emotion or sentiment that you immediately felt after reading the revised vision and mission?
3. Do you believe that the revised vision and mission are relevant of your lived experience?
 - Do you believe it is inclusive of your lived experience?
 - Do you believe it is representative of your lived experience?

Inclusive Messages *(IT WILL NOT BE REVEALED THAT THESE ARE “INCLUSIVE”)

Time to move! Be active in your own way and try to move your body for one minute.
Move better. Sit better. Sleep better.
Imagine being less sedentary every day. Free yourself from our culture of sedentary behaviour.
Reduce the time you spend sedentary – for example, by changing your seated position frequently, or enjoying a walk or wheel during your lunch break.

Repeat same Follow-up Questions

4. What is the first emotion or sentiment that you immediately felt after reading the message?
 - Guilty, motivated, responsible, empowered, discoured, offended...etc.
5. What aspects of the message made you feel this way?
6. Do you believe that these messages and mission are relevant of your lived experience?
 - Do you believe it is inclusive of your lived experience?
 - Do you believe it is representative of your lived experience?

Post Exercise Reflection

1. How often do you encounter messages about movement behaviours that are exclusive to your needs, abilities, and lived experiences?
 - Are you used to encountering messages that are exclusive?
 - Can you give any specific examples?
2. How do you believe these exclusive messages affect your intentions to perform certain movement behaviours?

Recommendation Questions

Script: *Previous studies have identified that some of the messages we went over are not relevant or inclusive towards people with disabilities. Specifically, phrases including “sit, stand, and sweat” do not always feel relevant or motivate people of all abilities to reduce their sedentary time. For the remainder of our session, I would like to hear any ideas, or recommendations for how large organizations (such as ParticipACTION) can make their messages more inclusive.*

1. What recommendations do you have to make sedentary behaviour messages more inclusive to people of all abilities?
 - What specific phrases would you want to see included in sedentary behaviour messages?
 - What terms would you recommend to replace words like “sit, stand, and sweat”?
2. Anything else you would like to share today?

Closing script: *Thank you for your time today. Your participation is extremely valuable and appreciated. Once all of the data has been compiled and analyzed, you will be provided with an opportunity to comment on the results. Feel free to contact me at any point in you have any questions or concerns. \$20 gift cards will be sent to you via email for your participation!*

Appendix F
Recruitment Poster



HELP US EXPLORE INCLUSIVE MESSAGING!!!

**IF YOU ARE LIVING WITH A PHYSICAL
DISABILITY THEN WE WOULD LOVE
TO HEAR FROM YOU!**

Focus Groups take approx. 60 min and are conducted online via Zoom!

Our team is working to understand the perceptions of people with physical disabilities. We want to make health behaviour messages more inclusive. Share your thoughts by participating in our focus group. Participants will receive a gift card.

Participants Must:

- Be 18 years or older
- Self-identify as living with a physical disability
- Read and write in English

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cdpp
Canadian Disability Participation Project
Le projet canadien sur la participation sociale
des personnes en situation de handicap

Please contact Victoria Mousses vmousses@yorku.ca or scan the QR code if you are interested