

**Identifying Motives of Midlife Black Triathlete Women
Using Survey Transformation to Guide Qualitative Inquiry**

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Abstract

Abstract Demonstrating health disparities related to race, age, and gender, older Black women (BW) are the most sedentary demographic group in the United States. Increasing PA in mid-life is important, as it improves health as BW age into their later years. Advancing our understanding of the exercise motives of BW triathletes presents a reverse engineering opportunity to identify motives that could influence sedentary mid-life BW to increase their activity. The purposes of this study were to: (a) utilize an innovative survey transformation method to adapt a measure developed primarily in Caucasian males, i.e., the Motivations of Marathoners Scale for Triathletes (MOMS-T) into a qualitative interview guide for use with BW triathletes; (b) use this interview guide to identify culturally based motives for triathlon participation among BW not previously addressed by the MOMS-T and; (c) interpret the novel motivational domains of the MOMS-T discovered, in order to gain understanding and influence subsequent interventions. Purposive sampling was used to select 12 interview participants from 121 self-identified Black female US residents aged ≥ 36 years with recent experience completing or training for a triathlon. The interviews identified four culturally based themes, including improving body composition to become more lean, physical attractiveness, triathlete family, and camaraderie. These novel themes were related to existing MOMS-T scales, but the current MOMS-T questions did not illuminate their culturally distinct aspects. The process of survey transformation provides a viable approach to identify important culturally based characteristics and to adapt surveys to cultural minority populations, particularly when study resources are limited.

Keywords: Black women . Exercise . Motivation . Qualitative . Survey method . Triathletes

Introduction

There is a well-established link between physical exercise and health (Boyd et al. 2002; Bradshaw and Klein 2007). United States (US) national physical activity (PA) guidelines for adults recommend at least 150 min of weekly moderate intensity aerobic activity and at least twice weekly performance of muscle strengthening activities that work all major muscle groups (USDHHS 2008). Despite these recommendations, most US adults fail to meet these standards and as people get older, they are even less likely to be active (USDHHS 2008; ODPHP 2014).

Demonstrating health disparities related to both race/ethnicity and age, older US Black adults had the worst prevalence of meeting PA guidelines in 2010 at 28% (ODPHP 2014). Among US Black adults, Black women (BW), in particular, stand out as the most sedentary group (Banks-Wallace and Conn 2002; Plescia et al. 2008) with one of two BW over age 75 reporting engaging in no exercise (CDC 2000; Brown 2016). The increased risk of being sedentary for BW, that is discordant with the majority US culture, has led to studies describing structural factors, including education, communities, and income as partial causes for differences in PA (Hasson et al. 2017; Williams and Collins 2001). Within the factors which support the theme of human agency (Crockett 2002), research assessing exercise behavior among BW further attests to lifelong cultural, social, and psychological differences in PA (Pelletier et al. 2013; Ingram et al. 2011).

Life Course Theory posits that experiences over a lifetime influence decisions, choices, and consequences later in life (Crockett 2002). With consideration to the disparities of life expectancy at birth (Masters et al. 2014), socioeconomic position throughout the lifespan (Lantz et al. 2010) and physiological declines which accumulate over the life course, the biological age of Blacks has been reported to appear older than their White counterparts of the same chronological age (Levine and Crimmins 2014).

The biological age disparity between Blacks and Whites gives cause to consider how to reduce the onset of disease at an earlier biological age- such as mid-life- in order to improve one's health trajectory over the life course. Choosing to initiate regular PA in mid-life improves health over the life course. For example, a large cohort study of middle-aged individuals

demonstrated a significant dose-response relationship between increasing levels of exercise intensity/frequency and decreasing levels of mortality (Moore et al. 2012). Another large cohort study that showed an improvement in mortality for individuals that began moderate-to-vigorous intensity exercise in middle-age (Lee et al. 2014) and Taylor (2014) demonstrated an inverse relationship between PA and mortality, and a clear role for PA for improving function and increasing muscle strength. A separate line of studies has focused on the influence of PA on psychosocial changes. In one instance, identity change in psychological involvement and behaviors of BW who voluntarily run with a national organization was assessed by Wegner et al. (2016). Results indicated the women became more psychologically connected and increased their running over the 14 months. Their identity as runners became more salient as they repeated the behavior of running.

Despite the health benefits of regular PA for mid-life adults, and social benefits for BW of regular running, there remain many barriers to PA. BW have identified cultural barriers to PA including the lack of community support and scarcity of role models[^] (Ingram et al. 2011, p. 21) that diminished their desire to exercise regularly. Another socio-cultural norm that is often linked to a heavier body size among BW is the notion that a curvier figure is more socially acceptable and even considered desirable in terms of physical attractiveness (Schuler et al. 2008; Fiery et al. 2016). In some cases, this thought process has led overweight BW to consciously avoid losing weight due to concerns that they would be identified as less attractive to romantic partners (Ard et al. 2013; Russell and Cox 2003; Thomas et al. 2008).

A small mixed methods pilot study by Huebschmann et al. (2016), identified the sociocultural barrier to exercise of hairstyle maintenance among nearly 1/3 of BW non-exercisers who reported <60 min of weekly moderate intensity PA, but this barrier of hairstyle maintenance was present among only 7% of BW exercisers who reported ≥60 min of weekly moderate intensity PA. In focus groups conducted to understand how hairstyle maintenance issues may deter exercise, BW noted that perspiration disrupts many types of hairstyles, but it is particularly disruptive to conventional hairstyles that are in keeping with Anglo hairstyle social norms, such as relaxed/straightened hair; this disruption poses a burden of time and money to restyle one's hair to be presentable in public again (Huebschmann et al. 2016).

Despite the benefits that may be obtained by learning more about the general and cultural barriers and beliefs about exercise among BW, there is little research on the motivations for exercise among BW (Kirchoff et al. 2008; Landry and Solmon 2004). The few studies on exercise motivation among BW who perform regular PA or exercise have reported the desire for weight management, maintaining health status, and improving stress as the chief motives (Young et al. 2001; Yuen et al. 2011; Nies et al. 1999; Huebschmann et al. 2016), but these studies did not assess BW exercisers who had performed aerobic exercise consistently enough to complete an endurance event, such as a triathlon. Further developing an understanding of how motivations to consistently perform aerobic exercise can successfully intersect with Black culture may be a vital initial step to assist more BW to exercise. Increasing our understanding of the motives of BW who are avid exercisers may be considered as a method of reverse engineering that allows us to identify motives that may successfully encourage sedentary BW to become active. This approach may be critically important to foster the development of culturally competent interventions that are likely to be effective to increase PA levels for sedentary BW.

Methods to Measure Motivation

In order to measure exercise motivation in BW, it is important to use accurate measurement tools. Accurate measurement of motivation hinges upon clear elucidation of the targeted constructs. However, understanding and definition of exercise motivation constructs may vary widely across diverse populations (Martinez et al. 2008), including minorities and older individuals. Consequently, when investigators plan to apply a motivation survey to a new population, they must retest the survey reliability and validity in the new population (Booth et al. 2001). If behavioral motivations vary across population demographics (e.g. age, ethnicity), survey revision may be necessary to ensure the inclusion of culturally based motives that are specific to a new study population (Lovett 2011; Mallett et al. 2007; Pelletier et al. 1995; Deci and Ryan 2008). Because there is relatively little research examining the exercise motivations of BW, it is unknown if the health disparities in exercise behavior among BW may be due, in part, to different culturally based motivations in this population (Kirchoff et al.

2008). We were interested in measuring motives for exercise in BW who were regular exercisers as triathletes, in order to learn more about their general motives, and also to understand if there were any culturally based aspects to their exercise motives. Thus, we set out to consider how a current survey for assessing the motives of triathletes may be adapted for use in BW triathletes and discover if this process uncovers culturally based aspects of motivation that were not revealed in the previous investigations.

Triathletes and Aging

Cognitive and motor skill studies suggest that maintenance of consistent exercise allows PA to be maintained at high levels despite advancing age (Baker et al. 2006; Tanaka and Seals 2008). One method to maintain exercise is to train for and participate in endurance events such as triathlons. Triathlons require participants to have sufficient endurance to perform sequential competitive legs of swimming, cycling, and running. Distances most often completed in the United States, vary from the shortest Sprint distance (750 m swim, 13.1mi cycle, 3.1 mi run) to the Olympic, Half-Ironman, and longest distance Ironman (2.4 mi swim, 112 mi. cycle, 26.2 mi run), each of which require significant engagement in exercise training in order to successfully complete.

Age and gender divisions within triathlons define graduated levels of competition, allowing more individuals to compete. Triathlons are a lifespan sport as indicated by increases in cognitive and motor skills of those performing at high levels through advancing age (Baker et al. 2006). With the proper training and techniques for all facets of triathlons including endurance, strength training, flexibility, and recovery, a triathlete has physical abilities which exceed those of their age-matched peers that do not exercise. The name 'Master triathletes' are reserved for triathletes aged 40 years and older (Loudon 2016). At 30%, members age 40–49 comprised the largest growing group of triathletes from the governing body, USA Triathlon, in 2015 (USA Triathlon 2016). Triathlon performance (e.g. time to finish race) among women begins to decline at age 40 and progresses within ten years; yet, the training required for triathlon completion mitigates the process of age-related deterioration (Loudon 2016) experienced among non-triathletes.

In prior studies conducted primarily with Caucasian men, triathletes reported physical health benefits as a primary motive for triathlon participation (Dietrich 2012), including goals to increase strength and improve coordination (Bolster 1999). Increasing strength may be perceived as particularly important among older triathletes because reduced strength is a risk factor for falling. To combat this risk, incorporating resistance training can improve muscle function in aging athletes at least through 70 years of age (Pereira et al. 2008; Hawkins et al. 2003). Therefore, sustaining regular exercise into older age can protect against loss of motor skills in later life (Mosole et al. 2014); in support of this finding, the top ten aging women Ironman triathletes maintained or even improved their peak performance over three decades (Gallmann et al. 2014). Nevertheless, studies of participants in triathlons have most often included non-minorities, likely due to their greater numbers in the sport. BW tend to age quicker biologically than White women and sedentary behaviors may add to this (Levine and Crimmins 2014). Therefore, it is important to study motives for participation among all triathletes, including the identification of any novel culturally based motivations that may be leveraged in future interventions to promote exercise amongst BW (Baker et al. 2006).

Motivations for Marathoners Scale (MOMS) and its Adaptation for Triathletes

The initial rationale for development of the MOMS was to try to better measure and understand the motivations of marathon runners (Masters et al. 1993). Given that most individuals fail to regularly adhere to modest exercise regimens, the motivational qualities of those who regularly engage in endurance exercise continue to be of great interest to researchers. Formative qualitative and pilot survey work followed by both exploratory and confirmatory factor analysis led to the development of the MOMS composed of 56 Likert-type items (with 1 indicating not a reason for participating and 7 indicating a very important reason) consisting of 4 motivational categories and 9 scales (Masters et al. 1993). Subsequently, the MOMS was adapted for use in triathletes by Lovett (2011) by using the words 'run, bike, and swim' to replace the word 'run' in the original MOMS survey, and by replacing the word 'runner' with the word 'triathlete', as well as other similar substitutions (Lovett 2011). The name

'MOMS' was further augmented to the Motivations for Marathoners Scale for Triathletes (MOMS-T).

The four motivational categories of the MOMS and MOMS-T are Physical Health, Social, Achievement, and Psychological Motives and the sub-scales are General Health Orientation, Weight Control, Affiliation, Recognition, Competition, Personal Goal Achievement, Psychological Coping, Self-Esteem, and Life Meaning (Masters et al. 1993). Each scale maps to a specific category and description (Table 1). Among the 164 American triathletes in Lovett's study who were >90% Caucasian, the women had greater MOMS scores for affiliation, life meaning, and personal goal achievement than the men (Lovett 2011). Whereas these findings suggest a notable social component to the triathlon subculture among women, they did not include BW (Lovett 2011), thus suggesting the need to assess for culturally based motives not presently assessed in the MOMS or MOMS-T.

Rationale for Assessing Culturally Based Motives Not Currently Measured in the MOMS

The limited number of studies to date that have included Black triathletes have recruited small numbers of participants (Brown and Collins 2009). The only known past research on BW, in this regard, studied BW (ages 20–60) who were training for a triathlon (N = 25) (Brown and Collins 2009). That study sought to understand the motivations of BW who were participating in a 9-month sprint distance triathlon training program. Whereas only 11 participants ultimately completed the triathlon, 84% of the program participants indicated that 'improving health and fitness', was their top motivational reason for participating in the program. Nearly half of participants (n = 12, 48%) also felt that participation would improve their psychological health; additionally, participants commonly reported that they were motivated by the group to prepare for a triathlon (Brown and Collins 2009). However, this study did not assess potentially culturally based motives for participation among the BW.

To assess potentially culturally based motives in a population of BW, a conventional approach would be to repeat the formative qualitative work (Masters et al. 1993) in a new

Table 1 MOMS general categories, scales, and descriptions

General Category	Scale	Description
Physical Health Motives	General Health Orientation	Improve health, prolong life, stay physically active
	Weight Concern	Look leaner, control weight, reduce weight
Social Motives	Affiliation	Meet people, visit with friends, share group identity
	Recognition	Earn respect, feel pride from others earn recognition
Achievement Motives	Competition	Compete with others, be faster than friends, placement achievement
	Personal Goal Achievement	Improve speed, push myself, improve overall time
Psychological Motives	Psychological Coping	Be less anxious, distraction from worries, improve mood
	Self Esteem	Improve self-esteem, improve confidence, sense of achievement

study population (Lamont and Kennelly 2012). Although it is very important to employ formative qualitative research when developing an initial quantitative survey on motivation, this method is very time and resource-intensive and is not always feasible when seeking to adapt a survey to a new population; particularly a population that may be relatively small in number and geographically dispersed. A previous study demonstrated proof-of-concept that participants are able to identify novel motives for participation that are not included in the MOMS by providing written responses to open-ended questions about their motives for participation (Doppelmayer and Molkenhain 2004). A limitation of this approach was that investigators were unable to ask follow-up questions to further clarify the intent of respondents' written answers.

In contrast, a novel method that we developed transformed a survey into a semi-structured qualitative interview guide to be administered to the new study population. For our semi-structured interview guide, in addition to asking open-ended questions based on the MOMS-T survey domains, we also added questions about other themes in the existing literature related to sport motives that are not captured in the MOMS-T. This approach may also be replicated by other researchers who seek to qualitatively explore motivational themes related to the content of a valid survey when applied to a new study population, in order to possibly uncover emerging themes that are culturally distinct within the new study population and that were not previously assessed in the survey.

Survey Transformation to Interview Guide

The difference between transforming a survey to a qualitative semi-structured interview guide and the de novo formative qualitative work used to develop a new survey is that survey transformation retains the original categories and scales of the survey, and allows open-ended questions to further explain the questions or statements from the quantitative survey. To effectively transform the MOMS-T into a semi-structured interview guide we first conducted a literature review to learn if any other studies had utilized a similar methodology. Past qualitative research has used both qualitative and quantitative inquiries to better understand the differences in exercise and sport motivation for young athletes, older athletes, and amateur triathletes (Lamont and Kennelly 2012; Lübcke et al. 2012; Almagro et al. 2015), but these past studies did not use an altered form of a parent motivational survey as the basis for those inquiries.

Purposes of the Study

Previous research on triathletes has used quantitative based questionnaires to understand motivation for participation in triathlons mostly among majority populations (Croft et al. 2007; Lovett 2011). The purposes of this study were to: (a) utilize an innovative survey transformation method to adapt a previously developed measure, i.e., the MOMS-T, for use in

a new and culturally unique population, i.e., BW triathlon participants; (b) to identify culturally based motives for participation in triathlons among BW not previously addressed by the MOMS-T and; (c) to interpret and elaborate upon the novel motivational domains of the MOMS-T discovered based on BW responses in order to better understand the experiences of these women and influence subsequent efforts to improve PA in this population.

Methods

Participants

After receiving study approval from the Virginia Commonwealth University Institutional Review Board, we recruited BW from several national triathlon organizations who consented to complete an online version of the MOMS-T and to participate in a subsequent interview. Our study population consisted of 121 participants who met inclusion criteria: self-identifying as a BW, a US resident, age ≥ 36 years, and participant of an individual triathlon (as opposed to a relay team triathlon) between the years of 2012–2014, or currently training for an individual triathlon in 2015. Among our study population who completed the MOMS-T, 97% of participants agreed to a follow-up interview. Purposive sampling was used to select participants from pre-specified strata of age, BMI, and triathlon distance for semi-structured interviews.

To determine sample size, we incorporated recommendations from Gravlee (2011) into a stratified quota sampling design (Weller 2007; Gravlee 2011; WHO 2012). Projected quotas for all the possible combinations of the groups allowed for qualitative comparisons between a total of 12 middle-aged women with different attributes of age, body mass index, (normal, overweight or obese), and preferred triathlon distance (Sprint, Olympic, Half ironman, or Ironman). The premise of choosing the variability amongst the women was, Blf participants are purposefully chosen to be different...then their views will reflect this difference [providing]... a complex picture of the phenomenon,^ (Creswell and Plano-Clark 2011, p.174).

Procedures

Survey Transformation

To develop the semi-structured interview questions, we first read each item of the MOMS-T and then formed a statement relative to the item that would best capture the participants' answer. For example, the item, 'Brings me recognition,' on the MOMS-T scale of Recognition is described as: 'earn respect, feel pride from others, earn recognition.' To transform this particular scale, we asked participants to comment on the statement, 'I choose to participate in triathlons because it brings me recognition.'

Next, one to three follow up questions were added to expand the answers of potential motives within the MOMS-T scale. Continuing with the previous example, survey items regarding the scale of Recognition inquired about the type of recognition from peers, family, and friends. The relevant interview guide questions asked, 'Does the possibility of Recognition effect your motivation to participate?', 'What type of recognition have you received from others?', and 'How did that make you feel?'. Consistent with the techniques of qualitative exploration, the qualitative interviewer also asked additional follow-up questions if the respondent noted a novel source of Recognition, including questions that would better identify any culturally based motives that emerged.

Finally, we added questions to the interview guide about areas that were not assessed by the MOMS-T, but that recent literature suggested may relate to triathlon participation (Greer 2001; Lübcke et al. 2012). These included questions related to the participant's past experiences in triathlons and, in particular, the influences of repeated triathlon participations. In sum, our novel process of transforming the MOMS-T scales to the Motivations of Triathletes Interview Guide (MOTIG), allowed us to explore novel culturally based motives for triathlon participation among mid-life and older BW. The full interview guide is presented in Appendix.

Interviews

An important component of this process was to conduct qualitative interviews shortly after survey assessment, in order to allow each BW participant to reflect on how her actual motivations were concordant or discordant with the motives assessed by the survey.

Qualitative data collection occurred face-to-face for 11 interviews and one interview was conducted by telephone due to scheduling conflicts that precluded a face-to-face visit. All interviews occurred within 21 days of survey completion to ensure timely discussion of each individual's motives reported by the MOMS-T survey. In addition, participants were provided with a copy of their MOMS-T answers at the time of the interview, in order to allow them to refer back to their answers as needed during the interview.

Interviews were conducted with each participant and thematic saturation occurred after interviewing 10 women. This was confirmed after interviewing two additional women. In order to allow the reader to put the qualitative responses of each participant in context, we provide a matrix (Table 2) of the participants' pseudonym, age, preferred triathlon distance (Sprint, Olympic, Half-Ironman, Ironman), and BMI category (normal, overweight, obese).

Participants reviewed their previously completed quantitative MOMS-T responses immediately prior to the interview. Any questions or concerns about their survey responses were discussed with the interviewer (CSB), in order to better understand how this may reflect on meaningful differences between participants' motives and the MOMS-T survey. For example, two participants discussed the difficulty they had in answering some of the survey questions because their motives varied based on the sport (swim, bike, run) they were mentally referencing in those moments. The MOTIG addressed this by allowing participants to distinguish differences between their motives for swimming, biking, or running. As an introduction to the process, the interviewer explained that the semi-structured interview was meant to be like a conversation between the participants and the researcher. The goal of this introduction was to help participants feel more comfortable expressing their unguarded feelings, attitudes, and beliefs in response to the interview questions (Galli 2009). The BW interviewer disclosed to participants that she was a triathlete, as data suggest cultural concordance facilitates disclosure of culturally based motives for participation (Towns 2016; Huebschmann et al. 2016). Following interviews, a post-interview debriefing occurred to give participants an

Table 2 Participant Characteristics

Participant	Age	Preferred Triathlon Distance	BMI
Triathlete A Brooklyn Diva	45	Olympic	normal
Triathlete B Lexi	51	Sprint	normal
Triathlete C Eve	45	Half-Ironman	normal
Triathlete D Elle	44	Sprint	obese
Triathlete E Letti	56	Sprint	normal
Triathlete F Nita	50	Sprint	overweight
Triathlete G Marissa	43	Ironman	overweight
Triathlete H Draya	58	Olympic	overweight
Triathlete I Melle	54	Half-Ironman	overweight
Triathlete J Rado	49	Ironman	obese
Triathlete K Nora	60	Half-Ironman	overweight
Triathlete L Hanna	39	Sprint	obese

opportunity to ask questions about the study, and to allow the interviewer to provide additional information about how this research will be used to advance knowledge regarding PA (Galli 2009).

Recording Observations

To keep an accurate account of the conversation between the interviewer and participants, we used audio recording and field notes. Whereas the audio recording kept a verbatim account of the interview, field notes helped the researcher formulate relevant follow-up questions in the moment (Galli 2009). Field notes also included descriptions of non-verbal communication and

reflective notes on how respondents' experiences may be theoretically interpreted, as well as comparisons between the researcher's personal motives/experiences as a BW triathlete and the motives/experiences participants (Polit and Beck 2008).

Thematic Analysis

Thematic analysis of qualitative data was conducted in accord with the process outlined by Braun and Clarke (2006). All participants provided pseudonyms to protect their identities. The interviewer (CSB) transcribed the audio recording verbatim and used the field notes as supplemental data. All collected data were entered into the qualitative data analysis program, Atlas ti.7. To develop the coding book, the 654 quotations were placed within the Atlas system and the words most frequently used were flagged. These words or groups of words were used as 'starter codes' for the coding system. Continuous review of the interviews matched remaining quotes under the starter codes until the codes with most relevance became themes and remaining quotes supported the themes as codes within the system. External reviewers then checked the coding book for reliability by reviewing the steps made by the interviewer and determining whether or not themes were appropriately assigned.

Results

Thematic analysis of the interviews revealed 58 codes that assimilated into 21 themes which were either directly or closely related to the 9 MOMS-T scales. However, 4 important novel themes emerged that were specific to culturally based aspects of being a BW triathlete. We found that these novel themes were related to existing MOMS-T scales, but the current MOMS-T questions did not illuminate the culturally distinct aspects of these themes. The novel cultural themes were: Body Composition and Physical Attractiveness within the MOMS-T scale of Weight Control, and Triathlete Family and Camaraderie within the MOMS-T scale of Affiliation.

Body Composition

Only the women who were over 50 years of age expressed that their triathlon motivations stemmed from a desire to lose weight. Participants tended to focus on improving body composition as an important part of weight management. Draya used the term of weight regulation as a motivator because she wanted to fit into certain clothes and look better in the mirror. However, as Hanna explained, losing weight is an expectation but not a guarantee. At least one woman in each of the BMI subgroups (normal, overweight, obese) altered her cognitive frame about weight regulation during her triathlon training process from desiring to lose weight to focusing on being 'lean'.

Women elaborated that being lean develops a more muscular build while accepting that their personal body type is not as slender as the commonly recognized triathlete. Additionally, being leaner sometimes meant that the participant did not lose weight, but that the composition of her body changed. This concept resonated with Elle, who reported an obese BMI, but believes, BI can be thick, healthy, and powerful and I can still do this [triathlon]. The leanness and appearing leaner, that means a lot more than the number on the scale.[^] During the interviews, 92% of BW reported that training for triathlons helped to reduce their weight. All of the women interviewed reported that remaining in the sport allowed them to control their weight and many reported 'having a lean look' as motivation.

The novel theme of body composition relates to the MOMS-T scale, Weight Control, but it is more specific to improving body composition by building more lean muscle and focuses less on how much weight is lost overall. This concept of improving body composition appeared to be framed differently amongst individual BW in this study, and related variably to personal appearance, health, and muscular power.

Physical Attractiveness

A second theme, physical attractiveness, was described by all of the women in terms of what it meant to be physically attractive or how they believed others viewed them. The concept of physical attractiveness changed over one's lifetime and was often described in lieu of transitions in the aging process. The description varied among participants, in part with relationship to their previous athletic experiences, or lack thereof. Melle, a professionally trained dancer, especially

related to the idea of a mind shift of what being physically attractive meant over her lifetime:

For me, physically attractive has changed over the years. When I was in my teens and twenties, physically attractive was being as thin as possible. I hated being as muscular- I hated my thighs because they were so muscular. I hated my ass. I just was like...I'm too heavy and too this and too that. Now, I love seeing myself. I love looking in the mirror and flexing my arm and seeing it cut. I LOVE IT. I love looking down at my calves – cause for me, that's power. So that's attractive to me.

Being physically attractive is also wrapped in the ability to be physical and this perspective changed after completing the longest distance of triathlon. Marissa's personal views of being physically attractive shifted following the realization that she is one of a very small number of people who have successfully completed an Ironman:

I used to believe that what other people thought of me, especially men, determined my beauty. Now this is a whole different aspect – after I did Ironman I was like, 'F*** that dude, I'm an Ironman!' I could be the ugliest chick in the world but I'm still an Ironman.

In summary, the participants described a transition in their beliefs about being physically attractive as triathletes. With regard to Weight Control, many participants owned their attractiveness rather than conforming to society's idea of what attractiveness means. The BW participants framed this in a cultural context by perceiving physical attractiveness as explained by Nora, "...in the eye of the beholder. And what's attractive to one may not (be to) someone else." Whether this transition occurred prior to initiating triathlon training or after triathlon training varied among participants, as some appeared to have this shift in mindset prior to initiating their training and others appeared to change their perspective after their triathlon training. However, it also seemed that their perception of attractiveness to others may not have changed so much as the value that they placed on their attractiveness to others.

Triathlete Family

In the MOMS-T, the word family is asked about within the context of recognition but it is not further defined. However, the interview process provided an opportunity for the women to define the word family for themselves and it was described in relation to affiliation more so than simply genetic family ties. Family was cultural by sporting group, gender, and ethnicity. To Eve, people outside of blood ties are family as she states, “I have a tri family, I have different ethnic groups that participate [in triathlon]...and everybody treats you with love and respect. Sometimes you become more close to this side of the family than you do your own blood family.” Rado, who trains with other women, was clear to explain, “My training group is my family. Training year after year just deepens the friendship and I am with my training group because they feel like family to me.”

This theme relates to the MOMS-T scale of Affiliation due to the nature of the women describing their relationship with other members of the triathlon community as being just as important, if not sometimes more, than biological family members. Within Black culture the ‘adoption’ of family members is often due to relational status that has developed over time. This ‘fictive’ kin network is especially demonstrative in its importance among aging Black adults (Dilworth-Anderson 2001) and was also apparent among these BW triathletes.

Camaraderie

There is an inherent desire for people to be among those who share similar backgrounds and the triathlon family presents similarities that help to focus the theme of camaraderie. “You have many various backgrounds...everybody is the same out there...you know, running or racing – you get doctors, lawyers, Indian chiefs...but once you’re out there, everybody’s the same,” said Nora when talking about camaraderie of the sport. This is true for the Black triathlete family which shares a different level of race and culture within triathlon. Several of the participants discussed how social media groups like the Black Triathletes Association (BTA) have filled in a gap of support they did not previously have. “I’m usually the only Black person in a lot of the local races,” said Brooklyn Diva, and Letti explained that, “Most Black women are not out there...when you’re racing, you’re the only one”. Thus, being a minority in a sport can mean you may be mistaken for one not racing, even if you are looking the part. Marissa explained:

For so long I felt like Moses in the desert, showing up to races and people saying, 'Are you a volunteer?' And you're like 'Don't you see this tri kit?' And you can't do that when there's like 30 Black people walking up there talking about, 'Let's get to the swim start.' So there is power in unification and community. And I LOVE what BTA is doing. I'm loving what it's doing for other Black triathletes.

"Knowing that people that I've met on Facebook are going to be [at a race] and I'm not going to be there alone makes me feel like okay, my tribe- it's like my tribe," said Nora.

Camaraderie, the theme revealed in the interview process, relates to the MOMS-T scale of Affiliation in that it allows a deeper level of relationship between the women and the triathlon groups they identify with. For the BW in this study, the theme of camaraderie was also culturally distinct to BW by forging relationships with one another through the shared identification as BW triathletes. This shared identification was particularly important at races where BW described feelings of isolation when other BW did not attend the same race.

Discussion

This study qualitatively transformed the MOMS-T survey, to the MOTIG, in order to better assess the motives for triathlon participation among a population mid-life BW triathletes and to shed light on prominent motivational variables in this time of the life course. Increasing PA in mid-life improves health as BW age into their later years (Moore et al. 2012; Lee et al. 2014; Taylor 2014). Our qualitative interviews with BW triathletes identified culturally based themes related to improving body composition to become "more lean", changing perspectives on physical attractiveness, perceptions of their triathlete training partners as family, and shared camaraderie with other triathletes. Like the 2004 study reported by Doppelmayer and Molkenhain, these motivational themes were not identified in previous studies that used the MOMS-T with a predominantly white population of triathletes (Lovett 2011; Croft et al. 2007).

Considering the current health crisis among BW and the goal of Healthy People 2020 to increase the number of BW who are exercising it is imperative to comprehensively identify and understand the motives of those BW who do exercise. Williams and Purdie-Vaughns

(2016) identify insights for reducing inequalities in health among disadvantaged populations by targeting those who are in greatest need. For example, targeting a structural change of exercise programs for triathletes (e.g. providing reduced or free training), like the national Black Girls Run! program (Wegner et al. 2016) does for women interested in participating in running races, may assist in the development of policy or interventions that may inspire sedentary BW to adopt more physically active lifestyles. Several participants of this study indicated they were either runners or swimmers prior to becoming triathletes. Not for profit local organizations, like Tri-Masters Sports Initiative Programs (Chicago, IL, USA), and the social organization, Black Triathletes Association, have either introduced and/or trained Blacks who have an interest in the sport of triathlon to Blacks (Brown 2016).

Our findings suggest that using the MOMS-T survey with BW will identify many of the motives for triathlon participation appropriately, but that the survey may warrant revisions to clarify additional motivations or barriers (i.e. structural) related to these four culturally based themes. Some of the novel motives that we identified in this study have a basis for cultural understanding, including certain aspects that may address implicit racial biases. Our findings regarding the domains of body composition and physical attractiveness relate to culturally based motives for body perception in other studies (Schuler et al. 2008), and included a motive to increase one's muscular appearance that was perceived as attractive to the BW triathletes. Although our findings initially appear to contradict the idea that BW would resist weight loss due to culturally specific influences of belief that men prefer curvy women (Ard et al. 2013), our participants described a tangible shift in their perceptions of attractiveness over their lifetime and an abandonment of their past perceptions of what defines them as attractive. Our finding of changing self-perceptions is similar to a prior study of older BW exercisers who reported they had Beveled[^] over time to place less emphasis on what traditional Black culture and the US mainstream culture expected of them, and they instead chose to be active and healthy even if it meant their appearance did not fit with traditional social norms (Huebschmann et al. 2016).

The qualitative method is often employed as a research strategy to provide new insights into phenomena including health behavior (Barnes et al. 2007). In terms of initial survey instrument

development, formative qualitative research is generally used to comprehensively identify motives and to explain 'why' and 'how' the motivation leads to behavior (Bryman 2006; Masters et al. 1993; Frels and Onwuegbuzie 2013), but this method is very time and resourceintensive and may not always be feasible when seeking to adapt a survey to a new population. Previous research has successfully demonstrated the use of probing to further validate scales to understand effect of elder family caregiving (Perkinson et al. 1994) and of cross-cultural comparison of morale among older Japanese and American adults (Liang et al. 1992). These studies randomly selected questions and did not use all of the questions from the original respective scales. Developing the Motivations of Triathletes Interview Guide (MOTIG), by transforming the Motivations of Marathoners Scales for Triathletes (MOMS-T) in its entirety, revealed behavioral motives for triathlon participation among BW triathletes that may not have been captured if questions of the MOMS-T had been randomly probed for the interview participants.

The development of the MOTIG, through survey transformation, is a novel technique that has the potential to substantively advance the field of survey adaptation and might be particularly useful when studying relatively small populations that may be geographically dispersed and are likely to exhibit culturally based characteristics that differ from the majority culture or those previously studied. An adapted version of the MOTIG that addresses cultural aspects of motivation for participation in sporting activities should be tested in other minority athletes (e.g. Black men), in order to further our understanding of both the technique and the motivations of minority groups. Additionally, as some of our findings parallel social cohesiveness motives from past findings in primarily Caucasian female triathletes (Lovett 2011), the MOTIG may further assess whether our adaptations enhance the validity of the MOMS-T in other triathlete populations. The use of this interview guide in other populations may also lead to a revised version of the MOMS-T that incorporates themes not previously assessed.

The approach of survey transformation also has inherent limitations that must be considered. Because this approach is assessing behavioral domains that are related to those of the constructs assessed in the parent survey, it is possible that other factors that are relevant to behavior will not be addressed in a qualitative guide derived from a valid survey. To mitigate

this concern, we also incorporated semi-structured questions about other relevant triathlon motives reported in the literature.

Conclusion

Prior studies have struggled to determine how best to impact BW to adopt exercise as a lifelong behavior. This study sought to take steps to begin with the end in mind by evaluating motives of mid-life BW triathletes who have committed to regular exercise; a kind of ‘reverse engineering’ approach. Increasing PA in mid-life is important, as it improves health as BW age into their later years (Moore et al. 2012; Lee et al. 2014; Taylor 2014). Our use of survey transformation allowed us to better understand the motives for sports participation for BW, including the identification of culturally based motives in older BW to improve their body composition by becoming leaner. More generally, the process of survey transformation provides a viable approach to adapt surveys to cultural minority populations when there are insufficient resources to redo the formative qualitative work that informed the initial survey, and this approach should be considered by other researchers when surveys are adapted for new populations.

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Appendix

Motivations for Triathletes Interview Guide (MOTIG)

First, the researcher asks questions that are related to their experience in triathlons.

How long have you been competing in triathlons?

1. How did you get started in competing?
2. Do you anticipate continuing competing as you get older?
3. What has motivated you throughout the lifespan to continue competing?
4. How do you think your motives have changed throughout your time?

Next, the researcher asks questions transformed from the Motivations of Marathoners Scale for Triathletes.

I. The first series of statements are in reference to HEALTH ORIENTATION.

“I choose to participate in triathlons...”

8. To improve my health.
14. To prolong my life.
17. To become more physically fit.
26. To reduce my chance of having a heart attack.
37. To stay in physical condition.
44. To prevent illness.

In consideration of the statements you have just heard, do you feel that participating in triathlons has affected your overall health? What is your definition of ‘physical condition’?

You may use the statements as references while answering the question.

II. The second set of statements are in reference to WEIGHT CONTROL

“I choose to participate in triathlons...”

1. To help control my weight.
4. To reduce my weight.
21. To look leaner.

42. To stay physically attractive.

Does participating in a triathlon help to control your weight? How has participating helped to reduce your weight? How do you interpret the phrase “to stay physically attractive?” You may use the statements as references while answering the question.

III. The third set of statements are in reference to your PERSONAL GOALS.

“I am motivated to participate in triathlons ...”.

5. To improve my running, cycling, swimming speed.

9. To compete with myself.

22. To try to run, cycle, and swim faster.

35. To push myself beyond my current limits.

46. To see if I can beat a certain time.

51. To make my body perform better than before.

How do your personal goals within the sport affect your motivation to participate? You may use the statements as references while answering the question.

IV. The fourth set of statements refer to your level of COMPETITION.

“My motivation for participating is...”.

2. To compete with others.

40. To see how high I can place in races.

43. To get a faster time than my friends.

52. To beat someone I’ve never beaten before.

With regards to competition, do you feel any of these statements describe part of your motivation during participation? How so? You may use the statements as references while answering the question.

V. The fifth set of statements place value in RECOGNITION within the sport.

“I am motivated to participate...”.

3. To earn respect of peers.

- 6. To earn the respect of people in general.
- 19. To make my family or friends proud of me.
- 45. [So] people look up to me.
- 48. [Because it] brings me recognition.
- 54. To get compliments from others.

Does the possibility of recognition effect your motivation to participate? What type of recognition have you received from others? How did that make you feel? You may use the statements as references while answering the question.

VI. The sixth set of statements are in regards to your AFFILIATION with triathlons.

“I am motivated to participate in triathlons...”.

- 7. To socialize with other triathletes.
- 12. To have something in common with other people.
- 16. To meet people.
- 24. To participate with my family or friends.
- 30. To share a group identity with other triathletes.
- 33. To visit with friends.

Does the social aspect of affiliation with a group affect your motivation? Are you a part of a training group? Why or Why not? (If yes) How does being a part of this group affect your level of motivation and participation? You may use the statements as references while answering the question.

VII. The seventh set of statements relate to PSYCHOLOGICAL COPING mechanism associated with motivational reasons for participation.

“My motivation is connected to my coping ability so I am able...”.

- 10. To become less anxious.
- 15. To become less depressed.
- 18. To distract myself from daily worries.
- 36. To have time alone to sort things out.

38. To concentrate on my thoughts.

39. To solve problems.

47. To blow off steam.

50. To get away from it all.

Do any of these psychological coping strategies motivate you to participate in triathlons?

How do these statements relate to your psychological coping of everyday life? What problems have you resolved as a result of your motivation to participate? You may use the statements as references while answering the question.

VIII. The eighth set of statements are meant to understand how motivation effects your

SELF-ESTEEM

"I am motivated to participate in triathlons...".

11. To improve my self-esteem.

23. To feel more confident about myself.

29. To improve my sense of self-worth.

31. [Because] it is a positive emotional experience.

32. To feel proud of myself.

34. To feel a sense of achievement.

53. To feel mentally in control of my body.

56. To feel like a winner.

How has participation affected your self-esteem? What role does your motivation to compete play in consideration of your achievement? How has your self-worth been related to your participation? You may use the statements as references while answering the question.

IX. The ninth set of LIFE MEANING statements are meant to provide a deeper element to your motivational pursuits of participating in triathlons.

"I am motivated to participate in triathlons...".

13. To add a sense of meaning to life.

20. To make my life more purposeful.

- 25. To make myself feel whole.
- 27. To make my life more complete.
- 41. To feel a sense of belonging in nature.
- 49. To have time alone with the world.
- 55. To feel at peace with the world.

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