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Examining the ParticipACTION brand using the brand equity pyramid

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Abstract

Purpose: The brand equity pyramid is a theory that explains how people develop loyalty and an attachment to a brand. The primary objective of this study was to test whether the predictions made by the theory hold when applied to the brand of ParticipACTION, a Canadian non-profit organization that promotes active living. A secondary objective was to test whether this theory predicted intentions to be more physically active.

Design/methodology/approach: A research agency conducted a cross-sectional, online brand health survey on behalf of ParticipACTION. Exploratory factor analysis and confirmatory factor analysis established the factor structure. Structural equation modeling was used to test the hypothesized model.

Findings: A nationally representative sample of Canadian adults ($N = 1,191$) completed the survey. Exploratory factor analysis and confirmatory factor analysis supported a hypothesized five-factor brand equity framework (i.e., brand identity, brand meaning, brand responses, brand resonance, and intentions). A series of structural equation models also provided support for the hypothesized relationships between the variables.

Practical implications: Though preliminary, the results provide a guide for understanding the branding process in the activity-promotion context. The constructs identified as being influential in this process can be targeted by activity-promotion organizations to improve brand strength. A strong organizational brand could augment activity-promotion interventions. A strong brand may also help the organization better compete against other brands promoting messages that are antithetical to their own.

Originality/value: This is the first study to test the brand equity pyramid using an activity-promotion brand. Results demonstrate that the brand equity pyramid may be useful in this context.

A large body of evidence suggests that less sedentary behaviour (SB) and more moderate to vigorous physical activity (PA) are effective strategies for leading a healthy life (Owen *et al.*, 2010; Rhodes *et al.*, 2017). However, in Canada, for example, 82.4% of adults do not engage in sufficient levels of moderate to vigorous PA (i.e., 150 minutes per week; Statistics Canada, 2015). Furthermore, over 60% of Canadian adults report over 2 hours of screen time per day (Herman and Saunders, 2016). This 2-hour threshold is notable because several studies show that people who exceed this amount are at an increased risk for a variety of health consequences (see Tremblay *et al.*, 2010 for a review). These patterns underscore the need for interventions promoting more moderate to vigorous PA and less SB in westernized societies.

Informational approaches such as community-wide campaigns and mass-media campaigns have been identified as effective approaches to promote PA (Heath *et al.*, 2012). A component of these approaches is brand building. Building the brand of organizations implementing PA or SB interventions may provoke a cascade of processes leading to people being more physically active. A brand is “a set of associations linked to a name, mark, or symbol associated with a product or service” (Calkins, 2005, p. 1). For example, people may form associations with a certain car brand (e.g., the type of person who drives cars produced by the brand). High brand equity is thought to occur when people are highly aware of the brand, have positive associations with the brand, and are loyal to the brand (Aaker, 1996; Keller, 1993). An activity-promotion organization with high brand equity may augment PA or SB interventions and it may help the organization better compete against other brands in the marketplace influencing people to be less physically active (Bellew *et al.*, 2017; Evans *et al.*, 2015).

Some studies have examined the role of branding in the activity-promotion (i.e., promoting more PA or less SB) context. The majority of the studies have examined whether

brand salience or different levels of brand exposure is associated with PA-related variables such as behaviour (e.g., Berkowitz *et al.*, 2008; Craig *et al.*, 2006; Gainforth *et al.*, 2016), and the results generally support the notion that higher levels of salience or brand exposure may lead to more positive PA outcomes. Although certainly valuable, a limitation of this form of research is that it does not provide insight regarding the mechanisms (i.e., mediating variables) that lead to more positive PA outcomes.

Other studies in the PA domain have conducted more complex investigations examining the mediating role of brand equity variables. For example, Jarvis *et al.* (2014) evaluated the ParticipACTION brand in the context of a campaign aimed at persuading parents to encourage their children to be more physically active. ParticipACTION is a Canadian non-profit organization that has been dedicated to promoting active living for nearly 50 years. Importantly, the ParticipACTION brand equity variables (i.e., awareness, perceived quality, leadership/popularity, other organizational associations, and personality) measured were found to mediate the relationship between campaign advertisement exposure and parental support for child PA. That is, campaign exposure led to higher brand equity, and this increase in equity led to increased child PA support.

Whereas Jarvis *et al.* (2014) evaluated brand equity variables of a PA promoting organization, other studies in the PA context instead have evaluated branding in relation to specific PA campaigns. The most extensively studied branded PA campaign is the VERB campaign. The VERB campaign brand was developed by the Centers for Disease Control and Prevention to promote PA among children 9-13 years of age. Price *et al.* (2009) measured brand satisfaction/loyalty, leadership/popularity, personality, and awareness regarding VERB, and examined whether these VERB brand equity variables were associated with attitude toward PA

and free-time PA among youth. They found that each VERB brand equity variable was positively associated with PA attitude, and leadership/popularity was positively associated with PA. Furthermore, the relationship between VERB leadership/popularity and PA was partially mediated by PA attitude. That is, VERB leadership/popularity influenced PA attitude, and attitude, in turn, influenced PA.

The reviewed literature indicates that activity-promotion brand equity variables may influence important activity-related variables such as PA. However, this research does not provide insight regarding the relationships between brand equity variables leading to brand loyalty and subsequent PA. The brand equity pyramid (Keller, 2001; 2003) is a theory that explains this process. The brand equity pyramid (sometimes referred to as the brand resonance model) is a sequential, four-component theory that explains how people develop loyalty and attachment to a brand. The first component, *brand identity* (i.e., salience of the brand), has two components: depth (i.e., the degree to which consumers are able to recall and recognize the brand) and breadth (i.e., the purchase situations in which consumers think of the brand). Identity predicts *brand meaning* (i.e., beliefs about the brand) which has two components: functional/performance beliefs and imagery beliefs. Functional/performance beliefs refer to how well the brand performs in terms of satisfying tangible, basic needs consumers have of the brand. Imagery beliefs refer to intangible aspects of the brand such as the situations a person might use a product sold by a brand. Next, meaning predicts *brand responses*. There are two types of responses: judgements and feelings. Brand judgements are the opinions consumers have formed based on performance and imagery beliefs (e.g., an opinion about the quality of the brand). Brand feelings are the emotional responses consumers have regarding a brand. Finally, responses predict *brand resonance* (i.e., nature of the relationship with the brand) which has two

components: intensity (i.e., the depth of the psychological bond) and activity (i.e., the behaviours consumers are willing to do show loyalty to the brand; Keller, 2003).

Studies in the commercial sector that have tested the relationships hypothesized by the brand equity pyramid have generally found good support for the theory. Brand identity usually predicts meaning, meaning usually predicts responses, and responses usually predicts resonance (e.g., Asare and Lei, 2017; Huang and Cai, 2015; Jung *et al.*, 2014; Martensen and Gronhøldt, 2010; Šerić *et al.*, 2014). However, no study has tested the brand equity pyramid using an activity-promoting organization or any health promotion organization. All previous studies have examined traditional companies in the for-profit sector. A key difference between these traditional companies and an activity-promotion organization is the product being promoted. For the most part, commercial companies are selling a tangible product (e.g., a car) whereas an activity-promotion organization is selling a set of *behaviours* (e.g., more PA, less SB). From a theoretical perspective, demonstrating the applicability of the brand equity pyramid in this novel context will serve to either set or extend the boundaries conditions for model applicability. Of practical importance, organizations that promote a more physically active lifestyle, such as ParticipACTION, need to know whether the brand equity pyramid is generalizable to their brand as well. Many of these organizations have very limited marketing budgets, so they must base any marketing decisions on studies conducted in their domain (i.e., activity-promotion) rather than on studies conducted in the general business literature.

In addition, previous work in activity-promotion has not examined the relationships between brand equity variables. Investigating the relationships between these variables would help to develop a more comprehensive theory in this area. To provide the most useful test of the relationships between these variables, the explicit predictions of the theory (e.g., brand identity

to brand meaning), indirect effects (e.g., the mediation effect of brand meaning in the relationship between brand identity and brand responses), and direct effects (e.g., brand identity to brand responses) should all be examined. Additional tests of indirect and direct effects further improve our knowledge of the relationships between brand equity variables. From a practical perspective, all of this knowledge provides guidance in terms of which variables should be targeted to improve the strength of this type of organization. Therefore, the primary objective of this study was to test the brand equity pyramid in the context of ParticipACTION.

It would also be useful to know whether brand equity pyramid variables regarding an activity-promotion organization are able to predict important activity-related outcomes. This type of investigation would provide some indication as to whether it is worthwhile for activity-promotion organizations to develop the strength of their brand as proposed by the brand equity pyramid. A secondary objective of this study, therefore, was to explore whether brand resonance predicts the intention to be more active (i.e., do more PA and less SB). The intention to do more PA is a strong, reliable determinant of PA (Rhodes and Rebar, 2017) and, though few studies have examined the intention to do less SB, this construct has been associated with decreased SB (Rollo *et al.*, 2016). Regarding objective one, we hypothesized that the brand equity pyramid would be fully supported. That is, brand identity would positively predict brand meaning, brand meaning would positively predict brand responses, and brand responses would positively predict brand resonance. Regarding objective two, we hypothesized that the brand resonance construct would positively predict the intention to be more physically active. We also hypothesized that brand meaning, brand responses, and brand resonance would act as mediators in the model, and that all indirect effects would be in the positive direction (see Figure 1 for an illustration of the

full hypothesized model). Finally, direct effects were also calculated to more fully explore the relationships between the variables in the model.

Method

Design

A market research agency was hired to conduct a cross-sectional, online brand health survey on behalf of ParticipACTION in May 2016. The survey was created by ParticipACTION and their research advisors and reflect ParticipACTION's focus with respect to their brand and PA/SB at the time. We received ethical approval from a university's general research ethics board to conduct a secondary analysis of the data collected from this survey.

Participants

The original sample was a representative group of Canadian adults ($N = 1,462$) who received small compensation for participation. Participants receive between \$.50 and \$3.00 in Canadian dollars for participating in surveys run by this particular market research agency in accordance with survey burden. Sampling accounted for age, gender, and geographical region to ensure that the sample was representative of the population. However, for this study, we were interested in individuals who were at least somewhat familiar with ParticipACTION ($N = 1,281$). This approach was taken because the participants needed to be able to answer brand-related questions with regard to the organization. Participants were considered "somewhat familiar" if they selected at least a "2" in response to the recognition item in the Measures section. This scale ranged from 1 (*not at all familiar*) to 4 (*very familiar*). A sample of 1,243 was used for the main analyses (prior to listwise deletion) after multivariate outliers were removed. The final sample for the main analyses contained 1,191 participants.

Measures

Unless otherwise noted, items were created by ParticipACTION and their research advisors for this survey using scales from the health branding literature as a guide (Evans and Hastings, 2008). Items were adapted to align with the strategic position of the ParticipACTION brand and organizational priorities (ParticipACTION, 2015). Sub-categories (e.g., credibility within judgements) are consistent with the brand equity pyramid. Information regarding reliability and validity can be found in the Data Analyses and Results sections.

Brand identity.

Recall. The recall item, adopted from Jarvis *et al.* (2014), was: “Can you name any organizations that promote physical activity? Please name as many organizations as you can (up to 10) and be as specific as possible.” Participants were considered to have been aware of ParticipACTION if they were able to list it. Therefore, this measure has a dichotomous scale (i.e., *yes* or *no*).

Recognition. The recognition item was also adopted from Jarvis *et al.* (2014). The item was: “How familiar are you with the following organizations? By familiar, we mean how much do you know about the organization?” Although the participants were asked about multiple organizations, we were only interested in participant ratings pertaining to ParticipACTION. Participants responded on a four-point scale ranging from 1 (*not at all familiar*) to 4 (*very familiar*).

Brand meaning.

Functional/performance. There was one item measuring functional/performance: “Still thinking about the organizations you are familiar with, how effective is each organization at motivating you and/or your family to be more physically active?” Participants responded on a scale ranging from 1 (*very ineffective*) to 5 (*very effective*).

Imagery/intangible. This construct was measured using two items. Participants were first posed with the following question: “When you think of ParticipACTION, which of the following do you think of?” There was a list of potential items participants could have associated with ParticipACTION; however, two were relevant to this study: “moving more” and “sitting less.” Participants could select that they either held these associations in memory or not, thereby creating a dichotomous scale for each item (i.e., *selected* or *not selected*).

Brand responses.

Judgements. Unless stated otherwise, scales ranged from 1 (*strongly disagree*) to 4 (*strongly agree*).

Credibility. ParticipACTION's expertise was measured using three items. One item, adapted from Jarvis *et al.* (2014), read “ParticipACTION does an excellent job of raising awareness about issues related to physical activity and sitting time.” Another item, adapted from Aaker (1996), was: “ParticipACTION is a credible source of information.” The final item was: “ParticipACTION is current and up-to-date.” Trustworthiness was measured using two items. One item, adapted from Jarvis *et al.* (2014), read “ParticipACTION is trustworthy.” The other item was “ParticipACTION is passionate about promoting increased physical activity and decreased sitting time.” The likeability of ParticipACTION, adapted from Price *et al.* (2009), was measured using one item: “ParticipACTION is fun.”

Consideration. The degree to which people consider ParticipACTION was measured using three items: “ParticipACTION is relevant to all Canadians,” “ParticipACTION is a truly Canadian organization,” and “For each of the organizations you are familiar with, how relevant is the organization to your own and/or your family's health and well-being?” For this latter item, participants could respond on a scale ranging from 1 (*very irrelevant*) to 5 (*very relevant*).

Superiority. ParticipACTION's superiority was measured using one item adapted from Jarvis *et al.* (2014): "ParticipACTION is the leader in promoting increased physical activity and decreased sitting time."

Quality. Quality was measured using two items. The first item, adapted from Yoo *et al.* (2000), was: "ParticipACTION provides high quality programs/services for Canadians to be physically active in their everyday life." The second item, adapted from Jarvis *et al.* (2014), was: "ParticipACTION is inspirational in its approach."

Feelings. Emotional feelings toward ParticipACTION was measured using the following item: "For each of the organizations you are familiar with, how would you rate your impressions of that organization?" Participants could respond on a scale ranging from 1 (*very negative*) to 5 (*very positive*).

Brand relationship/resonance. Relationship/resonance was measured using two items with scales ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The items, adapted from Evans *et al.* (2005), were: "I share ParticipACTION's messages with others" and "I'd like to help ParticipACTION get the word out."

Intentions to be more physically active. Intentions to do more PA and less SB was measured using two items with scales ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The items, adapted from Courneya *et al.* (1999), were: "Over the next 6 months, I have goals to decrease the amount of time I spend in sedentary activities (e.g., watching TV, using the computer)" and "Over the next 6 months, I have goals to increase the amount of time I spend being physically active." Use of the word "goals" is appropriate because it is consistent with intentions as it is conceptualized in social cognitive theory (Bandura, 1998). It should also be noted that the intention item used in Courneya *et al.* (1999) did not indicate a time frame whereas

our items do (i.e., 6 months). However, this change should not influence the results as previous research has shown that time frame differences in PA intention items do not lead to different scores between the items (Rhodes *et al.*, 2008).

Data Analyses

Data screening. Univariate outliers were identified by examining boxplots (Pallant, 2011) using SPSS version 22. Specifically, we had planned to remove extreme outliers (i.e., values more than three times greater than or less than the middle 50% [25th to 75th percentiles] of the distribution). For the credibility item assessing likeability and the quality item about programs and services, all 1, 3, and 4 scale values were detected as outliers; however, these data were not excluded to retain variability in the variables. In addition, skewness and kurtosis were acceptable for both variables (i.e., within ± 2 ; Field, 2009).

Patterns in missing data were also examined; the data were found to be missing completely at random (Little's MCAR test: $\chi^2[\text{df} = 62] = 77.555, p = .088$). In addition, 38 multivariate outliers were removed by examining Mahalanobis distances (critical $\chi^2[\text{df} = 22] = 48.286, p < .001$). Because only small amounts of data were missing (i.e., less than 5% for any one variable), we decided to use listwise deletion for the main analyses as the results are comparable to multiple imputation (Tabachnick and Fidell, 2012).

Main analyses. An iterative process of exploratory factory analysis (EFA) was first conducted to explore the factor structure. First, orthogonal rotation (varimax) was conducted; however, items did not load on factors well because it was clear that some of the factors (i.e., factors with eigenvalues greater than 1) were correlated (i.e., there were some correlations above .32; Tabachnick and Fidell, 2012). Therefore, oblique rotation (oblimin) was conducted to allow the factors to correlate (Tabachnick and Fidell, 2012). Only results from the final oblique

rotation are presented in this paper; however, see Table 1 for means and standard deviations (or frequencies for dichotomous variables). Next, an iterative process of confirmatory factor analysis (CFA) was conducted to improve model fit and to test the factor structure which resulted from EFA. Only results from the final CFA are presented in this paper. See Table 2 for the correlation matrix for items included in the final CFA.

Structural equation modeling (SEM) was done to test the relationships between variables. The first model tested the hypothesized model. Other subsequent tests evaluated the hypothesized model and simultaneously examined whether each hypothesized relationship would hold while all other latent variables were controlled to check the robustness of the hypothesized model. For example, while keeping the hypothesized model constant, we checked whether brand resonance predicts intentions to be physically active while controlling for brand identity, brand meaning, and brand responses. For this example, new additional paths were requested between brand identity, brand meaning, and brand responses with intentions to be physically active. We conducted one of these subsequent tests for each hypothesized relationship for a total of four tests.

All theoretically relevant indirect effects were also tested. The information regarding indirect effects was available in the output from the first model. Finally, a separate, single model was run to test all direct effects simultaneously. That is, in addition to the paths requested in the original model, we also requested paths between brand identity and brand responses/brand resonance/intentions to be physically active, brand meaning and brand resonance/intentions to be physically active, and brand responses and intentions to be physically active.

For the CFA and SEM, maximum likelihood estimation was used with a covariance matrix (see Table 3). Following guidelines provided by Cohen (1988), small, medium, and large

effect sizes were interpreted when R^2 was greater than or equal to .01, .09, and .25, respectively.

LISREL version 9.30 was used to conduct CFA and SEM.

Results

Exploratory Factor Analysis

See Table 4 for the available demographic information for the sample used in the main analyses. The final oblique rotation (oblimin) showed the hypothesized five factors, each with eigenvalues greater than 1. The factors (with eigenvalues in parentheses), from highest to lowest eigenvalue, are: brand responses (7.929), intentions to be more physically active (1.609), brand resonance (1.377), brand meaning (1.151), and brand identity (1.017). See Table 5 for the pattern matrix containing the loadings between items and factors.

Confirmatory Factor Analysis

The final CFA showed good model fit, RMSEA = .065, NFI = .965, CFI = .971, RMR = .048, GFI = .964, AGFI = .938, despite having a statistically significant chi-square value: $\chi^2 = 273.861$ ($df = 46$), $p < .001$. We concluded that the model fit was good because large samples are prone to a statistically significant chi-square value, and, in these cases, other indices of model fit are more appropriate (Schumacker and Lomax, 2010). In addition, all factor loadings were statistically significant and in the expected direction. It should also be noted that the error variances for the “imagery move more” and “intentions increase PA” items were set to .001 because these items originally had a negative error variance (Cortina, 2002). See Figure 2 for an illustration of the model, standardized factor loadings, and error variances.

Structural Equation Modeling

The SEM testing the hypothesized model also demonstrated good fit, RMSEA = .078, NFI = .946, CFI = .952, RMR = .122, GFI = .945, AGFI = .917, despite having a statistically

significant chi-square value: $\chi^2 = 424.753$ ($df = 52$), $p < .001$. As with the CFA, the error variances for the “imagery move more” and “intentions increase PA” items were set to .001 because these items originally had a negative error variance. In terms of the relationships between variables, brand identity predicted brand meaning ($\beta = .387$, $p < .001$, $R^2 = .150$), brand meaning predicted brand responses ($\beta = .399$, $p < .001$, $R^2 = .160$), brand responses predicted brand resonance ($\beta = .586$, $p < .001$, $R^2 = .344$), and brand resonance predicted intentions to be more physically active ($\beta = .315$, $p < .001$, $R^2 = .099$). Therefore, hypotheses regarding the relationships between these variables were supported. In addition, the R^2 values ranged between medium and large effects. See Figure 3 for an illustration of the model, standardized factor loadings, error variances, and beta coefficients.

Four follow-up models were tested to examine whether the hypothesized relationships would hold (i.e., remain statistically significant and in the expected direction) while all other latent variables were controlled. The first test, $RMSEA = .065$, $NFI = .962$, $CFI = .968$, $RMR = .064$, $GFI = .961$, $AGFI = .937$, $\chi^2 = 298.930$ ($df = 49$), $p < .001$, showed that brand identity did continue to predict brand meaning ($\beta = 1.231$, $p < .001$). The second test, $RMSEA = .068$, $NFI = .960$, $CFI = .966$, $RMR = .077$, $GFI = .959$, $AGFI = .935$, $\chi^2 = 316.674$ ($df = 49$), $p < .001$, showed that brand meaning continued to predict brand responses ($\beta = .236$, $p < .001$). The third test, $RMSEA = .076$, $NFI = .951$, $CFI = .957$, $RMR = .103$, $GFI = .951$, $AGFI = .922$, $\chi^2 = 382.998$ ($df = 49$), $p < .001$, showed that brand responses continued to predict brand resonance ($\beta = .632$, $p < .001$). Finally, the fourth test, $RMSEA = .076$, $NFI = .951$, $CFI = .957$, $RMR = .093$, $GFI = .950$, $AGFI = .920$, $\chi^2 = 388.198$ ($df = 49$), $p < .001$, showed that brand resonance also continued to predict intentions ($\beta = .184$, $p < .001$). The overall R^2 for this final model was .112, indicating that, while the hypothesized model was held constant, all of the latent brand variables

explained 11.2% of the variance in intentions, which is in the medium effect size range. In summary, it would appear that these hypothesized relationships held after controlling for the other latent variables.

Finally, indirect and direct effects were tested. All tested indirect effects were statistically significant (all p values $< .001$) and in the expected direction. To test the direct effects, a separate model was tested with all direct effects specified simultaneously. This model had good fit, RMSEA = .065, NFI = .965, CFI = .971, RMR = .048, GFI = .964, AGFI = .938, $\chi^2 = 273.861$ ($df = 46$), $p < .001$. The majority of the direct effects were statistically significant (i.e., p at least $< .05$) and in the expected direction. However, it is worth noting brand identity negatively predicted brand resonance ($\beta = -.143$, $p = .001$), and brand meaning did not predict intentions to be more physically active ($\beta = .011$, $p = .721$). See Table 6 for the standardized beta coefficients for each indirect and direct test.

Discussion

The overall aim of this study was to test the structure posited by the brand equity pyramid within the context of an activity-promotion organization. In this case, the organization under examination was ParticipACTION. Through correlations, EFA, and CFA, we were able to show a reliable and valid scale for measurement of brand equity pyramid constructs for an activity-promotion organization. The five sub-scales include the four hypothesized by the theory (i.e., brand identity, meaning, responses, and resonance) and one activity outcome scale designed to measure intentions to be more physically active.

The evidence as a whole from the SEM analyses provide support for the brand equity pyramid in the activity-promotion context. Based on the theory, we predicted that brand identity would positively predict brand meaning, brand meaning would positively predict brand

responses, and brand responses would positively predict brand resonance. We also hypothesized that brand resonance would positively predict intentions to be more physically active (i.e., increase PA and decrease SB). We demonstrated support for each predicted relationship. In addition, follow-up tests showed that each relationship held after simultaneously controlling for the other latent variables. We also conducted tests of indirect and direct effects to more fully explore the relationships between the latent variables in the model. In terms of the indirect effects, we expected that brand meaning, brand responses, and brand resonance would act as mediators in the model, and that all indirect effects would be in the positive direction. Tests of indirect effects showed the mediation effects we expected.

With regard to direct effects, tests generally showed antecedents positively predicted the various subsequent variables, with the exception of the relationships between brand identity and brand resonance (a negative relationship) and brand meaning and intentions (no relationship). For these two relationships, evidence of suppression exists (MacKinnon *et al.*, 2000). A suppression effect is present when the magnitude of the relationship between an independent variable and a dependent variable enlarges when a third variable is included. A suppression effect may therefore be influencing the relationship between brand meaning and intentions because the indirect effect is significant whereas the direct effect is not. Thus, it may be that brand responses and brand resonance increase the magnitude of the relationship between brand meaning and intentions. A suppression effect can also be present when direct and indirect effects have opposite signs. In this case the mediator (or mediators) has a sufficiently strong positive or negative relationship with the dependent variable that it changes the sign of the direct effect. This form of suppression effect may explain the relationship between brand identity and brand resonance. That is, the negative relationship between brand identity and brand resonance may

have been overpowered by the positive relationship between the mediators (i.e., brand meaning and brand responses) and brand resonance. It is important to note that these suppression effects are consistent with the brand equity pyramid given that the standardized regression coefficients of the indirect effects are in the positive direction.

As a whole, this comprehensive set of analyses is meaningful both theoretically and from a practical perspective. The current study builds on previous research in the activity-promotion domain by specifying the relationships between brand equity variables, providing a more comprehensive theory. Although preliminary, the results provide a guide for understanding the branding process in the context of activity promotion. The variables identified as being influential can be targeted by activity-promotion organizations such as ParticipACTION to improve brand strength. A strong organizational brand could augment PA or SB interventions. This practice may also help the organization better compete against other brands that may impede a physically active lifestyle by creating associations in the minds of consumers that are more salient and more positive than those attached to competing brands (Bellew *et al.*, 2017; Evans *et al.*, 2015). Accordingly, we cautiously recommend activity-promotion organizations orient their marketing activities, at least in part, towards building their organizational brand. This recommendation is a deviation from activity-promotion organizations' traditional public health marketing strategies focused on promoting movement behaviours rather than their organization per se. It seems advisable that organizations build brand identity, brand meaning, and brand responses in an effort to improve brand resonance and increase intentions to be physically active among consumers. Specifically, for brand identity, it may be important that marketing activities strive to foster consumers' recall and recognition of the brand. For brand meaning, it may be beneficial to orient marketing activities towards establishing strong associations in consumers'

minds between the organization and moving more and sitting less. Finally, for brand responses, marketing efforts should aim to convey the organization's commitment to increasing PA and decreasing SB. Fostering belief in the organization as credible, trustworthy, and relevant to a country's populous (Canadians, in this case) also may encourage people to develop a better relationship with the brand and subsequently be more physically active. To be more certain of these outcomes, however, research is needed to examine whether a "brand intervention" actually provides additive effects. For example, a study might experimentally compare a standard activity-promotion intervention to a standard activity-promotion plus a "brand intervention." Based on the medium-sized effects observed in this study between brand resonance and intentions to be more physically active, it is possible that a brand intervention would have an additive influence on a standard activity-promotion intervention.

Another interesting avenue of future work might be to examine whether brand equity pyramid constructs predict other established activity-related determinants such as attitude, subjective norms, or self-efficacy (Sheeran *et al.*, 2016). Building on this notion, it would be worthwhile to investigate the relationship between the brand equity pyramid and actual theories of health behaviour such as the health action process approach (Schwarzer *et al.*, 2011) or the multi-process action control approach (Rhodes, 2017). Finally, a further goal might be to examine the relation between the brand equity pyramid and non-conscious variables such as implicit attitude or habit as there is developing body of research indicating that non-conscious processes can also influence levels of physically active behaviour (Conroy and Berry, 2017; Kaushal *et al.*, 2017; Rebar *et al.*, 2016). This line of research is of value because it would further explain how the brand equity pyramid might influence PA or SB.

Although this study makes a valuable, novel contribution to the literature, it is not without limitations. One issue is that ParticipACTION's brand survey did not contain items measuring all brand equity pyramid variables. At the time of the survey, ParticipACTION chose items that reflected the organization's brand goals. However, had all brand equity pyramid variables been measured, we may have gained a better understanding of brand development and influence in this context. For example, intensity (i.e., the depth of the psychological bond with the brand), a component of brand resonance, was not measured in this study. Also, many of the items provided participants with just 4-5 choices (some were also dichotomous; e.g., organizational recall), which is adequate but not ideal. Reliability and validity may have been improved if participants were afforded seven choices (Lozano *et al.*, 2008). The lack of a neutral mid-point option for many of the items could have also increased both the number of negative responses and also the number of extreme responses overall (Weijters *et al.*, 2010). In addition, some latent variables had just two indicator or observed variables. This lack of indicator or observed variables may have contributed to the negative error variance some indicators initially demonstrated (Schumacker and Lomax, 2010). This study was also non-experimental, cross-sectional, and no behavioural outcomes were measured (e.g., actual PA or SB). It would be important for researchers to use an experimental, longitudinal design to allow for potential claims of causality over time. Behavioural outcomes are also important to measure because there is an imperfect correlation between physical activity intentions and behaviour (Rhodes and de Bruijn, 2013). A final limitation worth mentioning is that, although this study does provide some preliminary guidance in terms of which brand equity variables an activity-promotion organization might want to target to improve brand strength, it does not provide any guidance in terms of which techniques might be effective for targeting these variables. Unfortunately, there is

not much evidence providing guidance on how to target brand equity pyramid variables. However, a consistent theme in the business literature is that more exposure to a brand through advertising increases brand identity, meaning, responses, and resonance levels (e.g., Asare and Lei, 2017; Šerić *et al.*, 2014). Activity-promotion researchers might therefore examine the dose-response effect of brand advertising, and continue to search for other effective techniques for targeting brand equity pyramid variables.

Despite its limitations, this study offers valuable preliminary evidence supporting the brand equity pyramid in the activity-promotion context. Specifically, the brand equity pyramid developed as posited and the theory predicts important activity-related outcomes such as intentions to be physically active. Researchers can build upon these findings by testing this theory using more rigorous designs and by learning which brand equity variable targeting techniques are effective. It seems promising that this line of work may augment the efficacy of activity-promotion campaigns in the future.

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Table 1
Means, Standard Deviations, and Frequencies

Variable	Mean (standard deviation)	Frequency
Credible ^a	3.144 (.658)	
Trustworthy ^a	3.162 (.639)	
Quality programs ^a	2.935 (.680)	
Passion ^a	3.219 (.678)	
Canadian organization ^a	3.189 (.694)	
Raise awareness ^a	2.895 (.748)	
Up to date ^a	2.846 (.711)	
Likeability ^a	2.912 (.687)	
Inspirational ^a	2.872 (.738)	
Relevant to Canadians ^a	3.042 (.771)	
Leader ^a	2.869 (.735)	
Health and well-being ^b	2.566 (1.295)	
Feelings ^b	3.937 (.856)	
Intentions increase PA ^a	3.273 (.860)	
Intentions less SB ^a	3.014 (.920)	
Sharing messages ^a	2.045 (.878)	
Get word out ^a	2.403 (.868)	
Functional/performance ^b	2.663 (1.282)	
Imagery move more		Selected = 870, Not selected = 321
Imagery sit less		Selected = 493, Not selected = 698
Recall		No = 848, Yes = 343
Recognition ^a	2.983 (.713)	

Note. The superscripts ^a and ^b denote whether an item had a 4 or 5-point scale, respectively.

Table 2
Correlation Matrix

Variable	Recall	Recognition	Imagery move more	Imagery sit less	Passion	Credible	Trustworthy	Relevant to Canadians	Sharing messages	Get word out	Intentions increase PA	Intentions less SB
Recall	1.000											
Recognition	.283*	1.000										
Imagery move more	.156*	.145*	1.000									
Imagery sit less	.079*	.115*	.399*	1.000								
Passion	.185*	.218*	.255*	.191*	1.000							
Credible	.191*	.211*	.242*	.193*	.640*	1.000						
Trustworthy	.202*	.222*	.252*	.195*	.659*	.753*	1.000					
Relevant to Canadians	.201*	.220*	.244*	.180*	.597*	.624*	.619*	1.000				
Sharing messages	.048	.107*	.100*	.124*	.257*	.270*	.302*	.347*	1.000			
Get word out	.040	.168*	.188*	.142*	.376*	.365*	.384*	.410*	.554*	1.000		
Intentions increase PA	.026	.141*	.088*	.107*	.142*	.145*	.162*	.164*	.174*	.185*	1.000	
Intentions less SB	.087*	.123*	.107*	.120*	.177*	.220	.228*	.225*	.174*	.221*	.647*	1.000

Note. Not all items present in Measures section appear here because this table only shows variables included in the final CFA. Pearson correlations were calculated for bivariate correlations between variables in which at least one was parametric. Spearman correlations were calculated for bivariate correlations between two non-parametric variables. $*p < .01$.

Table 3
Covariance Matrix

Variable	Recall	Recognition	Imagery move more	Imagery sit less	Passion	Credible	Trustworthy	Relevant to Canadians	Sharing messages	Get word out	Intentions increase PA	Intentions less SB
Recall	1.000											
Recognition	.317	.572										
Imagery move more	.293	.162	1.000									
Imagery sit less	.131	.123	.689	1.000								
Passion	.432	.320	.547	.414	2.262							
Credible	.397	.275	.468	.375	1.558	1.797						
Trustworthy	.423	.292	.499	.383	1.616	1.576	1.805					
Relevant to Canadians	.422	.293	.477	.357	1.493	1.398	1.406	1.974				
Sharing messages	.074	.101	.153	.174	.501	.471	.532	.623	1.081			
Get word out	.060	.156	.267	.192	.700	.605	.644	.693	.672	1.019		
Intentions increase PA	.043	.195	.172	.228	.391	.348	.381	.383	.316	.326	2.262	
Intentions less SB	.250	.237	.304	.340	.616	.693	.746	.700	.407	.503	2.113	3.608

Note. Not all items present in Measures section appear here because this table only shows variables included in the final CFA.

Table 4

Demographic Information

Variable	Frequency
Age (in years) group	
18-24	59
25-34	212
35-44	159
34-54	281
55-64	242
65 and older	238
Gender	
Female	626
Male	565
Education	
Elementary/grade school	2
Some high school	44
High school graduate	157
Some college/technical school	119
Completed college/technical school	290
Some university	125
University undergraduate degree	266
Some post-graduate school	51
Post-graduate degree	137
Annual income	
Less than \$25,000	102
\$25,000 to less than \$35,000	75
\$35,000 to less than \$50,000	160
\$50,000 to less than \$75,000	216
\$75,000 to less than \$100,000	202
\$100,000 to less than \$125,000	110
\$125,000 or more	143
Did not disclose this information	183
Working status	

Employed (30 or more hours/week)	553
Employed (fewer than 30 hours/week)	114
Full-time student	53
Homemaker	49
Retired	298
Currently looking for work	62
Not working (medical reasons)	51
Other	11

Table 5

Pattern Matrix/factor Loadings for EFA

Variable	Factor				
	Responses	Intentions	Relationship	Meaning	Identity
Credible	.876	.044	.179	.019	.032
Trustworthy	.834	.056	.143	.023	.069
Quality programs	.792	.001	-.105	.006	-.134
Passion	.776	.007	.097	.052	.052
Canadian organization	.771	.022	.139	-.014	.130
Raise awareness	.696	-.060	-.161	.019	.002
Up to date	.693	-.046	-.173	.041	-.109
Likeability	.690	.062	-.154	-.013	-.030
Inspirational	.682	-.031	-.257	-.043	.023
Relevant to Canadians	.678	.043	-.043	.027	.096
Leader	.660	-.035	-.178	.046	.014
Intentions increase PA	.038	.813	.009	.001	-.002
Intentions less SB	-.039	.790	-.040	.004	-.013
Sharing messages	.044	.058	-.690	.024	.057
Get word out	.181	.081	-.545	.066	.066
Imagery move more	.010	-.023	.020	.654	.056
Imagery sit less	-.013	.019	-.016	.614	-.042
Recall	.012	-.038	.016	.015	.519
Recognition	.007	.045	-.080	.009	.501

Note. Not all items present in Measures section appear here because this table only shows variables included in the final EFA. Major loadings for each variable are bolded.

Table 6
Standardized Regression Coefficients (β) for Direct and Indirect Effects

Latent variable	Direct effects			
	Brand meaning	Brand responses	Brand resonance	Intentions
Brand identity	.393***	.387***	-.143**	.108*
Brand meaning		.245***	.097**	.011
Brand responses			.594***	.136**
Brand resonance				.188***
	Indirect effects			
	Brand identity	.155***	.091***	.029***
	Brand meaning		.234***	.074***
	Brand responses			.185***

Note. The latent variables in the far-left column predict the latent variables in the other columns. * $p < .05$.

** $p < .01$. *** $p < .001$.

Figure 1. The hypothesized model.

Figure 2. Standardized factor loadings and error variances for the CFA.

Figure 3. Standardized factor loadings, error variances, and beta coefficients for the SEM testing the first model.