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Social marketing and social movements: creating inclusive social change coalitions

Lauren Gurrieri  
*School of Economics, Finance and Marketing, RMIT University, Melbourne, Australia*

Ross Gordon  
*Department of Marketing and Management, Macquarie University, Sydney, Australia*

Jo Barraket and Andrew Joyce  
*Centre for Social Impact Swinburne, Swinburne University of Technology, Melbourne, Australia, and*

Celia Green  
*Australian National University, Canberra, Australia*

Abstract

**Purpose** – This paper contributes to emerging discourse about social movements in social marketing by examining how tensions, issues and challenges may arise in areas of social change that have attracted social movements and the ways actors can come together to drive inclusive social change agendas.

**Design/methodology/approach** – Through the lens of new social movement theory, a case study of the interactions and dynamics between fat activists and obesity prevention public health actors is examined. This is undertaken through a multi-method qualitative analysis of interview and archival blog data of fat activists located in Australia, which was compared with the campaign materials and formative and evaluative research related to two high profile Australian Government funded anti-obesity campaigns.

**Findings** – The case analysis highlights the disconnect between public health actors and the marginalized voices of those they are meant to be representing. Whilst public health actors characterise obesity as a social issue of individual responsibility, disease and rational-decision making; fat activists frame a competing collective identity of well-being, support and self-acceptance that characterise their social change efforts.

**Research limitations/implications** – This research highlights how complexities arise but can potentially be overcome in creating inclusive social change coalitions that incorporate the voices of citizen groups whom have mobilised into social movements. Specifically, we highlight the importance of generating a common language around obesity, the significance of collaborative and supportive relations and the need to create common unity through emotional investment and returns - a departure from the highly rational approaches taken by most social change programs.

**Practical implications** – Obesity is a complex social issue marked by conflict and contestation between those who are obese and the very actors working to support them. Our research contends that creating an inclusive social change coalition between these stakeholders will require a shift towards language anchored in well-being as opposed to disease, relations defined by support as opposed to an emphasis on individual responsibility and emotional investments that work to bolster self-acceptance in place of rational appeals as to the “correct” behaviours one should chose to engage in. Such steps will ensure social change program design is collaborative and incorporates the lived experiences of the very citizens such initiatives are targeted towards.

**Originality/value** – We contribute to wider discussions in social marketing about the development of holistic and progressive, multi-stakeholder, multi-level programs by advocating that inclusive social change
coalitions united through the collective identity elements of cognitions and language, relational ties and emotional investment offer an important step forward in tackling the wicked problems that social marketers work to address.

Keywords Obesity, Inclusion, Collective identity, New social movements, Fat activism, Social change coalitions

Paper type Research paper

Introduction

Given the complexity of many of the social problems to which social marketing is applied (e.g. obesity, climate change), and the often multi-stakeholder interactions found in the social change arena, there is increasing attention in the extant literature on how effective social change coalitions can be created (Gordon and Gurreri, 2014; Wymer, 2011). One area that has garnered particular consideration is the role that social movements – a type of group actions that carry out, resist or undo social change – could play in social marketing (Hastings and Domegan, 2013). Daellenbach and Parkinson (2017) recently argued that ideas relating to collective action frames from social movement theory can help inform how social marketing problems are framed in a more socially cohesive and powerful way. However, they also point out that despite support for the idea of aligning social movements and social marketing, there is little conceptual or practical discussion on this in the existing social marketing literature.

The social movements literature and theoretical foundations are vast. This means that although Daellenbach and Parkinson (2017) make a welcome contribution by identifying how collective action frames from social movement theory can be integrated into social marketing, there remains a paucity of inquiry on how social movements and social marketing may inform one another and help achieve pro-social change. In particular, there is little consideration in the social marketing literature from a critical perspective on some of the issues, challenges and tensions in mobilising and working with social movements. Given the increasingly collaborative approaches taken to social marketing program design efforts (Gordon et al., 2017), those located in advocacy groups, such as social movements, are an important group of voices to include – especially if they constitute the very group at risk for a given “wicked problem”. Hence, if social marketing is to effectively utilise ideas from social movement theory, then an understanding of such issues will be important. This present study aims to achieve this by critically focusing on tensions, issues and challenges that arise in areas of social change that have attracted social movements.

In doing so, this paper contributes to the conversation about social movements in social marketing by critically examining some of the key issues and challenges identified in the literature on social movement theory, and then illustrates these issues through a case study of interactions between fat activists and obesity prevention public health actors in Australia. We note how complexities arise but can potentially be overcome in creating inclusive social change coalitions that incorporate the voices of citizen groups whom have mobilised into social movements. Specifically, we highlight the importance of generating a common language around obesity, the significance of collaborative and supportive relations and the need to create common unity through emotional investment and returns. The paper helps to identify conceptual understanding about the processes of mobilising and collaborating with social movements, which in turn hold important practical implications for how inclusive strategies for social change can be developed and implemented.

The remainder of this article is organised as followed. The first section provides a definition and explanation of social movements before charting a brief history of the concept
in the social change space. The next section presents a critical discussion on new social movement theory, considering conception of collective identity as a useful mechanism for studying the complexities and dynamics of social movements engaged in social change efforts. The following section presents the research methodology for a case study on the interactions between fat activists and obesity prevention public health actors – illustrating how complexities arise but can potentially be overcome when trying to collaborate towards inclusive social change. The discussion section then considers some key conceptual and practical implications that emerge from the analysis and the article concludes with recommendations for those interested in aligning social marketing and social movements through the creation of inclusive social change coalitions.

**What are social movements?**

Social movements are a form of group action in which collectives seek to carry out, resist, or undo a social change. Social movements involve “organizational structures and strategies that may empower oppressed populations to mount effective challenges and resist the more powerful and advantaged elites” (Glasberg and Shannon, 2010). Therefore, social movements are often engaged in challenging existing power relations and social and political conflict (Touraine, 1981). Social movements can be formed around particular social issues such as anti-slavery, obesity, or climate change, or may relate to broader objectives such as workers’ rights, or anti-capitalism. Social movement theorists have historically distinguished between “old social movements” – such as labour movements - focused on the retention of material privilege for particular social groups, and “new social movements”, such as the environment movement, which emphasise the intrinsic value of democratic consciousness and seek to direct broad processes of social change (Eyerman and Jamison, 1991). Although definitions can differ, Diani (1992) argues that there is some consensus that social movements always feature networks of informal interactions between individuals, groups and/or organisations, engage in political or cultural conflict and share a collective identity. Sociologists have argued that social movements are an important feature of democracy as they permit ordinary people to come together and participate in public politics (Tilly, 2004).

Tilly (2004) identifies that there are three major elements related to the practice of a social movement: campaigns, repertoire and worthiness, unity, numbers and commitment (WUNC) displays. Campaigns involve sustained and organised public efforts to make collective claims towards target authorities and institutions such as the media or government. Repertoire involves the employment of political action including creating associations and coalitions, holding public meetings, vigils, processions, rallies, petitions, pamphleteering and media relations activity. WUNC displays involve members of a social movement consistently and publicly displaying the worthiness, unity, numbers, and commitment of the movement to their cause (Tilly, 2004). In a digital age, writers have observed that forms of collective action that underpin social movements are shifting towards practices of “connective action” (Bennett and Segerberg, 2012), characterised by more fluid and ephemeral interactions of movement actors rather than the prolonged development of solidarity typical of past eras.

The initial history of social movements has been connected to rapid economic, social and political changes including enfranchisement, market capitalisation, urbanisation, and proletarianisation during the industrialisation of the United Kingdom from the early 18th century. One of the first social movements formed around the radical journalist and parliamentarian John Wilkes, who in an article in the North Britain newspaper, criticised the British Government for the terms of the 1763 Treaty of Paris which ended the Seven Years
War (Tilly, 1985). Wilkes was subsequently charged with libel, subject to a general warrant, arrested and stripped of the right to sit in Parliament (Cash, 2008). Wilkes then challenged the ruling in the courts and the Lord Chief Justice eventually ruled in his favour. As a result, Wilkes became the figurehead for a growing social movement for popular sovereignty calling for “Wilkes and Liberty” among the middle classes. The movement involved public meetings, demonstrations, the mass distribution of pamphlets, and a mass petition march (Cash, 2008). The force and influence of the movement was such that the authorities conceded to its demands and Wilkes was returned to parliament, general warrants were declared unconstitutional, and press freedom was extended to the coverage of parliamentary debates.

Other social movements that emerged during the 18th century included the British abolitionist movement to abolish slavery that was led by William Wilberforce. Indeed, identifying synergies with social marketing, Hastings (2017) explains how the anti-slavery movement involved market research on attitudes towards slavery, analysis of competitors, mass media communications, and setting up of community abolition movements taking direct action such as fundraising, lobbying, and boycotts. In the 19th century, the Chartism movement was the world's first mass movement of the working classes – campaigning for political reform, universal suffrage, and introduction of the secret voting ballot from 1838 to 1848. This led to the German sociologist Lorenz von Stein introducing the term “social movements” into academic discussion (von Stein, 1848). Major new social movements during the 20th century included the civil rights movement, second wave feminism and the environmental movement (Eskew, 1997; McCormick, 1995). More recently, there have been a series of social movements with an anti-global capitalism focus, including the 1999 WTO protests and Occupy movement in 2011 (West, 2013).

Social movement practices have gained a lot of attention in the public health and health promotion fields as a mechanism to improve population health outcomes. In public health, social movements have led to improvements in workers’ health and safety, tobacco control efforts, improved clinical interventions and health services design for women, and reduced stigma about mental health drawing on movement tactics such as community mobilisation, advocacy and mass media communications (Freudenberg et al., 2011; Keefe et al., 2006). Although the success of various social movements throughout history has differed, social movements nevertheless have demonstrated the potential to effect transformative social and institutional change (West, 2013). Therefore, social movements are of strong relevance for social marketing scholarship and practice, given the shared focus on social change. Furthermore, social movements have often involved the use of tactics that are also identified with social marketing such as market research, mass media communications, advocacy and lobbying. The following section more closely considers the relationship between social marketing and social movements.

Social marketing and social movements

Social movements have increasingly garnered attention from consumer culture researchers and critical marketers. For example, Varman and Belk (2009) examine how Indian nationalism and the ideology of Swadeshi (essentially a preference for indigenous goods even if more expensive or inferior in quality to imported goods) has influenced an anti-consumption movement opposing Coca-Cola in India. Transformative consumer researchers have discussed how ideas from social movement theory including the framing of ideologies, deploying social capital and shaping the structural environment can have positive impacts on workplace wellness programs (Mirabito and Berry, 2015). Critical marketers have been encouraged to not only engage in critique but influence practice and take emancipatory
social action, for example by considering critical social movements such as the World Social Forum (Tadajewski, 2010; Tadajewski et al., 2014).

Yet, despite this increasing attention within marketing, social movement theory and practice has received little attention in the social marketing literature (Daellenbach and Parkinson, 2017). This is surprising given the aforementioned history of social movements and their use of what may be identified as social marketing tactics (Gordon, 2018; Hastings, 2017). Rather, social movements have often been discussed as an alternative approach to social change and involving differentiated perspectives on framing social problems, social research and intervention tactics (Douglas, 2008), rather than something that may align or complement social marketing efforts (Brennan and Binney, 2008; Douglas, 2008). This is perhaps reflective of the arguments made by traditionalist social marketers (see Gordon and Gurrieri, 2014) who define social marketing through a narrow focus on individual voluntary behaviour change through marketing persuasion (e.g. Lee and Kotler, 2011). Indeed, some have argued that activities such as education, advocacy, activism, policy change, regulations and laws are not the purview of social marketing (Rothschild, 1999).

However, social marketing scholars interested in multi-level systems approaches to social change have argued that there is often a common focus on social problems such as climate change, public health and civil rights between social marketers and those involved in social movements, and therefore an integration of ideas and action may be possible (Wymer, 2011). Mirabito and Berry (2015) point out that social movement theory emphasises cultural and political transformation, and that this may provide a route through which the increasingly broader focus of social marketing beyond individual change to change of norms, cultural symbols and structural forces can be strengthened.

Indeed, researchers have identified how social marketing could help study, frame, and influence the practice of social movements such as environmental conservation (Fox and Kotler, 1980; Wong-Parodi et al., 2011) and the affordable drugs movement in the USA (Holdford, 2005). This has led to calls for assimilation of ideas and a joining of forces between social marketing and social movements (Daellenbach and Parkinson, 2017; Wymer, 2011). Researchers working in public health have identified how the use of social marketing tactics such as advertising and media advocacy can be used to raise awareness about health inequalities as a precursor to developing social movements to improve child health in the USA (see Rienks and Oliva, 2013). They note that awareness raising is an important step in building social movements (Tajfel and Turner, 1986). This further identifies the potential for integration of social marketing and social movements.

Drawing on ideas from social movement theory could involve building and deploying social capital, provision or changes to infrastructure and the environment in which people live and work or framing ideologies and messaging around particular social issues to encourage social cohesion and collective action towards pro-social change (Mirabito and Berry, 2015). Daellenbach and Parkinson (2017) advance understanding by examining how the concept of collective action frames from the social movement literature could be used in social marketing to motivate groups to act towards pro-social outcomes. They explain that collective action frames are schemas that guide and structure our use of language, transmit rhetoric, and shape the ideologies and action that language evokes. By examining examples of collective action frames for disaster preparation and obesity, Daellenbach and Parkinson (2017) provide some key questions and recommendations for social marketers to consider when framing social problems and attempting to mobilise group action.

Admittedly, some of these ideas have already been discussed in the social marketing literature outside the frame of social movement theory, for example: social capital (see Glenane-Antoniadis et al., 2003; Kamin and Anker, 2014) the framing of social problems
(see Gordon and Gurrieri, 2014), and structural change (Goldberg, 1995; Hoek and Jones, 2011). Yet, understanding how social movement tactics can be adopted could help develop another powerful tool in the social marketing intervention toolkit. However, a major gap in knowledge about how social marketing may draw upon social movement theory relates to understanding the tensions, issues and challenges inherent in mobilising social movements that lead to pro-social change. In the following section, we critically review ideas from social movement theory and discuss how an understanding of the complexities and dynamics of social movements engaged in social change efforts can help inform social marketing theory and practice.

**New social movement theory**

As identified by Varman and Belk (2009), social movement theory has a long and rich history. Early understandings of social movements proposed by collective behavioural theorists saw social movements as irrational and potentially threatening to the existing social order, assuming that they occurred within a relatively stable frame or structure, with both the problem and the movement response being distinct, coherent and fixed (Magnusson, 1996). The emergence of student movements in North America and Europe in the 1960s challenged collective behaviouralism’s assumptions that movement actors were disenfranchised and pathological, and that social movements were principally concerned with the material needs of single social groups. These empirical changes and the inadequate power of collective behaviouralism to explain them gave rise to resource mobilisation (RM) theory in North America and new social movement (NSM) theory in Europe. RM theory is principally concerned with strategies by which social movement actors—typically operationalised as leaders of movements and movement organisations—access resources to achieve movement ends (Buechler, 1993). This school of thought challenges the assumed irrationality of movements posed by collective behaviouralists, positing movements as rational challenges for resource distribution that are typical of economic and social life.

While RM theory successfully challenged some of the inadequacies of collective behaviouralism, it has been critiqued for its strong focus on actor rationality, its analysis of only the “visible” parts of movements embodied in leading movement organisations, and its focus on movement tactics to the exclusion of the underlying meanings and social contexts in which movement action occurs (Melucci, 1985; Touraine, 1985). NSM theory (cf Eyerman and Jamison, 1991; Melucci, 1996, 1985, 1989; Touraine, 1985) sought to find new ways of speaking about social movements by focusing on the relationship between movement characteristics and post-industrial capitalism and thus emphasising the cultural formation of social movements and movement actors. In short, NSM theories focus on “why” social movements come to be— and the complex networked nature of their formation— whereas RM theory concentrates on “how” they are enacted, with a focus on the formalised aspects of movements.

While NSM theory has its own variations, we focus here on Melucci’s (1996) conception of collective identity as a useful mechanism for studying the complexities and dynamics of social movements. Feeling that “social movement” was an increasingly inadequate and reductive term that inaccurately conveyed ideas of monolithic and unidirectional social change efforts, Melucci (1996) introduced the idea of collective identity as a dynamic process or system of relations and representations within a field of action. Melucci’s conception of collective identity emphasises the relational and intersubjective nature of identity formation, as a vehicle for symbolic (as distinct from material) co-production (Milan, 2015). Melucci identified that collective identity operates along three axes. The first of these is cognition, or common language about the movement’s means, ends and fields of action. This can
manifest in movement songs or slogans – such as the environment movement’s “think global act local” catch cry of the 1980s and 1990s – as well as the ways in which movement actors and their opponents talk about their movement’s characteristics and purposes. The second axis is relational ties. This is central to Melucci’s conception of collective identity and refers to the meaning of social movements co-produced through relationships between actors, who are constantly negotiating, interacting and influencing each other. This may manifest in public debates that shift movement aims and actions, but also refers to the day-to-day negotiations – in meetings, campaign actions and online discussions – of establishing and enacting a sense of common purpose. Milan (2015) has observed that contemporary social media platforms expand cycles of exchange and negotiation, by enabling movement actors to tag, cite and mention others, thus extending relational negotiations of collective identity to bystanders. The third axis is emotional investment, which allows individuals to feel part of a common unity. Sense of belonging is a particularly important aspect of movement action, which is underpinned by emotional investment and emotional returns. Emotional investment also mediates the individual’s self-categorization as part of a collective, fostering their sense of shared status and purpose (Futch, 2016). For marginalised or disadvantaged groups, this shared identity may also support emotional resilience, providing a buffer against the negative consequences of their circumstances (Haslam et al., 2009).

By conceptualising collective identity as a social process operating along a plurality of axes, Melucci suggests that social movement action is not simply a reaction to social and environmental conditions, but a purposeful and sustained production of symbolic orientations and meanings that actors are able to recognise as historically significant. He is also arguing for a conception of movement action that is not linear, but dynamic, multi-layered and complex. For the purposes of this paper, we draw on Melucci’s dimensions of collective identity formation in our analysis, as this is a useful construct for considering the complexity of movement action, the symbolic nature of some movement tactics and the interplay between rational and emotional impulses that guide collective action for social change.

**Methodology**

To understand the dynamics and complexities that arise between actors for complex social change issues in which social movements come to play an important role, this paper investigates the interactions between public health actors in obesity prevention and the fat activism social movement. In many western nations and more recently developing countries, obesity is considered a significant public health problem both in regards to prevalence and impact. Historically, the main approach to addressing obesity-related concerns has been to employ downstream social marketing approaches that focus on medical intervention and individual behavior change (Baum, 2008). However in the last few decades, the limitations of such approaches have been recognized and greater consideration has been given to employ downstream social marketing approaches that focus on medical intervention and individual behavior change (Baum, 2008). However in the last few decades, the limitations of such approaches have been recognized and greater consideration has been given to the complex and dynamic systems in which broad networks of actors, including social marketers, must collaborate and interact to foster meaningful solutions to such “wicked problems” (Brennan et al., 2016). One corollary of this has been problematising the concept of individual responsibility (Hoek and Jones, 2011) and placing greater importance on more holistic understandings of consumer relationships with food at both individual and societal levels that consider the intersections of consumer well-being (Block et al., 2011) and mindfulness (Bahl et al., 2013). Likewise, there has been greater consideration of the role that other actors in the wider societal environment play, such as food marketers (Goldberg and Gunasti, 2007). More recently, there have been recommendations that policy
reform for obesity prevention requires a social movement approach (Institute of Medicine, 2014).

The social movement of fat activism aims to challenge commonly-held assumptions about fat bodies, critique the scientific rigor and moral crusading of the obesity discourse and offer counter-narratives that re-identify the fat body in positive and more empowering terms (Meleo-Erwin, 2012). Fat activists seek to reclaim fat from the deviant margins to be used as a neutral or even positive body descriptor as opposed to a site of judgment (Saguy and Ward, 2011). By shifting discussions from a moral panic about obesity to an engagement with fat embodiment and its lived experience, fat activists aim to expose how prejudice and discrimination against fat bodies has been legitimized and sanctioned through a rhetoric of “health” (Campos, 2004; Gard et al., 2005; Wann, 1998). By contesting fat’s construction as an unsuccessful body project that should be repaired and restored to normality (Murray, 2005), fat activists engage in a process of “coming out” and challenge the veneration of the slim body as beautiful, healthy, graceful, disciplined and good (Gurrieri and Cherrier, 2013). Through mobilizing as a collective, fat activists have sought inclusion and greater choice in markets (Scaraboto and Fischer, 2013) and to establish alternative models of health for people under the banner “Health at Every Size” (Burgard, 2009). However, these efforts have little recognition within public health circles, particularly in how the complexities of the lived experience of obesity are recognised and possibly challenged. Hence, what differentiates the fat activist movement from other social movements in public health is the disconnect in goals between this community led movement and many public health professionals and agencies.

For the case study, via a key informant, a snowball strategy resulted in a total sample of six fat activists. Each of the activists play a prominent role in the Australian fat activism community - predominantly through their blogs, twitter accounts, and interactions with the media - with three also having strong ties to global fat activism networks. The activists were studied through a multi-method approach that incorporated interviews and archival data from blogs written by the activists across a period of 24 months. The corpus of data comprised 1387 blog posts and 20 hours of interviews, which combined offered rich insights into the activists’ lived experiences in relation to discourses of obesity, health and intervention. This data was compared with the materials related to two national anti-obesity campaigns, selected for their high profile nature and reach, co-ordinated and funded by the Australian Department of Health and Ageing. The “Measure Up” mass media campaign aimed to reduce lifestyle-related risks by associating waist circumference and chronic disease with obesity and was disseminated through a combination of television, press, radio and outdoor advertising, local community activities and a dedicated website. Building on this awareness, the “Swap It Don’t Stop It” mass media campaign aimed to illustrate how people can make small lifestyle changes to improve their health communicated via the same outlets as above with the addition of digital media. The materials included the campaigns themselves in addition to formative and evaluative research relevant to the campaigns (Australian National Audit Office, 2012; GFK Blue Moon, 2007, 2009; The Social Research Centre, 2010). The complete data set was coded using a procedure of open, axial and selective coding (Corbin and Strauss, 1990) in accordance with a hermeneutic “part to whole” approach (Thompson, 1997), where data were considered first individually, then comparatively to identify patterns with a final stage of themes being connected to key concepts in new social movement theory. Guided by the question of what relations and complexities arise between public health and fat activism actors in the obesity field of action, we sought to understand how obesity prevention is represented in initiatives driven by public health social change actors, how the collective identity of fat activism negotiates
this and the opportunities and challenges that arise between actors as a consequence of these efforts. This resulted in the findings elaborated in the following section.

**Research findings**

In regards to the “wicked problem” of obesity, our analysis highlights how an impasse has arisen between obesity prevention public health actors and fat activists. First, we describe three themes that characterise the social change approach by public health obesity prevention actors. Second, we outline how the collective identity of the fat activism movement is framed in relation to this. Combined, a combative relationship marked by tensions is highlighted and we propose ways to move productively beyond this towards collaborative and cohesive action guided towards pro-social change in our discussion section. These results are collectively represented in Appendix (Table AI).

**Public health and australian anti-obesity campaigns**

Through the prism of the two mass media campaigns “Measure Up” (MU) and “Swap It Don’t Stop It’ (SIDSI) and relevant formative and evaluation data (Australian National Audit Office, 2012; GFK Blue Moon, 2007, 2009; The Social Research Centre, 2010), three key themes characterise the social change approach by public health obesity prevention actors: individual responsibility, disease and rational decision making. Each of these themes are elaborated and explored in relation to Melucci’s (1996) axes of collective identity (cognition, relational ties and emotional investment) to consider where fissures may occur.

First, the theme of disease features heavily in both campaigns, with fear of chronic disease leveraged as the key motivation to inspire lifestyle changes in the audiences. This was clear from the objectives outlined for both MU and SIDSI:

> […] increase the likelihood that adults will reduce their risk of chronic disease by making positive changes to their levels of physical activity and healthy eating in line with national, evidence-based guidelines.

To achieve this, the formative research states that the “threat of chronic disease could be leveraged by enhancing people’s appreciation of the severity of chronic diseases and their personal susceptibility to them”. In the MU campaign, this was communicated through messaging that noted, “for most people, waistlines of over 94cm for men and 80cm for women increase the risks of some cancers, heart disease and type 2 diabetes”. Similarly, in SIDSI “Eric” notes, “the last thing I want is to end up with diabetes, cancer or heart disease”.

To reinforce this messaging, the formative research highlighted the potential to “explore the opportunity to use graphic, unpleasant imagery that people find difficult to avoid”. Such imagery was present in the MU campaign, where a man is depicted at the start of the television advertisement as young and slim, but as he begins to “let yourself go a bit” ends up aged, overweight and unable to playfully chase his young daughter. When he learns his growing waist circumference is associated with increased chronic disease risks he fearfully observes “I got worried”. This is reinforced through the colour of the measuring tape that he walks along, which changes from yellow to an alarming red. Similarly, the visual metaphor of a balloon to represent “Eric” is an alarmist reference to “ballooning weight” and the disease related panic this ensues. However, messages that signal feelings of fear and shame house the potential to make people feel worse about their bodies and themselves, generating lower self-esteem, increased depression and increased body dissatisfaction (Friedman et al., 2005; Vartanian and Novak, 2011).

In the formative research this was clearly highlighted, with participants voicing concerns that “people will think their condition is their fault. For them, there was a real potential of
feeling shame and embarrassment”. Weight stigma is demotivating, reduces the likelihood that individuals will engage in healthy weight-management behaviours, negatively impacts weight loss outcomes and fosters feelings of shame and guilt (Carels et al., 2010; Lin and McFerran, 2015; Pearl et al., 2014; Puhl et al., 2013; Sutin and Terracciano, 2013; Vartanian et al., 2014). However, research for the campaigns maintained “conveying the impact of lifestyle related diseases on quality of life seemed to be a rich territory for communications” despite the fact evaluative research demonstrated the adopted approach “demonstrated limited effect in terms of nudging behaviours”. The emphasis on nudge theory highlights the ideological underpinnings behind the MU and SIDSI campaigns, whereby the onus of individual responsibility is reinforced through the behavioural economics approach embraced. In considering Melucci’s concept of collective identity, specifically the notion of cognition, it can be seen that obesity prevention public health actors work to map out a common language about the field of obesity that is grounded in meanings of medicalization and disease, in turn heightening the possibilities for stigma and shame.

Second, the theme of individual responsibility for obesity is strongly resonant through both campaigns. In MU, the campaign depicted individuals measuring their waist circumference whilst standing on a giant tape measure. The onus here is on the individual to take responsibility for their bodies and the weight they have gained. In the television commercial, this individual call to action is communicated through the final words: “the more you gain, the more you have to lose”. Similarly, the balloon character “Eric” that featured in the SIDSI campaign tells the audience, “over the years my belly has ballooned and ballooned. It’s come time to do something about it”. This emphasis on individual accountability is unsurprising given the formative research for the campaigns was designed around the notion that people were unlikely to modify their lifestyle unless they have an appreciation of the “what”, “why” and “how” for changing behaviour.

Yet, underlying this position of individual responsibility is the belief that one is blameworthy if they become sick for failing to meet the responsibility for their health (Gurrieri et al., 2014). However, messages about obesity that are perceived to blaming lead overweight and obese people to criticize, refuse to comply, and outright reject such messages (Lewis et al., 2011; Puhl et al., 2013; Thomas et al., 2010). Hence, it is unsurprising that such an approach produced an ineffective outcome in the evaluation data, whereby “just over half the primary audience does not appear to have much confidence in the sustainability of the lifestyle changes which they make”. Although, the formative research did highlight that there was a need to avoid “victim blaming”, this nevertheless was portrayed in the MU campaigns. In the print advertisements, a man and woman are positioned hanging their heads in shame as they gaze downwards at the tape measurement of their waists whilst clothed only in underwear that both reveals their bodies and publicly shames them. In considering Melucci’s concept of collective identity, relational understandings are critical in elaborating how interactions between actors in a field of action help to establish a sense of common purpose for a social movement. The research findings here highlight how a focus on individual responsibility asserts a focus on the obese individual and ignores relationality with other societal actors, such as the food industry, in social change efforts conducted by public health actors in obesity.

Third, the theme of rational decision-making is readily apparent throughout both campaigns. This was most clearly represented in MU through the opportunity costs that are presented for the man in the television advertisement as his weight increases: poorer health, less attractive appearance, decreased fitness and a detrimental impact on his relationships. The emphasis on logic and rationality is also conveyed through the emphasis on measurement (e.g. waist circumference), identification of “risk factors” and the call to action
for the audience “to find out how you measure up”. This was reinforced by formative research that recommended the campaigns “use a direct, factual tone when expressing messages about the link between lifestyle and chronic disease, for maximum credibility”. In SIDSI, rational decision-making was reinforced through the “simple, easy and doable” behaviour change of making small nutrition and physical activity swaps in people’s daily lives that will benefit their health and wellbeing. The emphasis here is on using reason and evidence to make informed choices, such as swapping fried for fresh or sitting for moving. As the character “Eric” notes:

[…] it just means swapping some of the things I’m doing now for healthier choices. That way I can lose my belly, without losing all the things I love. It’s easy!

This was reinforced through the availability of a digital app that both educated and reminded people about the ways that they could engage in swapping. The emphasis on measurement still prevailed, with the app also allowing people to measure their BMI or the calories associated with certain foods. However, audiences may consider such information as moralising and belittling, consequently turning to alternative sources for information and support about their health and well-being, such as online community groups or commercial weight loss companies (Lewis et al., 2011). Moreover, evaluation documentation pointed to a range of barriers that worked against people engaging in the desired behavioural changes, such as time or money. This signals how the campaigns completely ignored a range of environmental conditions or personal vulnerabilities that may inhibit people from making the “correct” choices. Indeed, the risk in reducing health decisions to rational choices is that by not complying with the acceptable choice, negative public attitudes such as stereotyping are justified (Brochu et al., 2014). In iterating back to Melucci’s concept of collective identity, these findings illustrate how such an emphasis is problematic when considering the role of emotional investment – building a sense of belonging to harness emotional resilience for those involved in a given social movement. Emphasising the rational decision-making required to “solve” obesity inevitably sets up an opposition between “experts” discussing citizens’ bodies/health and the very people to whom such efforts are being directed. The lived experience of obesity is highly complex whilst such an approach is inherently reductive and simplistic.

The social movement of fat activism in Australia
The interview and blog data was analysed thematically and in iteration with Melucci’s (1996) conception of collective identity (namely, axes of cognition, relational ties and emotional investment). Through this, the fat activist collective identity is understood as comprising well-being, support and self-acceptance. This collective identity in its social change efforts negotiates and challenges the representations of obesity encapsulated in public health initiatives, such as the anti-obesity campaigns considered above.

First, in relation to cognition, fat activists constructed a common language about the movement’s means, ends and fields of action that was grounded in understandings of well-being. For fat activists, this was instrumental in the movement working to reframe discussions of obesity away from medicalised language that pathologises the variation of certain bodies as aberrant. As Nadia states:

[…] fat acceptance is not about encouraging everyone to be fat. Fat acceptance recognises that people have different body shapes and fat people are vastly underprivileged and grossly pathologised when it comes to [their] health (including mental health) (blog post, 21st June).
This is a clear stand against the theme of disease that is applied via the public health perspective as a means of motivating behavioural change. Indeed, fat activists work to reclaim the word fat and disentangle it from the negative cultural associations it has accrued over time.

As Zara notes:

I internalised the message that being fat was bad [...] calling someone fat was the harshest thing you could say to someone - especially a girl. It just gets imbued with all these negative meanings. If you’re calling someone fat it’s code for lazy or smelly or slothy, all these words - that above average amount of adipose tissue is technically what it means (interview).

By simply using fat as a factually descriptive term, fat activists argue it is decoupled from the moral health-related panic that is linked to “obese” bodies. Moreover, fat activists highlight how public discussions about health often manifest in stigma directed towards fat people due to the scrutiny placed on their bodies. As Karen contends:

When you refer to them, no us, as ‘the obese’, you dehumanise us. You reduce us to some kind of ‘other’ that isn’t of equal value to the rest of humanity [...] We are human beings with lives, loves, emotions, needs, aspirations and value in society like any other human being. We deserve to be treated as such and allowed to advocate for ourselves (blog post, 16th July).

To counter this, fat activists argue that health related discourse should be anchored in notions of well-being, as opposed to correlations to disease. As Karen questions

Do they care about your emotional health? Are they concerned that by making you feel ashamed about your body, they’re harming your self esteem and confidence? Do they care about the damage that the yo-yo dieting and exercise bingeing that many of us punish ourselves with to try to ‘not be fat’ does to us in the long run? (blog post, 28th April).

In doing so, an alternative perspective on bodies and health is called for that addresses the potential harms that arise from a medicalised and disease focused position. This reflects the viewpoint of fat activism that there is a moral component to obesity prevention efforts and that government and health agencies take a very narrow perspective (Cooper, 2010). Hence, a clear tension is identified between campaigns that call for people to “take action” to lose weight and reduce the risk of disease and fat activists who advocate against such an approach.

Second, relational ties refer to the connections between people and between organisations through which movement action is organised and what this stimulates by way of a sense of a “common we”. The research findings highlight the critical role of supportive relational ties for fat activists. Fat activism is predominantly organised through online spaces, such as Facebook groups, Tumblr accounts, blogs, Livejournal accounts and Twitter interactions. Through these, fat activists share a variety of everyday tactics of resistance through which they challenge negative cultural assumptions about fat bodies and the ways in which they are marginalized. For example, the activists share lists and recommendations about health professionals that adopt a “health at every size” (HAES) philosophy as a means of both disengaging from the commercial weight loss company treadmill and learning mindful strategies for eating and nutrition. For Karen, adopting the HAES lifestyle that she learned about through fat activism has had a marked impact on her quality of life:

I was far more a drain on society when I was trying to get thin than I am now that I live a HAES lifestyle. I’ve gone from suicidal, frequently unemployed due to depression and the damage I did with my eating disorder and constantly needing medical care. Now I have a successful career in a field that I am passionate about and contribute to society (blog post, 9th November).
Similarly, for Sarah HAES enabled her to redefine her relationship with food:

I guess it’s sort of made a more positive connection with food. And seeing it as fuel rather than I guess an enemy, having good and bad attached to it (interview).

Challenging the notion of one’s weight and health as an individual responsibility is fundamental to the shared ethos that underpins the fat activist social movement. Instead, health is recognized as a unique lived experience with an emphasis on encouraging self-confidence with one’s body and a culture of bodily acceptance. For fat activists, this often comes as a revelation after years of unsuccessful cycles of dieting through which they have come to view their bodies as failures. For example, Zara notes:

All these people I could see on the internet being really happy and not constantly thinking about food, which combined with exercise and the food seem to be just constantly on my mind, I couldn’t stop thinking about it and it’s been such a mental freeing sort of thing as well. You don’t realise until you stop how much it totally clouds everything you do, everything you put in your mouth and you’re constantly thinking about it and it takes all your mental energy to focus on that (interview).

As well as offering a space for ongoing support, the fat activism movement is structured by a series of rules that reinforce these values. For example, “diet talk” is strongly discouraged. As Nadia notes:

[…] one of the main tenets within the movement is that dieting and the culture of encouraging disordered eating is harmful […] talk about diets and weight loss, [is] really triggering because so many fat people have this history of dieting over and over, and lots of failed attempts (interview).

Similarly, activists share strategies about combatting “fat talk”, that is the ways in which fat bodies are shamed in everyday discussions between family members and friends. Combined, these values, rules and strategies work to establish a common sense of “we” amongst fat activists that works against the guiding rationale of individual responsibility that underpins the obesity prevention perspective. Such a tension is reflected in ongoing academic discussions about the neoliberalist dimension of behavioural change programs that reinforce the moral imperative for individuals to be responsible for their own health, neglecting the inequalities often faced by more vulnerable groups (Gurrieri et al., 2014). Instead, for fat activists, the emphasis is placed on being part of a community defined by a shared ethos and structured by supportive networks.

Third, emotional investment relates to how individuals feel within movement action and allows members to feel part of a common unity with a sense of belonging. In the social movement of fat activism, the emphasis on both well-being and support discussed above work as strategies to foster a community of allies defined by self-acceptance. In turn, this works to bolster the sense of worth felt by members of the movement through raising and addressing the range of vulnerabilities they experience. In turn, this contests the emphasis on “simple, easy, doable” rational decision-making that defines the campaigns addressing obesity-related concerns previously considered. As Nadia notes:

[…] the internet has been powerful for my self acceptance and self awareness, and has inspired me in my activism for size positivity and diversity. It’s easy for people to come together online and discuss common interests [and] guide our education through discussion and even arguments! It’s a place where people who’ve never heard of fat acceptance and activism to learn how to question dominant cultural messages […] having experienced the transformative nature of blogging and community myself I can attest to the power of discussion and support – and the benefits of being more visible as a fat person online (blog post 13th September).
Nadia articulates the importance of fat activism in making fat bodies and people visible.

Being fat is paradoxically experienced as an invisible identity – precisely because of its very visibility. As Sarah observes:

I think a lot of times fat bodies are ignored, they’re desexualised, they’re not seen as important or anything. Or, on the other spectrum they’re ridiculed, but still ignored; they’re talked about, rather than to (interview).

Hence, working together towards gaining greater visibility is an important means of engendering both belonging and acceptance. As Karen states

It’s so hard for society at large to believe that fat people have lives, loves, careers, hobbies, passions, style, intelligence, humour and value that I’m going to live my whole life doing all those things, having all those things, while being fat [...] To be a visible fat person breaking the mold (interview).

To create this unified sense of visibility, fat activists collaborate in ways that produce a counter narrative of fatness that challenges the “correct” choices dictated by others. For example, activists meet together at public pools proudly wearing swimsuits in reaction to societal dictations that they should cover their body in shame. Such action refutes the imperative for fat people to restore their bodies to “normality” by making correct and rational choices prescribed by others, instead promoting notions of acceptance and self-love through the solidarity of the movement. Fat activism borrows from a variety of established social movements, such as feminism and LGBTIQ, to advance bodily diversity and positivity as a social justice issue (Johnston and Taylor, 2008). In doing so, new ways of understanding fat embodiment are articulated that challenge stereotypes and stigma surrounding the lived experience of being fat and promote an inclusive movement environment.

What can social marketers learn from new social movements?

Our analysis of recent anti-obesity campaigns and of the social movement of fat activism through the lens of NSM theory helps us identify some important conceptual and practical implications for social marketing. These insights can be informative for social marketing to play a role in helping to tackle issues surrounding obesity – particularly issues related to wellbeing, alternative approaches such as HAES and reducing the stigma and exclusion of people who identify as fat or are considered obese.

Our analysis identifies that cognition and common language around obesity differs vastly between current mass media anti-obesity campaigns in Australia and fat activists. If effective change coalitions are to be formed to tackle obesity in Australia, cognition and common language around the issues must be considered. Fat activists identify the damaging impact that negative, victim blaming language that promulgates the coupling of obesity and medicalisation/disease can have. Such language shapes social norms relating to obesity that are not inclusive or representative of a broad range of stakeholders, such as fat activists. They contrast this with the emphasis on well-being that the fat activist movement offers. This identifies that cognition and common language about a social movement’s means, ends and field of action are essential concepts for social marketers to grapple with to better understand the citizens whose lives they are working to ameliorate. These concepts must be understood in the social marketing realm in relation to social issues where there is a nexus with social movements on that topic.

Practically, this means that social marketers need to review, understand and possibly help transform the cognition and language regarding a social movement and associated
activities, especially where there are oppositional forces such as between public health campaigns like MU and SIDSI and fat activists in Australia. In the case of social marketing approaches to tackling obesity, an emphasis on well-being and non-stigmatic language, and moving away from a neo-liberal framing of obesity through a medicalised and disease framed lens offer such pathways. This may involve fostering processes of critical reflexivity and altering the problematisation of social problems in which there are divergent cognitions and language used (Gordon and Gurrieri, 2014). These ideas align with the more focused ethical, critical, socio-cultural, and multi-systems perspectives on social marketing that have emerged in recent years (Brace-Govan, 2015; Domegan et al., 2016; iSMA, ESMA and AASM, 2013; Spotswood and Tapp, 2013).

Turning to relational thinking that can help create a sense of collective identity (Melucci, 1996), we can see that in our case study there is a failure to achieve this. Australian mass media obesity campaigns and the stakeholders creating these – namely government departments and public health experts – have failed to engage fat activists in relationship building, or relational dialogue and negotiation around the key issues of obesity. This contrasts with the focus on relational thinking found in the social marketing literature (Gordon, 2012; Hastings and Saren, 2003). Conceptually, although NSM does not seem to offer something new to social marketing theory here, it reminds us that social marketing can bring an acknowledgement of the importance of relationality into the obesity domain. As Marques (2011) identifies, this requires reflexivity, self-criticism and a strong commitment to relationship building in social marketing. Possible social marketing issues, including obesity, therefore become a realm for messy, critical and reflexive dialogue and interaction between actors in which subjectivities and negotiated understandings are addressed (Gordon and Gurrieri, 2014). This form of critically reflexive relational thinking is a common feature in social marketing discourse (Fry et al., 2017; Gordon, 2012; Hastings and Saren, 2003).

The challenge for social marketers in the obesity space in Australia is to apply such relational thinking into practice. Practical suggestions for this include initiating engagement between fat activists, public health “experts” and government departments to start dialogue and negotiation around key issues such as shared responsibilities that enable the foundation of supportive networks and relations, such as the environment of acceptance offered by HAES. Opening up relations that are inclusive, rather than simply echo chambers of experts who have decided and all agree on the answers to the obesity conundrum, will be important. Such conversations could take place in town halls and community centres around Australia as well as in online forums. And, as Milan (2015) identifies, social media platforms can be used to expand the reach of exchange and negotiation around obesity – helping to give voice to important stakeholders and build towards a more broadly collective identity as opposed to focusing on individual level responsibilities.

Another key concept that new social movement theory brings to the social marketing lexicon, and which is demonstrated in the case study in this paper, is emotional investment. Much of the existing social marketing literature is rational and instrumental – emotion receives less attention (Lefebvre, 2012). New social movement theory tells us that a sense of belonging, in which emotional investment is made and emotional returns are transmitted, are critical components of an effective social movement. Therefore, the concept of emotional investment deserves much more attention in social marketing literature to consider challenges to, practices of, and effects from, the creation of common unity through emotional investment and emotional returns in social change movements. The examples of recent anti-obesity campaigns in Australia show social marketers how this should not be done – by stimulating negative emotional responses among fat activists.
In contrast, the fat activist movement creates an inclusive community of allies that promote self-acceptance through acts of visibility and body positivity, such as wearing swimsuits together, to empower people, counter stereotypes and foster positive emotional investment and returns. Therefore, social marketers should pay attention to how positive emotional investment and emotional returns that create a sense of common unity can be achieved in social change spaces. Ideas here include collective activities such as community or social events that cut across different sections of society in terms of age, gender, ethnicity, health and weight. Or the creation of discussion, knowledge and support forums such as online communities in which different perspectives and emotional care are offered. For marginalised groups such as fat activists, such efforts should aim to foster emotional resilience and provide a buffer against the often negative lived experiences endured as a result of societal stigmas and the perceived “correct” choices that one should be making (Haslam et al., 2009). Hence, there is an opportunity for social marketers to move away from rational-decision making framings focused on the individual and move instead towards creating inclusive spaces and programs that speak to lived experiences, counter stigmas and stereotypes and offer emotional support.

Examining the fat activist social movement in Australia, and contrasting this with recent mass media obesity campaigns in this context, we find tensions and misalignment in relation to the three axes of NSM: cognitions and language, relational ties and emotional investment (Melucci, 1996). Obesity campaigns like Measure Up and Swap It Don’t Stop It are cognitively framed through medicalised language that can be exclusionary and stigmatic for the very citizens they target (Thomas et al., 2014) – including fat activists. Collective identity in any imagined obesity coalition in Australia is absent. Obesity campaigns, and the stakeholders driving them (governments and public health professionals) do not appear to have formed relational ties and co-produced relationships with fat activists, that through a process of negotiating, interacting and influencing each other could help form a more representative and inclusive collective identity around obesity. The ideological framing of individual responsibility in a political context in which nudge theory and behavioural economics dominate the current social change landscape should be revisited to enable more supportive networks and relations to form between actors. The rational decision-making model and negative emotional language used by Measure Up and Swap It Don’t Stop It have unsurprisingly failed to engage emotional investment with fat activists in a collective obesity coalition in Australia. These campaigns do not provide emotional support nor generate emotional investment from fat activists – rather fat activists must look elsewhere for self-acceptance and visibility strategies to reduce stereotyping and stigma.

Using the lens of NSM, we can see that these recent obesity campaigns are doing the opposite of what is recommended to engage a movement around obesity in Australia. Furthermore, they failed to generate any behaviour change (O’Hara et al., 2016). Examining the background of Measure Up and Swap It Don’t Stop It, these failures are perhaps expected. Both campaigns do not take an inclusive, reflexive, program approach to tackling obesity. They are high visibility mass media campaigns, run by Government public health and communications Departments with input from public health “experts”, but seemingly little input from social marketers. Very few of the principles and practices of contemporary social marketing are incorporated into both campaigns. In Australia, there is a need to move away from such instrumental, narrow mass media campaigns that are framed through neoliberal individual responsibility ideology. As Marques (2011) states: “A sense of the whole is fundamental and it is not enough to be an expert in a specific area of implementation”. This is an important challenge for social marketers in Australia who are
working in, or are interested in obesity. The imperative is to develop holistic and progressive, multi-stakeholder, multi-level programs that engage with reflexive dialogue to frame the issues, draw upon appropriate language that can help shift the dominant social norms associated with obesity, generate emotional investment and returns and facilitate relationship building to form likeminded coalitions.

Creating inclusive social change coalitions: the next step for social marketers

The creation of inclusive social change coalitions situated across consumer groups, health professionals, public health organisations and social marketers is likely to be critical in supporting future policy agendas of health and wellbeing. Creating a social change agenda that both public health and fat activists desire requires that these disparate groups find common ground and develop clear and consistent language to act as united social change agents. To date, prominent obesity coalitions in Australia have been public health and industry coalitions with a much smaller role played by advocacy groups (Patchett et al., 2016; Payán et al., 2017). The primary focus of government and industry communications has been individual responsibility around lifestyle choices and physical activity. In contrast, health advocacy associations attend to structural, environmental, obesogenic and industry causes of obesity such as food marketing and urban development (Patchett et al., 2016). Thus, in Australia there is a divide between government run and funded public health organisations and public health advocacy groups around the attribution of causality for obesity. Nevertheless, what remains absent in such coalition groups is the voice of obese people themselves.

Currently in Australia, prominent public health obesity prevention media campaigns are run by government and government funded organisations and focus on individualised responsibility for obesity which has the potential to stigmatise the very people they are targeting to help. Although there are a number of public health advocacy organisations that promote a focus on structural environment factors, their message may reach a smaller audience than the mass media campaigns run by government organisations. While the Ottawa Charter for health promotion emphasises the need to “accept the community as the essential voice in matters of its health, living conditions and well-being” (WHO, 1986), public health organisations do not routinely include the views and ideas of obese people in their campaigns or strategies around obesity prevention. This lack of a partnership approach combined with the medicalised, rational messaging used in government run obesity campaigns could help explain why at present many fat activists view obesity prevention and related public health campaigns as oppositional to their viewpoint (Cooper, 2010). Indeed, at present it would seem that many public health campaigns are alienating the very groups required to form effective social change coalitions.

Successful social change coalitions united through the collective identity elements we have considered in this paper – cognitions and language, relational ties and emotional investment – offer an important step forward in tackling the wicked problems that beset social marketers. The moralistic tone often taken by public health policy makers and program agents need to be rethought. In the obesity space, the concept of HAES could be considered and integrated into obesity efforts to alleviate stigma. Indeed, commercial firms such as Dove and WHO have long promoted body positivity with a HAES framing. However, for social marketing obesity initiatives, this may require careful negotiation regarding appropriate framing and messaging.

Future research

Our work generates some suggestions for future research. Fat activists are not a singular group but represent a diverse set of people with different perspectives and levels of
acceptance and engagement with the ideas of being a fat activist and the concept of HAES. Therefore, research that explores these differences and what influences them and how they shape fat activism would help add nuanced understanding. Furthermore, while our research suggests that some health professionals adopt a HEAS philosophy, there is little research insight or public narrative about this. Studies that consider why and how health professionals who adopt a HEAS perspective do so, and how they become more recognised by those in public health would help advance the research field. And we suggest that research investigating the effects of emotional investment in obesity social movements for people who identify as obese is critical in generating insights to inform the need for appropriate support services.

Conclusion
While there is a current misalignment between public health and fat activism, this paper has offered some possible future pathways to form common connections and overcome this impasse. Finding common points of connection may assist in forming the type of broad based coalitions required for effective social change to occur. This changes both the goals of many current obesity prevention campaigns and highlights the more active role that social marketing can play in the social movement process. Given the complexity of the issue of obesity, it is incumbent upon those designing social marketing programs to monitor for possible adverse outcomes and unintended consequences. An important step forward in this regard encompasses greater participation and inclusion in the development, implementation and evaluation of social marketing interventions by priority groups themselves (Gurrieri et al., 2013). Not only will inclusive coalition engagement in this manner enable people to be empowered to participate in efforts related to their health status, it will ensure that more nuanced and meaningful understandings of effective and/or necessary support is provided. In turn, such participation will reduce the risk that misrepresentation or stigmatisation will occur and ensure social marketing efforts function to improve the well being of citizens.

References


Institute of Medicine (2014). *Supporting a Movement for Health and Health Equity: Lessons from Social Movements: Workshop Summary*, available at: https://doi.org/10.17226/18751

iSMA, ESMA, and AASM (2013), *Consensus Definition of Social Marketing*, iSMA, ESMA, & AASM (International Social Marketing Association, European Social Marketing Association, Australian Association of Social Marketing), available at: www.i-socialmarketing.org/assets/social_marketing_definition.pdf


The Social Research Centre (2010), *Evaluation of the Australian Better Health Initiative Measure up Social Marketing Campaign Phase 1*, The Social Research Centre, Sydney.


### Table AI.

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**Corresponding author**
Lauren Gurrieri can be contacted at: lauren.gurrieri@rmit.edu.au

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Examining the ParticipACTION brand using the brand equity pyramid

Alexander Lithopoulos, Peter A. Dacin, Tanya R. Berry, Guy Faulkner, Norm O'Reilly, Ryan E. Rhodes, John C. Spence, Mark S. Tremblay, Leigh M. Vanderloo and Amy E. Latimer-Cheung

(Author affiliations can be found at the end of the article)

Abstract

Purpose – The brand equity pyramid is a theory that explains how people develop loyalty and an attachment to a brand. The purpose of this study is 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.

Keywords Social marketing, Brand, Brand equity pyramid, Brand resonance model, Health brand, ParticipACTION

Paper type Research paper

A large body of evidence suggests that less sedentary behavior (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 per cent 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 per cent of Canadian adults report over two hours of screen time per day (Herman and Saunders, 2016). This two-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 (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 behavior (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 an 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: judgments and feelings. Brand judgments 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 behaviors 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 (Asare and Lei, 2017; Huang and Cai, 2015; Jung et al., 2014; Martensen and Grønholdt, 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 behaviors (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 2, 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 $0.50 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 equity pyramid](image)
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

Judgments. 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 per cent [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: $\chi^2 (df = 62) = 77.555, p = 0.088$). In addition, 38 multivariate outliers were removed by examining Mahalanobis distances (critical $\chi^2 (df = 22) = 48.286, p < 0.001$). Because only small amounts of data were missing (i.e. less than 5 per cent 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 factor 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 0.32;
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 I 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 II 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.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (standard deviation)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credible&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.144 (0.658)</td>
<td></td>
</tr>
<tr>
<td>Trustworthy&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.162 (0.639)</td>
<td></td>
</tr>
<tr>
<td>Quality programs&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.935 (0.680)</td>
<td></td>
</tr>
<tr>
<td>Passion&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.219 (0.678)</td>
<td></td>
</tr>
<tr>
<td>Canadian organization&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.189 (0.694)</td>
<td></td>
</tr>
<tr>
<td>Raise awareness&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.895 (0.748)</td>
<td></td>
</tr>
<tr>
<td>Up to date&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.846 (0.711)</td>
<td></td>
</tr>
<tr>
<td>Likeability&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.912 (0.687)</td>
<td></td>
</tr>
<tr>
<td>Inspirational&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.872 (0.738)</td>
<td></td>
</tr>
<tr>
<td>Relevant to Canadians&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.042 (0.771)</td>
<td></td>
</tr>
<tr>
<td>Leader&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.869 (0.735)</td>
<td></td>
</tr>
<tr>
<td>Health and well-being&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.566 (1.295)</td>
<td></td>
</tr>
<tr>
<td>Feelings&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.937 (0.856)</td>
<td></td>
</tr>
<tr>
<td>Intentions increase PA&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.273 (0.860)</td>
<td></td>
</tr>
<tr>
<td>Intentions less SB&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.014 (0.920)</td>
<td></td>
</tr>
<tr>
<td>Sharing messages&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.045 (0.878)</td>
<td></td>
</tr>
<tr>
<td>Get word out&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.403 (0.868)</td>
<td></td>
</tr>
<tr>
<td>Functional/performance&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.663 (1.282)</td>
<td></td>
</tr>
<tr>
<td>Imagery move more</td>
<td></td>
<td></td>
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<tr>
<td>Imagery sit less</td>
<td></td>
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<tr>
<td>Recall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.983 (0.713)</td>
<td>Selected = 870, Not selected = 321</td>
</tr>
</tbody>
</table>

Table I. Means, standard deviations and frequencies

Note: The superscripts <sup>a</sup> and <sup>b</sup> denote whether an item had a four or five-point scale, respectively
<table>
<thead>
<tr>
<th>Variable</th>
<th>Recall</th>
<th>Recognition</th>
<th>Imagery move more</th>
<th>Imagery sit less</th>
<th>Passion</th>
<th>Credible</th>
<th>Trustworthy</th>
<th>Relevant to Canadians</th>
<th>Sharing messages</th>
<th>Get word out</th>
<th>Intentions increase PA</th>
<th>Intentions less SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall</td>
<td>1.000</td>
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</tr>
<tr>
<td>Recognition</td>
<td>0.283*</td>
<td>1.000</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Imagery move more</td>
<td>0.156*</td>
<td>0.145*</td>
<td>1.000</td>
<td></td>
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<td></td>
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<tr>
<td>Imagery sit less</td>
<td>0.079*</td>
<td>0.115*</td>
<td>0.399*</td>
<td>1.000</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Passion</td>
<td>0.185*</td>
<td>0.218*</td>
<td>0.255*</td>
<td>0.191*</td>
<td>1.000</td>
<td></td>
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<tr>
<td>Credible</td>
<td>0.191*</td>
<td>0.211*</td>
<td>0.242*</td>
<td>0.193*</td>
<td>0.640*</td>
<td>1.000</td>
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<tr>
<td>Trustworthy</td>
<td>0.202*</td>
<td>0.222*</td>
<td>0.252*</td>
<td>0.195*</td>
<td>0.650*</td>
<td>0.753*</td>
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</tr>
<tr>
<td>Relevant to Canadians</td>
<td>0.201*</td>
<td>0.220*</td>
<td>0.244*</td>
<td>0.180*</td>
<td>0.597*</td>
<td>0.624*</td>
<td>0.619*</td>
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<tr>
<td>Sharing messages</td>
<td>0.048</td>
<td>0.107*</td>
<td>0.100*</td>
<td>0.124*</td>
<td>0.257*</td>
<td>0.270*</td>
<td>0.302*</td>
<td>0.347*</td>
<td>1.000</td>
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<tr>
<td>Get word out</td>
<td>0.040</td>
<td>0.168*</td>
<td>0.188*</td>
<td>0.142*</td>
<td>0.376*</td>
<td>0.365*</td>
<td>0.384*</td>
<td>0.410*</td>
<td>0.554*</td>
<td>1.000</td>
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<td>Intentions increase PA</td>
<td>0.026</td>
<td>0.141*</td>
<td>0.088*</td>
<td>0.107*</td>
<td>0.142*</td>
<td>0.145*</td>
<td>0.162*</td>
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<td></td>
</tr>
<tr>
<td>Intentions less SB</td>
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<td>0.123*</td>
<td>0.107*</td>
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<td>0.174*</td>
<td>0.221*</td>
<td>0.647*</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Notes: 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 < 0.01
For the CFA and SEM, maximum likelihood estimation was used with a covariance matrix (Table III). Following guidelines provided by Cohen (1988), small, medium and large effect sizes were interpreted when $R^2$ was greater than or equal to 0.01, 0.09, and 0.25, respectively. LISREL version 9.30 was used to conduct CFA and SEM.

Results

Exploratory factor analysis

See Table IV 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 V for the pattern matrix containing the loadings between items and factors.

Confirmatory factor analysis

The final CFA showed good model fit, RMSEA = 0.065, NFI = 0.965, CFI = 0.971, RMR = 0.048, GFI = 0.964 and AGFI = 0.938, despite having a statistically significant chi-square value: $\chi^2 = 273.861$ (df = 46), $p < 0.001$. 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 0.001 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 = 0.078, NFI = 0.946, CFI = 0.952, RMR = 0.122, GFI = 0.945 and AGFI = 0.917, despite having a statistically significant chi-square value: $\chi^2 = 424.753$ (df = 52), $p < 0.001$. As with the CFA, the error variances for the “imagery move more” and “intentions increase PA” items were set to 0.001 because these items originally had a negative error variance. In terms of the relationships between variables, brand identity predicted brand meaning ($\beta = 0.387$, $p < 0.001$, $R^2 = 0.150$), brand meaning predicted brand responses ($\beta = 0.399$, $p < 0.001$, $R^2 = 0.160$), brand responses predicted brand resonance ($\beta = 0.586$, $p < 0.001$, $R^2 = 0.344$) and brand resonance predicted intentions to be more physically active ($\beta = 0.315$, $p < 0.001$, $R^2 = 0.099$). 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 = 0.065, NFI = 0.962, CFI = 0.968, RMR = 0.064, GFI = 0.961, AGFI = 0.937, $\chi^2 = 298.930$ (df = 49) and $p < 0.001$, showed that brand identity did continue to predict brand meaning ($\beta = 1.231$, $p < 0.001$). The second test, RMSEA = 0.068, NFI = 0.960, CFI = 0.966, RMR = 0.077, GFI = 0.959, AGFI = 0.935, $\chi^2 = 316.674$ (df = 49) and $p < 0.001$, showed that brand meaning continued to predict brand responses ($\beta = 0.399$, $p < 0.001$). The third test, RMSEA = 0.068, NFI = 0.960, CFI = 0.966, RMR = 0.103, GFI = 0.951, AGFI = 0.922, $\chi^2 = 382.998$ (df = 49) and $p < 0.001$, showed that brand responses continued to predict brand resonance ($\beta = 0.632$, $p < 0.001$). Finally, the fourth test, RMSEA = 0.076, NFI = 0.951, CFI = 0.957, RMR = 0.093, GFI = 0.950,
<table>
<thead>
<tr>
<th>Variable</th>
<th>Recall</th>
<th>Recognition</th>
<th>Imagery move more</th>
<th>Imagery sit less</th>
<th>Passion</th>
<th>Credible</th>
<th>Trustworthy</th>
<th>Relevant to Canadians</th>
<th>Sharing messages</th>
<th>Get word out</th>
<th>Intentions increase PA</th>
<th>Intentions less SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall</td>
<td>1.000</td>
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<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imagery sit less</td>
<td>0.131</td>
<td>0.123</td>
<td>0.689</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passion</td>
<td>0.432</td>
<td>0.220</td>
<td>0.547</td>
<td>0.414</td>
<td>2.262</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credible</td>
<td>0.307</td>
<td>0.275</td>
<td>0.468</td>
<td>0.375</td>
<td>1.568</td>
<td>1.797</td>
<td>1.805</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trustworthy</td>
<td>0.423</td>
<td>0.282</td>
<td>0.499</td>
<td>0.383</td>
<td>1.616</td>
<td>1.567</td>
<td>1.805</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevant to Canadians</td>
<td>0.422</td>
<td>0.293</td>
<td>0.477</td>
<td>0.357</td>
<td>1.493</td>
<td>1.398</td>
<td>1.406</td>
<td>1.974</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharing messages</td>
<td>0.074</td>
<td>0.101</td>
<td>0.153</td>
<td>0.174</td>
<td>0.501</td>
<td>0.471</td>
<td>0.532</td>
<td>0.623</td>
<td>1.081</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get word out</td>
<td>0.060</td>
<td>0.156</td>
<td>0.267</td>
<td>0.192</td>
<td>0.700</td>
<td>0.605</td>
<td>0.644</td>
<td>0.693</td>
<td>0.672</td>
<td>1.019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intentions increase PA</td>
<td>0.043</td>
<td>0.195</td>
<td>0.172</td>
<td>0.228</td>
<td>0.391</td>
<td>0.348</td>
<td>0.381</td>
<td>0.383</td>
<td>0.316</td>
<td>0.326</td>
<td>2.262</td>
<td></td>
</tr>
<tr>
<td>Intentions less SB</td>
<td>0.250</td>
<td>0.237</td>
<td>0.304</td>
<td>0.340</td>
<td>0.616</td>
<td>0.693</td>
<td>0.746</td>
<td>0.700</td>
<td>0.407</td>
<td>0.503</td>
<td>2.113</td>
<td>3.608</td>
</tr>
</tbody>
</table>

**Note:** Not all items present in Measures section appear here because this table only shows variables included in the final CFA.
AGFI = 0.920, $\chi^2 = 388.198$ (df = 49) and $p < 0.001$, showed that brand resonance also continued to predict intentions ($\beta = 0.184, p < 0.001$). The overall $R^2$ for this final model was 0.112, indicating that, while the hypothesized model was held constant, all of the latent brand variables explained 11.2 per cent 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 < 0.001) 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 = 0.065, NFI = 0.965, CFI = 0.971, RMR = 0.048, GFI = 0.964, AGFI =

### Table IV.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (in years) group</strong></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>59</td>
</tr>
<tr>
<td>25-34</td>
<td>212</td>
</tr>
<tr>
<td>35-44</td>
<td>159</td>
</tr>
<tr>
<td>34-54</td>
<td>281</td>
</tr>
<tr>
<td>55-64</td>
<td>242</td>
</tr>
<tr>
<td>65 and older</td>
<td>238</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>626</td>
</tr>
<tr>
<td>Male</td>
<td>565</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Elementary/grade school</td>
<td>2</td>
</tr>
<tr>
<td>Some high school</td>
<td>44</td>
</tr>
<tr>
<td>High school graduate</td>
<td>157</td>
</tr>
<tr>
<td>Some college/technical school</td>
<td>119</td>
</tr>
<tr>
<td>Completed college/technical school</td>
<td>290</td>
</tr>
<tr>
<td>Some university</td>
<td>125</td>
</tr>
<tr>
<td>University undergraduate degree</td>
<td>266</td>
</tr>
<tr>
<td>Some post-graduate school</td>
<td>51</td>
</tr>
<tr>
<td>Post-graduate degree</td>
<td>137</td>
</tr>
<tr>
<td><strong>Annual income</strong></td>
<td></td>
</tr>
<tr>
<td>Less than $25,000</td>
<td>102</td>
</tr>
<tr>
<td>$25,000 to less than $35,000</td>
<td>75</td>
</tr>
<tr>
<td>$35,000 to less than $50,000</td>
<td>160</td>
</tr>
<tr>
<td>$50,000 to less than $75,000</td>
<td>216</td>
</tr>
<tr>
<td>$75,000 to less than $100,000</td>
<td>202</td>
</tr>
<tr>
<td>$100,000 to less than $125,000</td>
<td>110</td>
</tr>
<tr>
<td>$125,000 or more</td>
<td>143</td>
</tr>
<tr>
<td>Did not disclose this information</td>
<td>183</td>
</tr>
<tr>
<td><strong>Working status</strong></td>
<td></td>
</tr>
<tr>
<td>Employed (30 or more hours/week)</td>
<td>553</td>
</tr>
<tr>
<td>Employed (fewer than 30 hours/week)</td>
<td>114</td>
</tr>
<tr>
<td>Full-time student</td>
<td>53</td>
</tr>
<tr>
<td>Homemaker</td>
<td>49</td>
</tr>
<tr>
<td>Retired</td>
<td>298</td>
</tr>
<tr>
<td><strong>Demographic information</strong></td>
<td></td>
</tr>
<tr>
<td>Currently looking for work</td>
<td>62</td>
</tr>
<tr>
<td>Not working (medical reasons)</td>
<td>51</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
</tr>
</tbody>
</table>
Table V. Pattern matrix/factor loadings for EFA

<table>
<thead>
<tr>
<th>Variable</th>
<th>Responses</th>
<th>Intentions</th>
<th>Factor Loadings</th>
<th>Resonance</th>
<th>Meaning</th>
<th>Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credible</td>
<td>0.876</td>
<td>0.044</td>
<td>0.179</td>
<td>0.019</td>
<td>0.032</td>
<td></td>
</tr>
<tr>
<td>Trustworthy</td>
<td>0.834</td>
<td>0.056</td>
<td>0.143</td>
<td>0.023</td>
<td>0.069</td>
<td></td>
</tr>
<tr>
<td>Quality programs</td>
<td>0.792</td>
<td>0.001</td>
<td>-0.105</td>
<td>0.006</td>
<td>-0.134</td>
<td></td>
</tr>
<tr>
<td>Passion</td>
<td>0.776</td>
<td>0.007</td>
<td>0.097</td>
<td>0.052</td>
<td>0.052</td>
<td></td>
</tr>
<tr>
<td>Canadian organization</td>
<td>0.771</td>
<td>0.022</td>
<td>0.139</td>
<td>-0.014</td>
<td>0.130</td>
<td></td>
</tr>
<tr>
<td>Raise awareness</td>
<td>0.696</td>
<td>-0.060</td>
<td>-0.161</td>
<td>0.019</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Up to date</td>
<td>0.693</td>
<td>-0.046</td>
<td>-0.173</td>
<td>0.041</td>
<td>-0.109</td>
<td></td>
</tr>
<tr>
<td>Likeability</td>
<td>0.690</td>
<td>0.062</td>
<td>-0.154</td>
<td>-0.013</td>
<td>-0.030</td>
<td></td>
</tr>
<tr>
<td>Inspirational</td>
<td>0.682</td>
<td>-0.031</td>
<td>-0.257</td>
<td>-0.043</td>
<td>0.023</td>
<td></td>
</tr>
<tr>
<td>Relevant to Canadians</td>
<td>0.678</td>
<td>0.043</td>
<td>-0.043</td>
<td>0.027</td>
<td>0.096</td>
<td></td>
</tr>
<tr>
<td>Leader</td>
<td>0.660</td>
<td>-0.035</td>
<td>-0.178</td>
<td>0.046</td>
<td>0.014</td>
<td></td>
</tr>
<tr>
<td>Intentions increase PA</td>
<td>0.038</td>
<td>0.813</td>
<td>0.009</td>
<td>0.001</td>
<td>-0.002</td>
<td></td>
</tr>
<tr>
<td>Intentions less SB</td>
<td>-0.039</td>
<td>0.790</td>
<td>-0.040</td>
<td>0.004</td>
<td>-0.013</td>
<td></td>
</tr>
<tr>
<td>Sharing messages</td>
<td>0.044</td>
<td>0.058</td>
<td>-0.690</td>
<td>0.024</td>
<td>0.057</td>
<td></td>
</tr>
<tr>
<td>Get word out</td>
<td>0.181</td>
<td>0.081</td>
<td>-0.545</td>
<td>0.066</td>
<td>0.066</td>
<td></td>
</tr>
<tr>
<td>Imagery move more</td>
<td>0.010</td>
<td>-0.023</td>
<td>0.020</td>
<td>0.654</td>
<td>0.066</td>
<td></td>
</tr>
<tr>
<td>Imagery sit less</td>
<td>-0.013</td>
<td>0.019</td>
<td>-0.016</td>
<td>0.614</td>
<td>-0.042</td>
<td></td>
</tr>
<tr>
<td>Recall</td>
<td>0.012</td>
<td>-0.038</td>
<td>0.016</td>
<td>0.015</td>
<td>0.519</td>
<td></td>
</tr>
<tr>
<td>Recognition</td>
<td>0.007</td>
<td>0.045</td>
<td>-0.080</td>
<td>0.009</td>
<td>0.501</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 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 italic.

Figure 2. Standardized factor loadings and error variances for the CFA.
The majority of the direct effects were statistically significant (i.e. \( p \) at least \( < 0.05 \)) and in the expected direction. However, it is worth noting brand identity negatively predicted brand resonance (\( \beta = -0.143, p = 0.001 \)), and brand meaning did not predict intentions to be more physically active (\( \beta = 0.011, p = 0.721 \)). See Table VI 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.

<table>
<thead>
<tr>
<th>Latent variable</th>
<th>Brand meaning</th>
<th>Brand responses</th>
<th>Brand resonance</th>
<th>Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand identity</td>
<td>0.393***</td>
<td>0.387***</td>
<td>-0.143***</td>
<td>0.108*</td>
</tr>
<tr>
<td>Brand meaning</td>
<td>0.245***</td>
<td>0.097***</td>
<td>0.011</td>
<td>0.136**</td>
</tr>
<tr>
<td>Brand responses</td>
<td>0.594***</td>
<td>0.136**</td>
<td>0.188***</td>
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</tr>
<tr>
<td><strong>Indirect effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand identity</td>
<td>0.155***</td>
<td>0.091***</td>
<td>0.029***</td>
<td></td>
</tr>
<tr>
<td>Brand meaning</td>
<td>0.234***</td>
<td>0.074***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand responses</td>
<td>0.185***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** The latent variables in the far-left column predict the latent variables in the other columns; *\( p < 0.05; **p < 0.01; ***p < 0.001 \)}
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 behaviors 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 behavior 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 behavior (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 behavioral 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. Behavioral outcomes are also important to measure because there is an imperfect correlation between physical activity intentions and behavior (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 (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.

References


Statistics Canada (2015), “CANSIM table 117-0019: distribution of the household population meeting/not meeting the Canadian physical activity guidelines, by sex and age group”, Ottawa, ON.


Author affiliations
Alexander Lithopoulos, School of Kinesiology and Health Studies, Queen’s University, Kingston, Ontario, Canada
Peter A. Dacin, Smith School of Business, Queen’s University, Kingston, Ontario, Canada
Tanya R. Berry, Faculty of Kinesiology, Sport, and Recreation, University of Alberta, Edmonton, Alberta, Canada
Guy Faulkner, School of Kinesiology, University of British Columbia, Vancouver, British Columbia, Canada
Norm O’Reilly, College of Business, Ohio University, Athens, Ohio, USA
Ryan E. Rhodes, School of Exercise Science, Physical and Health Education, University of Victoria, Victoria, British Columbia, Canada
John C. Spence, Faculty of Kinesiology, Sport, and Recreation, University of Alberta, Edmonton, Alberta, Canada
Mark S. Tremblay, Department of Pediatrics, University of Ottawa, Ottawa, Ontario, Canada
Leigh M. Vanderloo, ParticipACTION, Toronto, Ontario, Canada
Amy E. Latimer-Cheung, School of Kinesiology and Health Studies, Queen’s University, Kingston, Ontario, Canada

Corresponding author
Alexander Lithopoulos can be contacted at: a.lithopoulos@queensu.ca

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Social advertisements for public health and epidemic dynamics
A study based on HIV/AIDS prevention television advertisements in four European countries
Beatriz Casais
School of Economics and Management, University of Minho, Portugal and Polytechnic Institute of Cávado and Ave – IPCA, Portugal and IPAM Porto, Portugal and CiTUR, Portugal, and
João F. Proença
Faculty of Economics and Management, University of Porto, Portugal

Abstract

Purpose – The purpose of this paper is to examine health-related social advertisements to identify its use and evaluate its appropriateness to situational needs, such as epidemic dynamics and the context where it is implemented. The paper also discusses the barriers that policymakers face in creating these linkages.

Design/methodology/approach – In all, 375 national HIV/AIDS prevention television advertisements from France, Germany, Portugal and Italy were viewed and analyzed over time of production, exploring the sources, the target audiences and the messages delivered. This paper compares management choices with HIV epidemics in each country and their contextual profiles.

Findings – The findings of this paper indicate that social advertising concerned with HIV/AIDS prevention is commonly framed within public policies and does not usually target the most vulnerable and affected populations. Furthermore, social ads are reactive to epidemic dynamics. The existence of trade-offs between putting forward theoretical marketing recommendations and taking account of contextual fracturing issues or increasing stigma and discrimination are also considered.

Research limitations/implications – This paper is useful for public sector management because of the importance of evaluating the investments done to improve future strategies. The discussion about restrictions and concerns for policy-makers is important to improve management decisions.

Originality/value – This paper suggests the adoption of proactive public policies and proposes strategies to overcome the restrictions or concerns faced by policy-makers.

Keywords Public health, Health promotion, Advertising, Behavior/Attitudes

Paper type Research paper

1. Introduction
The well-being of society is partially a consequence of the development of public policies and of advocacy by non-governmental organizations (NGOs) that work towards the achievement of social good (Mokwa, 2017, Shultz et al., 2012). As is widely acknowledged, public health policy has a profound impact on health status (Brownson et al., 2009), as many health conditions are determined by behavioral choices (Frieden, 2010; Kennedy, 2015).

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Several empirical studies have shown the effectiveness of health-related social marketing (Kubacki et al., 2015; Truong, 2014), although they have revealed some problems in terms of evaluation design (McHugh and Domegan, 2017; Wymer, 2011). It is important to fit social marketing policies to the specific context (Wettstein and Suggs, 2016). Marketing and public policy research should explore the links between the number of campaigns and the evolution of illnesses, the appropriateness of the targets and the messages, as well as examine whether their contents are suitably adapted to the policy, socioeconomic and cultural profiles (Hill and Martin, 2014). Social marketing is commonly used in the public and non-profit sector to encourage behavioral change (Fine, 2017; Shultz et al., 2012; Truong, 2017).

To understand where changes in the management of this matter should be first and more intensively implemented, we question whether health-related social marketing is more often used within public policies or NGO interventions or even in partnerships of both. Another important question, whose answer is essential to improve social marketing in the future, is whether action is taken reactively or proactively. Considering the importance of social advertising as a communication tool of a social marketing strategy (Noble et al., 2014), the purpose of the study is to research the appropriateness of social advertising to the epidemic trends and to discuss possible barriers to the desirable fit between policies and societal needs.

The literature review provides an integrated conceptual background. The research questions are translated into propositions where the researchers discuss findings of a case study on the basis of theoretical review. The researchers formulate propositions for analysis and discussion of questions and systematize that approach of propositions at the end of the background section: health-related social marketing is more often used within public policy interventions; the number of actions tend to fit the contours of epidemic data; there is appropriateness both in terms of target and message; and suitability to the context where they are implemented. To discuss the propositions, the authors analyze national HIV/AIDS prevention television advertisements broadcast in four European Union (EU) countries – France, Germany, Portugal and Italy – developed by governments and/or NGOs since the infection was first diagnosed in 1981 to the end of 2011. The research identifies and analyzes the production of those TV ads in each country over time, the type of sources, the target audiences and the main messages delivered. The paper discusses the management choices followed in relation to the HIV epidemics in each country and their contextual profiles.

The analysis of consistency between social advertisements and societal needs has implications on the theory, based on the insights it provides on its appropriateness when put into practice. Even interventions developed by NGOs are usually connected with public policy commitments or investments and have a substantial impact on public health (Shultz et al., 2012, Truong, 2017); the study is useful for public sector management because of the importance of evaluating the investments done to improve future strategies. We discuss contextual factors linked to policy practices or target barriers, which may represent restrictions and concerns for policy-makers.

2. Literature review
2.1 Health-related social marketing interventions within public policies and NGOs
Public policy governs the main determinants of health. It influences socioeconomic factors, such as education, poverty, employment, sanitary conditions, environment, medical care or social cohesion, for example, and public policy actions have a direct effect on the health of society. Moreover, policy-makers have power to influence behavioral patterns: they inform and motivate people, encourage health decisions, facilitating access to health or minimizing the efforts aimed at behavior change, and implement the policy incentives to encourage
change, through for example, tax regulation, advertising restrictions or economic incentives to encourage healthy habits (Frieden, 2010).

Behavior change is a challenge for public policy because of its importance in long-term effective and efficient interventions (Crawshaw, 2013). Health-related social marketing, by influencing lifestyles, has been an important tool in improving the health of populations (Carins and Rundle-Thiele, 2014; Truong, 2014), as well as in decreasing costs linked to health care (Rothschild, 1999), an important and expanding expenditure issue in public policy. Social marketing was defined by Kotler and Zaltman (1971) as a tool to change social ideas and behaviors, based on previous reflections on the boundaries of marketing to solve social problems. Social marketing focuses on behavior change through the use of marketing principles with the end goal of improving welfare and society (Andreasen, 2003, Gordon et al., 2018). It is applied in the public sector and NGOs (Andreasen, 2012; Donovan, 2011) and its recognition is connected to the growth of the non-profit sector (Kong, 2008; Milbourne, 2009), the rising concerns of governments towards sustainability to guarantee social welfare (Mokwa, 2017) and the achievement of political goals (Raftopoulou and Hogg, 2010).

Social marketing has been widely discussed by public policy scholars and in the literature (Andreasen, 2012). Although there are valuable collaborations between public and non-profit organizations (Suárez, 2011), the third sector emerged late as a stakeholder in the policy process (Harlock and Metcalf, 2016). This fact may prevent NGOs from developing activities targeting behavior change, especially those which require more financial expenditure, such as TV advertising, for example (Fine, 2017).

The identification of the main sources of social marketing interventions is important to characterize the activities in the topic and plan where the required changes should be made first and more intensively, in congruence with the contents (Mckay-Nesbitt and Yoon, 2015).

P1. Health-related social advertisements are predominantly developed within public policy interventions rather than by non-governmental organizations.

2.2 Social marketing effectiveness

Evaluation is an important step in policy planning, distinguishing worthy interventions based on measures of the outcomes reached and the rates of policy effort. Like in policy programs, evaluation is also essential in social marketing as in any marketing plan (McHugh and Domegan, 2017; Wymer, 2011).

The World Health Organization and UNAIDS, for example, created API to evaluate the existence of a HIV/AIDS prevention policy, its characteristics and the contribution of efforts to the program’s success in a variety of social and cultural settings (Merson et al., 2008, USAID et al., 2003). API shows the importance of prevention efforts in epidemic outcomes, revealing that HIV prevention efforts are related with epidemic rates (Merson et al., 2008). This index was conducted in 54 countries and highlights that the nations with the highest HIV/AIDS prevalence rates have, on average, lower API scores than those with relatively low prevalence rates (USAID et al., 2003).

Studies with systematic reviews evaluate social marketing as effective in public health (Carins and Rundle-Thiele, 2014, Gordon et al., 2018, Kubacki et al., 2015). Social marketing has been effective in HIV/AIDS prevention, with reports of changes in HIV-related knowledge, attitudes and behaviors, although interventions are few and far between (Noar et al., 2009).

Studies on social marketing effectiveness aim to evaluate if programs achieve their intended purpose, comparing data before and after the interventions (Saunders et al., 2015).
Data are usually obtained from interviews and surveys, measuring the changes in knowledge, attitudes and behaviors and by examining the results in epidemic reports (Stead et al., 2007). However, social marketing programs have weak evaluation designs and flaws in planning (Silva and Silva, 2012). Most interventions that are considered effective could potentially be more effective and efficient than they are (Evans et al., 2009; McHugh and Domegan, 2017; Wymer, 2011).

2.3 Challenges and barriers for effective health social marketing programs

To be effective, social marketing should follow the steps of a marketing plan: purpose, situational analysis, target profile, positioning, marketing-mix and plan evaluation (Noar et al., 2009, Silva and Silva, 2012). Social marketing should benefit from segmentation strategies to target the priority populations appropriately as stated in the theoretical bases of social marketing (Wettstein and Suggs, 2016). Reactions to the promotion of behavior change vary across different target groups (Dietrich et al., 2015). Policy-makers should consider people’s heterogeneity (Henrikki and Jaakko, 2017, Hill and Martin, 2014) and populations should be divided on the basis of their characteristics (Grier and Bryant, 2005; Mokwa, 2017). It is also important to look at the contextual factors of the audiences because standard packages of prevention do not work universally (Dietrich et al., 2015). This appropriateness determines the measurable impact for epidemic outcomes (Grassly et al., 2001, Likatavicius and VandeLaar, 2012b).

Literature on HIV/AIDS prevention social marketing, for example, shows there is increasing research on target audiences and tend to follow theoretical guidelines to design effective social marketing programs (Noar et al., 2009). A systematic review of studies on mass media campaigns for HIV prevention between 1998 and 2007 reported that 94 per cent had a specific target audience, while a previous study on campaigns developed between 1986 and 1998 reported that 59 per cent of those studies were targeted at the general population (Noar et al., 2009). The literature lacks information on whether the campaigns’ segmentation was adjusted to the epidemiological situations or the context where they were applied.

P2. The number of health-related social advertisements fit with epidemic rates evolution.

P3. The identified targets are appropriate for the affected populations.

P4. The identified messages are appropriate for the health prevention methods.

P5. Health-related social advertisements fit the policy, socioeconomic and cultural context.

A marketing strategy may respond to societal needs, but in a reactive manner. Marketing theory states that managers may have a reactive or a proactive marketing orientation. In proactive marketing, instead of looking only at current customers as is the case of reactive marketing, firms develop also an exploratory learning of new market opportunities, observing actual behaviors to discover future needs and making adjustments. Social marketers should develop a proactive marketing orientation, looking at the epidemic trends and developing proactive prevention policies (Jones and Iverson, 2012, Likatavicius and VandeLaar, 2012b). Proactive social marketing interventions have been crucial during the outbreaks of bird flu or swine flu, for example, promptly communicating the preventive and medical recommendations to the population, which may ultimately have averted their potential of becoming a pandemic influenza (Jones and Iverson, 2012).
The epidemic information on communicable diseases is provided by the UN, WHO, Center for Disease Control (CDC) and European Centre for Disease Control (ECDC). These reports focus on public health surveillances and present only short discussions on future trends and challenges. An understanding of a reactive marketing orientation constitutes a step in designing proactive strategies in the future.

P6. Health-related social advertisements are reactive to epidemic dynamics.

Figure 1 systematizes the research questions and this paper’s propositions.

3. Research methods
The theoretical framework explained above and the propositions formulated lead us to examine the appropriateness of health-related social marketing policies to the epidemics and context of the targeting interventions. Our study is focused on HIV/AIDS, a health priority that represents a global problem in public policy, for which a wide number of social marketing interventions have been developed by both public services and NGOs, and which also faces problems of stigma and discrimination in the society (Brown et al., 2017).

HIV/AIDS is a good example. It is a communicable disease with an established epidemic surveillance system (ECDC/WHO, 2012) and different means of transmission, which require different behavior change messages in different intervention settings (Merson et al., 2008, Rimal et al., 2009). It has contextual implications, asking for policy, socioeconomic and cultural appropriateness (Rimal et al., 2009). HIV was first diagnosed in 1981 in the USA and AIDS has been a major cause of death because a cure or vaccine has yet to be discovered and because of problems with therapy adherence (Merson et al., 2008). Initially a death sentence, AIDS became a chronic disease in 1996 with the discovery of anti-retroviral treatments (Merson et al., 2008). Because behaviors associated with infection transmission are stereotyped, related to sexual behavior or the use of injected drugs, for example, people living with HIV suffer from stigma and discrimination (Brown et al., 2017, Castro et al., 2010, Gruskin et al., 2007, Merson et al., 2008, Uhrig et al., 2010). Fighting HIV/AIDS infection is a public policy challenge worldwide and one of the UN’s millennium goals (UNAIDS, 2018; UNO, 2001). It is also a major concern for social marketers, including campaigns against stigma and discrimination (Lefebvre, 2011). A political resolution declared that efforts will be intensified to eradicate the infection (UNAIDS, 2018; UNO, 2011).

Communication is an important tool of the social marketing-mix (Lefebvre, 2011) given its potential to promote behavior change (Abroms and Maibach, 2008; Kreps,

Figure 1. Propositions of the study
3.1 Data collection
We collected national HIV/AIDS prevention social ads broadcast on TV in EU since the infection was first diagnosed, in 1981 to the end of 2011, because of the dimension of its impact and the expenditure it represents in public policy. Use of mass media also implies examining segmentation needs and the potential consequences of stigma and discrimination.

Data collection was done on the internet, given that institutions have increasingly digitalized their audio-visual archives, even the oldest ones, and share them online on official websites, in social networks and online video sharing websites (Paek et al., 2010; Spigel, 2009). The internet was the most accessible and convenient tool to collect data, and we were highly successful in this task for France, Germany, Portugal and Italy. We searched for data in: a) the institutional websites and Facebook profiles of the government institutions coordinating HIV/AIDS prevention in each EU country; b) the institutional websites and Facebook profiles of NGO members of “Aids Action Europe” in each EU country; c) the YouTube, Vimeo, Dailymotion and Google videos, which are popular video-sharing websites; d) data were also collected from two French websites, where advertisements were available and organized: www.INA.fr, an online archive providing many audio-visual materials broadcast in France; and www.culturepub.fr, an important website of worldwide advertising belonging to a French television program on advertising in general. These two French websites favored the collection of data related to France.

The search expressions used on video sharing websites were “HIV AIDS Prevention advertisement” in English followed by the name of each EU country, also in English. After saturation (Bowen, 2008), we translated the expression into each of the 23 European official languages, as shown in Table I.

As the video-sharing websites provided suggestions of other videos connected to the search expressions and/or also seen by people who had viewed the ones shown, we also followed those suggestions, resulting in a richer data collection.

Based on this extensive search, an advertisement database was built from the January 1st to June 30th, 2012, after which saturation was reached in the search process with the repeated occurrence of redundant findings (Bowen, 2008). The ads had to be developed by governments and/or NGOs, because the social marketing concept is intrinsically linked to the action of those organizations (Donovan, 2011, Hastings and Angus, 2011). Data found focusing only on sexually transmitted infections (STIs) or contraception were not included, unless they also mentioned HIV.

3.2 The database
We collected 539 HIV prevention TV ads from EU countries, excepting Croatia which was not a member at the time of the data collection. We selected all the ads collected from four countries whose data was well distributed over the period of analysis and represented 69.6 per cent of the database. The other data showed low numbers of advertisements by country.
Seven countries had less than 25 ads, mostly concentrated in a specific time period, and ten countries had less than 10 ads, which would also not provide a longitudinal perspective.

In all, 375 national HIV prevention advertisements broadcast on TV since the diagnosis of the infection in 1981 to the end of 2011 in four European countries were selected as case studies. Of all, 146 are from France (38.9 per cent), 115 from Germany (30.7 per cent), 76 from Portugal (20.3 per cent) and 38 from Italy (10.1 per cent).

This is not a cross-country study, but although the four countries selected are all from the western part of Europe and long-time members of the EU, they are politically, socioeconomically and culturally diverse. This strengthened the scope of our study because culture plays an important role in health communication both in message effectiveness and in the expectations of message design (Kreuter and McClure, 2004; Reardon et al., 2006).

### 3.3 Data analysis

Before the analysis, the narratives of the social advertisements were translated from the original languages to English. This task was performed by native speakers in some cases and, in other cases, by translation professionals with extensive knowledge of the culture and environment of the countries, having had the experience of living there. Besides the translations, they were asked to point out contextual aspects of the advertisements, such as national celebrities, use of famous songs, national symbols or metaphors.

**Content analysis.** The narratives in English were transcribed into the NVivo software. The content analysis, performed by this paper’s first author, involved describing the characters, music, colors, non-verbal symbols and the story review of each advertisement. These notes were recorded in NVivo and served as a basis for the coding process.

The coding categories were built based on the literature review pinpointing the most frequent messages and target audiences in HIV prevention advertisements (Noar et al., 2009), which are congruent with the knowledge of the most commonly known means of HIV transmission (Merson et al., 2008). The literature identifies as frequent criteria for audience segmentation in HIV prevention campaigns gender, race, sexual orientation, age, geographic region, sensation-seeking and impulsivity (Noar et al., 2009). The most popular prevention messages are the promotion of HIV testing, condom use and general slogans about AIDS awareness without direct references to behavioral change (Noar et al., 2009). Data coding also led to the creation of categories that had not been considered previously, in an effort to
find new outcomes in the data. Each ad was coded in the NVivo software considering seven categories for behavior change messages and nine categories for target audiences. To code the target audiences, the characters, narratives and slogans were examined. Special symbols and music also resolved any coding doubts, especially in the case of young people. As Table II shows, data were also coded according to the country, year of broadcast and the source, information frequently subtitled in the sourced websites or in the last pack shot of the ads. When not available, especially the years, we looked for information on the official websites and reports from the supporting institutions.

After the first author completed the coding, three independent coders were asked to validate the procedure, to avoid imprecise and subjective judgments (Kassarjian, 1977, Perreault and Leigh, 1989). A consensus among the coders does not guarantee correct judgment, but if they tend to agree, there is more confidence and reliability (Rust and Cool, 1994). The independent coders were chosen based on their availability and expertise in marketing and communication: one has an MSc in Marketing, one is an MBA and one has a PhD in Communication Studies. They did not have academic or professional experience in HIV prevention to simulate the reception of messages by the general population. Briefings were conducted with the independent coders in individual meetings. After a verbal explanation of the task, the coders received a text describing the concept of social marketing and the contours of the task. Initial doubts were resolved and they were trained with some examples. Then, the independent coders were asked to watch a random sample of 20 social advertisements and classify the behavior change message and target audience of those advertisements into the categories described in Table II to validate the researcher’s coding. The sample represented 5.3 per cent of the 375 total ads. When possible disagreements were identified, the sample was recoded and a similar coding error principle was applied to the remaining data. The random sample of 20 advertisements was created on this basis: 1) for each of the four countries, the data were divided into five groups – from 1987 to 1991, from 1992 to 1996, from 1997 to 2001, from 2002 to 2006 and from 2007 to 2011; and 2) a third ad was selected from each group and country in the NVivo software, ordered alphabetically by code (Country_Year_Source_N).

After collecting the independent coders’ opinions and comparing the results, most of the (few) discrepancies found were resolved through individual discussion between the coders and the researcher who performed the coding, which resulted in a better definition of the

<table>
<thead>
<tr>
<th>Behavior Change Message</th>
<th>Target Audiences</th>
<th>Source</th>
<th>Country</th>
<th>Year of Broadcast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentive to do the test</td>
<td>Adolescents (Adolesc.)</td>
<td></td>
<td>Germany</td>
<td></td>
</tr>
<tr>
<td>Anti-discrimination</td>
<td>Men who have sex with men (MSM)</td>
<td></td>
<td>Portugal</td>
<td>1992-1996</td>
</tr>
<tr>
<td>General awareness of HIV</td>
<td>Injection Drug Users (IDU)</td>
<td></td>
<td>Italy</td>
<td>1997-2001</td>
</tr>
<tr>
<td>Treatment adherence</td>
<td>Sex Workers (SW)</td>
<td></td>
<td></td>
<td>2002-2006</td>
</tr>
<tr>
<td>Discourage needle sharing</td>
<td>Women (W)</td>
<td></td>
<td></td>
<td>2007-2011</td>
</tr>
<tr>
<td>Ask for information/ helplines</td>
<td>Men (M)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Migrants (Mig.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>People Living with HIV (PLWHIV)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table II.**

**Coding categories**

**Notes:** General Population (GP) = ads whose target is generalized and not included in the other specified populations; Adolescents (Adolesc.) = young people between 13-19 years old; Women (W) = ads directly targeting female gender; Men (M) = ads directly targeting male gender; Migrants (Mig.) = people from other countries, races or whose job requires regular migrations
coding rules. In a few cases, discrepancies were maintained after profound discussions on recoding, where the predominant judgment prevailed.

The Proportional Reduction in Loss (PRL) approach was used to calculate intercoder reliability of the behavior change messages and target audiences, an appropriate measure for qualitative judgment data (Rust and Cooil, 1994). With four judges – three independent coders and one of the researchers – we calculated the number of pair agreements between the six pairs of judges. Figure 2 briefly describes the process of data analysis and shows the percentage of pair agreements for each coding category out of the possible agreements.

The results assign a PRL reliability of 0.99 to target audience and 100 to behavior message. This indicates there is significant agreement among the coders, considering the Nunnally rule that recommends a minimum 0.70 PRL level to sustain intercoder reliability (Rust and Cooil, 1994). This means that we can be fairly confident in our judges’ classifications as well as in the defined categories (Kassarjian, 1977).

**Correlation analysis.** To complement the content analysis, we conducted a correlation analysis to explore the relationship between social marketing policies and epidemics. SPSS software was used to calculate the correlations between the number of ads in each country over time by target and message and HIV incidence rates and cases by means of transmission collected in the official epidemic reports (ECDC/WHO, 2010, ECDC/WHO, 2012). We also correlated the number of ads in each country with gross domestic product per capita (GDP) and Public Expenditure on Health (PEH) - available in official statistic documents (OECD, 2013). These correlations are limited to the years with official data reported, and only the ads from those periods were selected for this task.

4. Discussion

4.1 Social marketing as a public policy intervention

The practice of social marketing by NGOs has been considerable and consistent over time (Donovan, 2011). However, the majority of advertisements analyzed in this study were developed by governmental institutions. Table III shows the distribution of the advertisements under study according to the type of sponsor.

The number of partnerships between public institutions and NGOs is residual and response to the advertisements from civil society began later, remaining lower than the public sector. Considering our database, the four countries’ governments produced the first
HIV prevention social ads in the 1987-1991 period, while the first HIV prevention TV advertisement by a NGO dates from 2004 in Germany, 1997 in Italy, 1994 in France and 1992 in Portugal. These results follow the idea of P1, highlighting the importance of social marketing in public policy and that a management change regarding this aspect should have been urgently implemented in government interventions.

We can link this result to the proclamation by UNAIDS in 2003 of the “Three Ones” key principle, advising countries to develop one policy leadership with a national AIDS coordinating authority; one action plan; and one monitoring and evaluation system (UNAIDS, 2004). In France, the National Institute for Health Prevention and Education (INPES) is responsible for developing prevention activities, including social marketing and social advertising. In Italy, it is the National Commission to Fight AIDS from the Ministry of Health. The Portuguese National AIDS Program was established in 1985 and is now supported by the General-Directorate of Health, which belongs to the Ministry of Health. In Germany, HIV prevention is conducted since 1987 by the Federal Center for Health Education, which has a long history since 1963. This body develops HIV prevention actions targeting different populations under the umbrella campaign “Gib Aids Keine Chance” (Do not Give Aids a Chance).

4.2 Longitudinal appropriateness of health-related social advertisements to epidemic profiles

Theory states that even television advertisements have to segment their messages, because of the importance of adequacy to the markets, both in commercial and social marketing (Dietrich et al., 2015; Fine, 1980). Table IV shows that HIV/AIDS prevention advertisements on TV collected from France, Germany, Portugal and Italy essentially target the general population and adolescents.

Table V shows the frequency of messages found by country.

Although the research focused on the three decades of HIV history, 50.1 per cent of the 375 advertisements under analysis were broadcast in the past decade, much more than the 36.5 per cent in the second decade and 13.3 per cent in the first decade. There are no data for HIV/AIDS prevention advertisements before 1987 in the four countries, when the first cases were still being reported and the means of transmission were being studied. Figure 3 shows the time distribution of HIV prevention advertisements broadcast in France, Germany, Portugal and Italy by periods of five years.

Portugal has the highest rates of newly diagnosed HIV infection among the four countries, although the rates are decreasing. In France, the epidemic remains stable with a significant decrease in 2011, which requires careful analysis because of reporting delay. Germany has the lowest HIV incidence rates, much lower than the EU average (UNAIDS, 2018). Table VI shows the evolution of HIV incidence rates in France, Germany, Portugal and Italy since 2000 – the first year with officially reported data – until 2011.
<table>
<thead>
<tr>
<th>Country</th>
<th>No. of ads (%)</th>
<th>GP (%)</th>
<th>Adolesc. (%)</th>
<th>MSM (%)</th>
<th>IDU (%)</th>
<th>SW (%)</th>
<th>W (%)</th>
<th>Mig. (%)</th>
<th>M (%)</th>
<th>PLW HIV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>146 (38.9)</td>
<td>88 (60.3)</td>
<td>34 (23.3)</td>
<td>9 (6.2)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>10 (6.8)</td>
<td>1 (0.7)</td>
<td>2 (1.4)</td>
<td>2 (1.4)</td>
</tr>
<tr>
<td>Germany</td>
<td>115 (30.7)</td>
<td>85 (73.9)</td>
<td>22 (19.1)</td>
<td>5 (4.3)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>2 (1.7)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>Portugal</td>
<td>76 (20.3)</td>
<td>51 (67.1)</td>
<td>14 (18.4)</td>
<td>2 (2.6)</td>
<td>1 (1.3)</td>
<td>2 (2.6)</td>
<td>5 (6.6)</td>
<td>0 (0.0)</td>
<td>1 (1.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Italy</td>
<td>38 (10.1)</td>
<td>28 (73.7)</td>
<td>5 (13.2)</td>
<td>2 (5.3)</td>
<td>2 (5.3)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (2.6)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>375 (100)</td>
<td>252 (67.2)</td>
<td>75 (20.0)</td>
<td>18 (4.8)</td>
<td>3 (0.8)</td>
<td>2 (0.5)</td>
<td>17 (4.5)</td>
<td>1 (0.3)</td>
<td>3 (0.8)</td>
<td>4 (1.1)</td>
</tr>
</tbody>
</table>

Table IV: Targets of the HIV prevention TV ads by country.
Table V. Messages of the HIV prevention TV ads by country

<table>
<thead>
<tr>
<th>Country</th>
<th>No. of ads (%)</th>
<th>Condom use (%)</th>
<th>Do the test (%)</th>
<th>Anti-discrimination (%)</th>
<th>Stop/Avoid AIDS (%)</th>
<th>Treatment adherence (%)</th>
<th>Discourage needle sharing (%)</th>
<th>Ask for information/ Helpline (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>146 (38.9)</td>
<td>92 (63.0)</td>
<td>9 (6.2)</td>
<td>24 (16.4)</td>
<td>11 (7.5)</td>
<td>1 (0.7)</td>
<td>0 (0.0)</td>
<td>9 (6.2)</td>
</tr>
<tr>
<td>Germany</td>
<td>115 (30.7)</td>
<td>83 (72.2)</td>
<td>1 (0.9)</td>
<td>3 (2.6)</td>
<td>27 (23.5)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>Portugal</td>
<td>76 (20.3)</td>
<td>34 (44.7)</td>
<td>9 (11.8)</td>
<td>19 (25.0)</td>
<td>13 (17.1)</td>
<td>0 (0.0)</td>
<td>1 (1.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Italy</td>
<td>38 (10.1)</td>
<td>12 (31.6)</td>
<td>3 (7.9)</td>
<td>2 (5.3)</td>
<td>16 (42.1)</td>
<td>1 (2.6)</td>
<td>2 (5.3)</td>
<td>2 (5.3)</td>
</tr>
<tr>
<td>Total</td>
<td>375 (100)</td>
<td>221 (58.9)</td>
<td>22 (5.9)</td>
<td>48 (12.8)</td>
<td>67 (17.9)</td>
<td>2 (0.5)</td>
<td>3 (0.8)</td>
<td>12 (3.2)</td>
</tr>
</tbody>
</table>
In Germany, where HIV incidence rates are relatively low but have nevertheless been increasing since 2001, we find a relatively high number of HIV social ads. Table VII, which contains the correlation coefficients between the number of ads developed in each country and the corresponding HIV incidence rates for the available time periods, shows that there is a moderate positive correlation in Germany. This indicates that social marketers and policymakers from this country responded to the increasing incidence of HIV with the development of TV social advertisements, what sustains P2.

This result refers only to this specific tool and medium of communication, but it contradicts the API findings that sustain there is a negative correlation between HIV prevention efforts and epidemics (Merson et al., 2008, USAID et al., 2003). In Germany, the increasing incidence trend has not changed yet with the high number of advertisements because 55.7 per cent of the total German HIV prevention ads collected were developed between 2007 and 2011, suggesting a reactive prevention policy that is coincident with P6. Portuguese and Italian data also agrees with P2 and P6, but in a different way. In Portugal and Italy, we find moderate negative correlations, suggesting that the increased number of ads after 2006 in Portugal and after 2009 in Italy were possibly a contribution to the decreasing incidence rates. It also indicates a late response to the profile of these two countries that had the highest rates of AIDS (the last phase of infection) in the European region at the beginning of the twenty-first century and high HIV incidence rates, especially Portugal (ECDC/WHO, 2010, ECDC/WHO, 2011, ECDC/WHO, 2012). Over the entire longitudinal period under analysis, France has the highest number of HIV prevention TV ads collected (146), but it is not the country with highest incidence rates. It should be noted that 79 advertisements (54.1 per cent) were produced before 2002, suggesting an appropriate

![Figure 3. Distribution of advertisements collected from France, Germany, Portugal and Italy by periods of five years](image)

**Table VI.** Newly diagnosed HIV infections in France, Germany, Italy, Portugal and EU – rates per 100,000 population by year of diagnosis

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>8.2</td>
<td>9.2</td>
<td>9.5</td>
<td>9.0</td>
<td>8.9</td>
<td>9.0</td>
<td>8.5</td>
<td>8.4</td>
<td>8.5</td>
<td>6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>2.1</td>
<td>1.8</td>
<td>2.1</td>
<td>2.4</td>
<td>2.7</td>
<td>3.0</td>
<td>3.2</td>
<td>3.4</td>
<td>3.5</td>
<td>3.5</td>
<td>3.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Italy</td>
<td>8.7</td>
<td>7.7</td>
<td>7.5</td>
<td>6.3</td>
<td>5.5</td>
<td>4.8</td>
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<td>5.8</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Portugal</td>
<td>27.6</td>
<td>22.6</td>
<td>21.2</td>
<td>19.5</td>
<td>19.0</td>
<td>17.4</td>
<td>17.9</td>
<td>17.4</td>
<td>17.8</td>
<td>15.6</td>
<td>13.6</td>
<td>8.5</td>
</tr>
<tr>
<td>EU/EEA</td>
<td>4.7</td>
<td>5.5</td>
<td>5.8</td>
<td>6.6</td>
<td>6.5</td>
<td>6.4</td>
<td>6.4</td>
<td>6.5</td>
<td>6.6</td>
<td>6.1</td>
<td>6.3</td>
<td>5.7</td>
</tr>
</tbody>
</table>

**Note:** EU/EEA = European Union/ European Economic Area

prevention policy considering that France ranked fourth in Europe in terms of reported AIDS cases until 2002 (ECDC/WHO, 2010), a fact that indicates the incidence rates were high in the 1990s. In brief, the results sustain $P2$ regarding the adequacy of the number of TV ads in response to trends in epidemic incidence rates, but that adequacy tends to be reactive, in accordance with $P6$.

Social advertisements tend not to fit the epidemic needs in terms of target audience (contrary to $P3$) but do use suitable messages (according to $P4$), except if they potentially represent conflicts regarding the associated context or stigma.

Germany has recorded an increase in incidence rate between 2000 and 2011 (ECDC/WHO, 2010, ECDC/WHO, 2012, Likatavicius and VandeLaar, 2012b) and MSM (men who have sex with men) transmission is responsible for that growth. Germany is the only country under analysis where heterosexual intercourse is not the most prevalent means of HIV transmission. When we compare these statistics proportionally with the countries’ total population, we understand that the epidemics studied are concentrated in specific groups of people with risky behaviors, as stated in the official reports (ECDC/WHO, 2012, Likatavicius and VandeLaar, 2012b). MSM transmission has also increased in Portugal, France and Italy since 2004, which highlights that the prevention of HIV among MSM is the cornerstone of the infection response, because interventions to control the HIV epidemic need to be adapted to the national epidemiological situations (Rimal et al., 2009). Figure 4 illustrates the evolution of newly diagnosed HIV infections by means of transmission.

The decreasing incidence rates and the expressive number of ads targeting the general public have a moderate negative correlation in Portugal and France and a strong negative correlation in Italy. In Germany, we find positive correlations between the increasing incidence rates and ads targeting the general population and adolescents. In all, 66.1 per cent of the German ads were developed in the period 2002-2011, but they did not result in an effective intervention to reverse the increasing trend of infection. HIV transmission in this country is mainly between men in sexual relationships and MSM-targeted advertisements only represent 4.3 per cent of the total German HIV/AIDS prevention ads, all of them broadcast after 2007. This shows the inadequacy of the target audience to the epidemic profile. We find similar results in other countries with increasing MSM cases since 2004, such as Portugal and Italy, where HIV prevention TV ads targeting MSMs only started in 2010. In contrast, French public HIV prevention ads on TV have targeted MSMs since 1991.

We also note that $P3$ does not occur because Portugal neglected to target injected drug users (IDU) when this country was leading the number of HIV cases by this means of transmission in Europe between 2004 and 2008 (ECDC/WHO, 2012, Likatavicius and VandeLaar, 2012b). Furthermore, France and Portugal have developed several campaigns targeting women, while the infection is concentrated in men, and mother-to-child

<table>
<thead>
<tr>
<th>Country</th>
<th>Period</th>
<th>No. Ads and Incidence Rate $r$</th>
<th>No. Ads Targeting General Population and Incidence Rates $r$</th>
<th>No. of ads targeting Adolescents and Incidence Rate $r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>2003-2011</td>
<td>0.1</td>
<td>-0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Germany</td>
<td>2000-2011</td>
<td>0.5</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Italy</td>
<td>2005-2011</td>
<td>-0.6</td>
<td>-0.7</td>
<td>-</td>
</tr>
<tr>
<td>Portugal</td>
<td>2000-2011</td>
<td>-0.4</td>
<td>-0.6</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: $r$ = Correlation coefficient
transmission is residual (ECDC/WHO, 2012, Likatavicius and VandeLaar, 2012b). There is a lack of ads targeting players in the sex industry, a sector with a prevalence of high-risk behavior (Merson et al., 2008).

Except for Italy, the use of condoms is the most prevalent message. This is because sexual intercourse is the main means of transmission. In Italy, there are more advertisements with general warnings about AIDS and appeals to stop/avoid infection, without specifying an explicit behavior that requires change. This is revealing of an awareness policy rather than a behavior change positioning. This fact is not circumscribed to the first two decades of infection as recognized by the literature (Noar et al., 2009) and may be related to possible concern with regard to mentioning fracturing issues in the context of the countries. Portugal and France have a significant number of ads with anti-discrimination messages. This may be a result of their having a higher

Figure 4.
HIV infections incidence rates in France, Germany, Portugal and Italy by means of transmission (2004-2011).
prevalence rate compared to Germany and Italy, which also corroborates P4. These findings also may indicate that social marketers are concerned with HIV stigma and discrimination.

4.3 Adequacy to the environment

With the economic crisis in Europe, Mediterranean countries, such as Portugal and Italy, are suffering from excessive public debt and face high disparity in relation to countries from north and central Europe. To characterize social-economic profiles of the countries, that could influence the production of social advertisements for health prevention, we analyzed GDP per capita and PEH indicators. Figure 5 shows the socioeconomic profile of the four countries analyzed according with those chosen indicators and evidences the gap between Portugal and Italy versus Germany and France.

The number of TV ads collected in each country varies and this policy of social marketing communication seems to be related to both public expenditure on health and the national economic situation as measured by GDP. Table VIII highlights that, apart from the fact that the countries in this study with more advertisements are also the ones with stronger economies, we also find moderate positive correlations between the number of ads developed by Germany, Portugal and Italy and their respective GDPs over time. Although an increasing PEH does not necessarily mean more budget dedicated to health promotion and TV social ads, there are strong positive correlations between the number of ads developed by Germany and Italy and the respective PEH and a moderate correlation in the case of France. There is a fit between the number of social advertisements and the economic context.

Social advertisements are a product of several variables influencing the leaders of governments and NGOs that undertake such campaigns and the people who expect certain

---

**Figure 5.**

Gross domestic product per capita and public expenditure on health in France, Germany, Portugal and Italy

**Source:** OECD Factbook Statistics 2013 – Germany, France, Portugal and Italy (OECD, 2013)
types of leadership according to the culture (Dorfan et al., 2012, Henrikki and Jaakko, 2017). Several models have been developed to understand cultural differences, but the Hofstede Model (Hofstede, 2001) and, more recently, the GLOBE project – the Global Leadership and Organizational Behavior Effectiveness (House et al., 2004) – have been the most used in cross-cultural research, despite intensive debate on the methodological differences between these models (Hofstede, 2010).

The high prevalence of messages promoting condom use may be connected with cultural issues. In Western Europe, this message is not very controversial (and even less over time) for policy-level interventions (EU, 2009, Likatavicius and VandeLaar, 2012b). The research on the national HIV prevention policies shows that the four countries under analysis regularly deliver free condoms in several settings and promote this prevention method in their strategic programs. The “moral message” regarding ABC prevention principles for HIV – Abstinence, Being Faithful and, when appropriate, Condoms (D’Ivoire et al., 2004) – has been considered by the scientific community as a way to oversimplify prevention (Coates et al., 2008), because abstinence is not considered a realistic prevention method and being faithful is not protective at all (Collins et al., 2008). The ABC prevention principle has been especially encouraged by moral and conservative systems for ethical or religious reasons (Coates et al., 2008). Italy has the lowest proportion of messages endorsing condom use and this may be associated with it being regarded as a predominantly male nation with strong religion beliefs (Hofstede, 2001). The high number of ads in Portugal encouraging the HIV testing and dissuading discrimination towards the disease may be related to the fact that Portugal has relatively high uncertainty avoidance, is feminine, of humanist orientation and collectivist values (Hofstede, 2001, House et al., 2004).

The number of ads by country also reflects contextual strategic policies. France and Germany show higher numbers of advertisements and rate their own prevention efforts at higher levels than Portugal and Italy (UNAIDS, 2012). The national authorities explain the activities developed and rate their own prevention efforts in National Composite Policy Index (NCPI), a survey powered by UNAIDS to evaluate national commitments and policies regarding HIV (UNAIDS, 2012). In the last NCPI survey, countries had to rate in a self-evaluation their overall policy efforts in HIV prevention in 2011. Germany answered 9, having answered 9 for 2009, 9 for 2007, and 8 for 2005; France answered 9; Portugal answered 7, and 6 for 2009; and Italy answered 6. All of these countries’ NCPI reports mentioned the development of social advertisements on TV within prevention and social marketing activities. This discussion sustains P5.

<table>
<thead>
<tr>
<th>Country</th>
<th>No. of ads and GDP</th>
<th>Period</th>
<th>$r$</th>
<th>No. of ads and PEH</th>
<th>Period</th>
<th>$R$</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>2004-2011</td>
<td>-0.2</td>
<td></td>
<td>2004-2010</td>
<td>0.3</td>
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</tr>
<tr>
<td>Germany</td>
<td>2004-2011</td>
<td>0.4</td>
<td></td>
<td>2004-2009</td>
<td>0.7</td>
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</tr>
<tr>
<td>Italy</td>
<td>2005-2011</td>
<td>-0.7</td>
<td></td>
<td>2005-2010</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>2005-2011</td>
<td>-0.6</td>
<td></td>
<td>2005-2010</td>
<td>-0.3</td>
<td></td>
</tr>
</tbody>
</table>

Note: $r$ = Correlation coefficient
4.4 Social marketing and policy ambivalences

Ethical considerations may inhibit the effectiveness and efficiency of social marketing in public health (Grier and Bryant, 2005). The use of audience segmentation in social marketing is ethically justified (Dietrich et al., 2015, Newton et al., 2013) and these programs may even be used to reduce health disparities in society, as long as they are culturally appropriate (Williams and Kumanyika, 2002). However, a non-segmented mass media approach may unintentionally reinforce disparities in health knowledge, increasing stereotypes and stigma towards some population segments (Dietrich et al., 2015). It is important to anticipate any unintended effects because stigma and discrimination are connected with certain illnesses (Valdisserri, 2002). Social marketing has been used to fight those attitudes (Rimal and Creel, 2008) and an understanding of the potential barriers is crucial to inform its development.

Besides the cultural trade-off discussed above between appropriateness to the environment and not mentioning fracturing issues in social messages to avoid cultural dissonance, our research also suggests that there is inadequacy between the targeting strategies in social advertising and the prevalence of infection among populations. This may indicate policy-makers have deliberately avoided escalating stigma and discrimination in vulnerable populations connected to HIV transmission. This suggests another trade-off: on the one hand, social marketers are asked to segment audiences and design messages that are suited to the characteristics of specific targets, even in mass media communications (Dietrich et al., 2015, Rimal et al., 2009); on the other hand, they are aware that they may worsen the exclusion that people living with HIV report they feel (Newton et al., 2013). Illness stigma and discrimination may inhibit policy-makers from targeting the most vulnerable populations in social marketing activities when using mass media and highlights a possible restriction to conducting coherent interventions regarding epidemic needs.

The discussed trade-off is motivated by the focus of this study being the television advertisements, a non-segmented mass media requiring at the same time marketing segmentation and targeting. The findings of this research sustain an absence of audience orientation in TV ads, but we are aware that there may be activities targeting specific segments through other communication tools or media or even other types of social marketing interventions. The existence of this ethical trade-off should not deter social marketers and policy-makers from using TV for social advertisements because mass media coverage of health issues is important. It also provides an opportunity for the social inclusion of excluded population groups and minimizes knowledge disparities about health prevention (Williams and Kumanyika, 2002). Social marketing may make an important contribution to resolving the identified trade-offs between social marketing theory and ethical and cultural conflicts, that is, that behavior changing tools can intensify anti-discrimination messages and demystify wrong stereotypes or misunderstandings. Carefully driven social marketing plans should be prepared (Wettstein and Suggs, 2016) with in-depth research on audiences to avoid the presence of erroneous and stereotyped scenes (Carins et al., 2016). The inclusion of members from the target audience in the planning process may also be an important contribution to minimize errors (McHugh and Domegan, 2017, Silva and Silva, 2012).

5. Conclusion and research implications

This paper shows how social marketing was used in health public policy in four European countries and its appropriateness to the environment in which it is applied –
the epidemic data and the policy, socioeconomic or cultural context. This research evidenced that social marketing regarding HIV prevention advertisements on TV are mainly provided by governments rather than by NGOs. We found that the number of social marketing interventions is coherent with the infection incidence rates although in a reactive manner. Social advertisements do not fit the epidemiological profiles regarding the target audience, but the messages delivered tend to be appropriate, except when they disrupt the context. This is because social ads tend to reflect the policy, socioeconomic and cultural context of the country where they are implemented. The data analysis and discussion follow the research propositions, with the exception of the appropriateness of target messages to the most affected populations. If cultural trade-off occurs, then the messages are also deviated. The discussion about who develops more social advertisements, their fit to societal needs and the barriers and challenges to conducting more effective and efficient policies is useful for improving public policies. This paper contributes to public policy and social marketing, recommending proactive responses, fitting to epidemic trends and contextual environments and overcoming the ethical and cultural trade-offs that may occur.

To prevent reactive responses to epidemic trends, professionals must look at the data over time to predict the diseases’ incidences trends in each segment and conduct proactive and creative prevention policies that are suited to the epidemic characteristics in terms of target and messages. Done frequently, this practice may result in effective epidemic outcomes. Regarding HIV/AIDS prevention, policy-makers should address to the increasing incidence trends among MSM and migrants (ECDC/WHO, 2012, Likatavicius and Vandelaar, 2012a, UNAIDS, 2018).

The lack of coherence between policy design and the epidemic profiles suggest that as policy-makers consider the adequacy of social marketing strategies to the epidemic trends, they may also consider possible negative externalities of their action, such as the cultural dissonance of mentioning fracturing topics or increasing stigma and discrimination towards the disease and people who suffer from it.

6. Limitations and further research
The contextual aspects of the cases analyzed are a limitation of this research. Future research may consider a broader period of analysis with more epidemiological data and may analyze social ads in other countries, especially developing countries with generalized epidemics, including other media to compare results. Other health issues could be also considered to make comparison of results. The conclusion on the predominant use of social marketing by public policy institutions suggests that it could be interesting to relate this study’s results with an analysis of the political parties that formed the governments in different time periods and by country, regarding their conservative or progressive policy trends. The discussed trade-offs of social marketers regarding the avoidance of mentioning fracturing issues or increasing stigma and discrimination should be tested in further research.

References


About the authors
Beatriz Casais is a PhD in Business and Management Studies at the University of Porto, Faculty of Economics and Management. She teaches Marketing and Communication at the University of Minho, Polytechnic Institute of Porto and Universidade Europeia, and for five years, she was the Manager of marketing and communication at the National Coordination for HIV/AIDS Infection, Portuguese Ministry of Health. Her research interests focus on social marketing, health marketing and management of non-profit organizations. She has published in Health Marketing Quarterly, International Journal of Entrepreneurial Behavior and Research, World Review of Entrepreneurship, Management and Sustainable Development and Journal of Hospitality and Tourism Technology. Beatriz Casais is the corresponding author and can be contacted at: bcasais@eeg.uminho.pt

Weighing the odds: an exploration of resistance to obesity and overweight

Denise Conroy, Sandra D. Smith and Catherine Frethey-Bentham

University of Auckland Business School, University of Auckland, Auckland, New Zealand

Abstract

Purpose – In 2018, we have surpassed the population landmark of 7.5 billion, and yesterday’s global crisis of under-nutrition in poorer nations is now accompanied by a journey into overweight and obesity. The purpose of our research is to focus on the health and resistance of those who avoid overweight and obesity rather than continuing to focus on the pathology and disease of this phenomenon.

Design/methodology/approach – Taking a consumer-centric perspective and using the lens of the social-economic framework, the authors report qualitative research conducted with 31 young people (ages 17-26) who have been resistant to weight gain in an increasingly obesogenic environment, followed by a survey of the general population, n = 921. The authors look at this type of consumer resistance to better understand how to develop government and community leadership and build more obesogenically resilient societies.

Findings – The findings support the contention that obesity is a social problem that requires a social solution.

Originality/value – The main contribution to the conversation addressing increasing levels of overweight and obesity is that this research demonstrates that these are complex social problems and require complex intervention at the societal level, not the individual level.

Keywords Obesit, Consumers, Resistance, Efficacy, Social-economic framework

Paper type Research paper

Introduction

In 2018, we have surpassed the population landmark of 7.5 billion people on the planet (Lutz, 2017), and while attention is being paid to the potential of population increase outstripping food supply and thus contributing to an unstable future, more limited attention is being paid to the potential contribution overweight and obesity, a metabolic health crisis, could make to this situation. Overweight and obesity can negatively affect the health of the individual, may restrict positive life experiences and place an increased burden on health systems (van den Hoek et al., 2017). Clearly, there is a need to address the current obesity epidemic that is being reported (Ravussin and Ryan, 2018) to contribute to a more stable future for all nations.

Obesity and being overweight are complex social problems that have developed rapidly over the last 50 or so years (Popkin et al., 2012). Dramatic changes in Western society during this period have undoubtedly contributed to their growth. For example, the food processing technology developed during World War II has expanded significantly to the point now where processed foods are a regular and daily part of most people’s diets (Poti et al., 2015). As a result, we are increasingly living in an obesogenic environment; i.e. the combined influence of surroundings, opportunities, or life conditions on the promotion of obesity (Boyd and Egger, 2002; Lake and Townshend, 2006). The majority of us are bombarded by cues to eat throughout the day and night and food has become too readily available (Kemps
Moreover, obesity and being overweight are becoming concerns for every nation; for example, in Malaysia the number of obese adults has more than tripled over the past decade (Samy, 2010).

Despite New Zealand, where this study is based, having the third highest adult obesity rate in the OECD, the government has, to date, considered obesity and overweight to be an individual issue and responsibility and not a social issue requiring its intervention (Ng et al., 2014). Yet the problems associated with obesity and overweight are significant social problems requiring a social ecosystem marketing approach (Brennan et al., 2016). Metabolic health concerns such as diabetes and cardiac disease are directly related to weight, and cost the global economy an estimated $US2tn ($NZ 3.1tn) annually, both in health care and the loss of working hours of these individuals (McKinsey and Company, 2014).

The Food and Beverage Industry has suggested it is willing to self-regulate without the need for government intervention, but has so far contributed little (Vandevijvere and Swinburn, 2015). Individuals are looking for answers to the obesity problem but are finding the available advice confusing (Nagler, 2014). There is a need for leadership and for governments to provide advice on how best to proceed to ensure a healthy future for citizens. We propose that the Socio-Ecological Model (SEM), a theoretical framework which recognizes that most public health challenges are too complex to be adequately explored from a single level of analysis, may be useful in analyzing how best to address the obesity epidemic (Stokes, 1996). SEM asserts that change strategies often neglect the social and environmental context in which behaviors occur and are reinforced, suggesting the importance of programs that target multiple levels of intervention (Green et al., 1996).

**Research aims**

Our research considers the roles of group influence, motivation and self-efficacy to inform new ways of advocating sustained weight loss and maintenance, which will be of relevance to industry, policymakers and consumers. Rather than continuing to focus on the pathology and disease of this phenomenon (overweight, obesity), we propose a focus on the health and resilience of those who resist choices that lead to these conditions. This study considers overweight and obesity from a collective, social perspective, rather than from the individual perspective that currently dominates social marketing campaigns.

By exploring peoples’ engagement with this phenomenon in a social context we aim to better understand which constructs can be used to inform initiatives in the area of healthy weight maintenance. Our objective is to better understand consumer behavior by exploring resilience within the obesogenic environment.

This study is a two-phase mixed methods study. In phase one, a qualitative study, we worked with young adults in a stage of transition, i.e. those who are only just starting to be responsible for all of their nutrient choices and are only just starting to have the financial means to make deliberate choices in how to allocate their spending. The substantive research question for this stage of our research is:

*RQ1.* How can a better understanding of resilience to an obesogenic environment assist social marketers to develop successful policy, marketing communications and interventions to achieve a sustainable healthy weight for our nation?

In phase two of the study, the results of the first phase were used to inform the development of a questionnaire, which was administered to a wider and more demographically representative sample of respondents within New Zealand. The substantive research question for this phase of our research is:
RQ2. What factors enable some, but not all, people to resist the trend for an increasing number of New Zealanders to become overweight or even obese?

Theoretical perspectives and concept development
Models of health promotion have undergone several generational changes. Early fear promotions aimed at dissuading people from performing unhealthy behaviors have been largely discredited (Bandura, 1998). These were replaced with models that focused on extrinsic rewards for healthy behavior, but the behavior was often not sustained once the rewards ceased (Holroyd and Creer, 1986). The next generation of interventions were directed toward the development of self-regulatory capabilities and for many governments, individual responsibility is still the focus (Bandura, 1997). However, contemporary health promotion models acknowledge that personal change occurs within a network of social influences, and such models advocate socially oriented interventions (Bandura, 2004). Contemporary models also note that the importance of the wider environment, for example the neighborhood one lives in, the work one does, the adequacy of the home kitchen, etc. in relation to food intake (Wansink, 2004).

The SEM is widely adopted in health research (Gregson et al., 2001). It provides a framework for describing individual change within the context of social change, and conceptualizes the social world in five levels of influence (Figure 1). These levels are social structure, policy and systems; community; institutional/organizational; interpersonal and individual. This article focusses on the individual and interpersonal levels, noting that a more astute understanding of these levels, and how they interact with social structure, policy and systems, community and institutional/organizational with help to inform beneficial change at these levels.

It is our contention that a focus on increasing self-efficacy and fully recognizing the importance of social groups is the way forward for improving control on overweight, obesity and associated metabolic diseases. This focus has direct links to the SEM framework’s

![Figure 1. The SEM](image-url)
interpersonal and individual community levels. To this end, we argue below that social cognitive theory (SCT) and social identity theory (SIT) are valuable lenses through which to view this research (Holt, 1931; Tajfel and Turner, 1979), and that a better understanding of these levels will result in more informed intervention at the other SEM levels, resulting in improved metabolic health within the community.

Identity, self-concept and efficacy
An individual’s self-concept is multifaceted and these facets change through evaluation, experiences, interaction, etc. (Sirgy, 1982). A person’s identity is the overall perception they have of themselves, and a sense of self is defined by a person’s unique individual characteristics (Hewitt, 1976; Markus and Wurf, 1987). “Dieting” occurs when a person recognizes a negative difference between their perceived and ideal self (Mask and Blanchard, 2011).

SCT posits a multifaceted causal structure in which self-efficacy beliefs operate together with goals, outcome expectations and perceived environmental facilitators in regulating human beliefs and behavior (Bandura, 1994). SCT asserts that belief in one’s efficacy to exercise control is a common pathway through which psychosocial influences affect health functioning. Although commonly considered a model of self-empowerment, SCT also fully acknowledges the importance of social influences, recognizing that in many activities people compare themselves and their performance to that of others, or to standard norms in a society (Bandura, 1994). SCT extends the concept of human agency to collective agency by acknowledging that people do not operate in isolation.

Social identity and reference groups
Reference groups are the people that an individual refers to when evaluating their self (Thompson and Hickey, 2005). Groups offer people a sense of value, belonging, and self-worth (Stets, 2006). According to SIT, we form social identities based on the groups to which we belong, using criteria that defines how all members in our group are similar to one another (in-group) and different to others (out-group) (Tajfel and Turner, 1986). Groups can motivate satisfaction with weight, but also dissatisfaction with weight, and behavioral change towards reducing weight (Strong and Huon, 1999).

The motivations underlying weight loss and maintenance are often both cognitive and social, because of cultural and societal influences; therefore, it is crucial to consider the role of groups in influencing attitudes and behaviors regarding weight, in addition to the role of identity and self-efficacy (Stryker and Burke, 2000). By examining the relationship between role identities and social identities, which often operate simultaneously in a dynamic structural society, we aim to discover links between status, identity, efficacy and lifestyle consumption in the area of overweight and obesity. These insights can then be used to better inform other social systems on how to more effectively approach and intervene in the current metabolic health crisis.

Phase one: qualitative study methodology and methods
In phase one of this study, we adopted the non-dualist theoretical framework of phenomenography developed by Marton (1986). In phenomenographic research, the researcher chooses to study how people experience a given phenomenon, rather than studying the phenomenon itself (Hazel, Conrad, and Martin, 1997). In our study, we explored how participants experience the phenomenon of “weight” and their experience of the impact it has on their identity and status, the identity and status of others, and the influence of self-efficacy on resilience or indulgence. We are not interested in weight
loss *per se* but in how young adults make sense of their resilience in an obesogenic environment.

Bandura (2001) states that too much health knowledge has been accumulated from research studying refractory cases but ignoring successful self-changers. Mindful of this lens, and in keeping with the work of Sara Lawrence-Lightfoot who pioneered portraiture, a qualitative approach that resists social science’s focus on “pathology and disease rather than on health and resistance” (Lawrence-Lightfoot and Davis, 1997, p. 8), we intentionally interviewed only those who were maintaining a healthy weight (indicated by their BMI index) within an obesogenic environment. BMI range provides an indication of resilient behavior. We acknowledge this measure is only one measure that could be considered but it is a standard measure which is still used to reflect adiposity and is especially useful to use within a younger demographic (Riedl et al., 2016). The participants were from a range of backgrounds (working, at home with a child, studying), ethnicities (Pacific Islander, Maori, NZ European, other) and locales within New Zealand.

Given the emergent nature of this work, the intention was to describe and generate a deeper understanding of the different and similar ways individuals make sense of this particular phenomenon (resistance to the obesogenic environment). Our intention in taking this approach of freedom and discovery was to generate several avenues for future exploration in phase two and to facilitate a broad understanding of individuals’ sense-making. Thus, an interpretivist approach was adopted based on in-depth interviews and observations (Smith et al., 2002):

- **Participants:** A purposive sampling strategy was used to recruit 31 young people of a normal, healthy weight (Eisenhardt, 1989; Miles and Huberman, 1994; Green, 2005). To address all socio-economic sites, three areas in Auckland, the largest and most diverse city in New Zealand, were identified along with two other regions in New Zealand – Hamilton and the Bay of Plenty. Using a snowballing technique, we recruited both male and female participants between the ages of 17 and 26 (Taylor and Bogdan, 1998).

- **Interviews:** Each participant was interviewed in their own home or in their local neighborhood, so that interviewees felt comfortable and could refer to their local surroundings if and when relevant. Interviews lasted approximately 60 min and all interviews were audiotaped and later transcribed. Interviewers kept field note diaries and noted any relevant observations during the interview. At this exploratory stage, interviewers sought to encourage participants to tell stories of their experiences and to express their thoughts about food, health, weight, friends, family, culture, environment and experiences (Åkerlind, 2005). Projective techniques and laddering were used to discover the dominant constructs and values motivating participants’ choice of experiences to share (Reynolds and Gutman, 1988).

- **Analysis:** Phenomenography treats all participants as a collective group rather than as independent individuals (Åkerlind et al., 2005) and assumes that while meanings may vary within and between individuals, there are a limited number of qualitatively different understandings of the world (Marton, 1986). In addition to searching for variation in meanings, a phenomenographic analysis also seeks the structural relationships between variations in meanings (Åkerlind, 2012). Thus, to analyze phase one, an iterative approach (Spiggle, 1994) was used to move through the data, viewing individual voices as part of a larger collective narrative.
Because of the nature and goal of phenomenography, the analysis of our research data adopts an “inductive” and “data driven” approach (Boyatzis, 1998). Specifically, inductive thematic analysis was used to identify, code and categorize key themes (i.e. different ways of experiencing resilience) in the data (Boyatzis, 1998). Consequently, identified themes were strongly grounded in the data (Patton, 1990). Furthermore, both open coding and axial coding techniques were employed to strengthen the coding process (Strauss and Corbin, 1998). In keeping with Sandbergh’s (1997) suggestion that interpretive awareness is a worthy way of establishing trustworthiness in phenomenographic research, two of the researchers independently coded the data. This step was taken to maintain an objective awareness by acknowledging and explicitly dealing with each researcher’s subjectivity by contesting and agreeing themes.

Findings

The main themes which we identified are as follows: personal factors, understanding of health/physical impacts, media influences, emotional associations, social influences, time/schedule influences, financial resources and environmental factors. These findings, though not unexpected, did reveal an unexpected overarching theme of mindfulness by which we mean a state of active, open attention on the present. When one is mindful, one observes one’s thoughts and feelings from a distance, without judging them as good or bad (Brown and Ryan, 2003). Essentially, one is aware and present. Our participants were not consistently virtuous in their food choices and exercise habits, but they were homogeneous in their mindfulness of the consequences that their choices and behaviors had (e.g. “[I know it’s bad to eat late at night] but I don’t have the, the willpower to follow it myself so I still eat late or whenever I feel like it”, Julie).

Personal factors were collectively an important theme and included personal circumstances (e.g. “I did a cooking course […] and I used to work as a chef”, Sarah), personal lifestyle (e.g. “Since I was young I’ve been running marathons and half marathons”, Ben), perceived genetic or physiological predispositions (e.g. “I know that there’s like a high risk of diabetes in my family”, James), personal qualities (e.g. “I have a hard time stopping myself from eating, even though I know I should”, Julie) and beliefs or attitudes (e.g. “I don’t like leaving food behind”, Hugo). These perceived or identified personal factors are strongly linked to self-concept. In turn, self-concept plays a significant role in influencing consumer behavior (Goldsmith et al., 1996). These kinds of perceptions were indicative of the individual stage of the SEM framework, and provided an excellent understanding of the factors which influence behavior. In addition, these factors are seen as crucial to capture within the planned larger study of phase two.

Understanding of health/physical impacts of consumption choices was a second theme. An understanding of how eating impacted respondents physically was expressed in terms of the importance of eating and the impacts of certain food choices (e.g. “if I have unhealthy food it makes my skin worse”, Sarah), the (un)importance of portion size (e.g. “portion size doesn’t matter for me, like, I’ll just eat and eat and eat until I’m full”, Luisa) and the consumption of take away or junk foods (e.g. “I don’t particularly like fizzy drinks […] probably, oh ‘cos I think they’re kind of bad for you so I just don’t drink them”, Sherna). As well as being linked to self-concept, this theme also shows the significant role that self-efficacy plays in determining the belief a person has in their ability to exercise control or at least acknowledge the consequences of losing control (Bandura, 2001). On the whole, the participants in phase one displayed a high level of self-efficacy, but efficacy differs in any population and is most vulnerable in children (Wigfield and Eccles, 2000). We determined, therefore, that level of self-efficacy was an important factor that needed to be examined in
phase two, though we acknowledge that having an understanding of health/physical aspects of food choices is only one aspect of self-efficacy. Self-efficacy has significant implications for the SME framework’s “Community” level which speaks to the public agenda, including media agenda. Our data suggest that resilience to mass advertising of nutrient deficient foods and beverages requires high levels of self-efficacy in an obesogenic environment.

*Media influences* was a third theme. This was expressed as a relationship between self-perception and exposure to media (e.g. “[...] I don’t feel, like, that great about my weight [...] It’s mainly to do with [...] what I see on TV”, Luisa), learning new skills (e.g. Kathleen learned how to cook in part through the cooking channel), the influence of advertising (e.g. “I would say TV [advertising] would have the most influence [on my food choices]”, Jarasporn) and social media (e.g. “[...] when you’re flicking through Facebook, you know, things that [come] up [...] you might not click, but that’s just reinforcing the idea into your mind”, Pente). In addition, food labeling was also viewed as an influential factor (e.g. “[...] the biggest aspect through which advertising influences my buying choices is just, like, [the] esthetic of the product and the way they’ve designed the label”, Hugo). SIT and the influence of reference groups are clearly evident in this theme. For example, while Luisa is using media personalities to identify groups she does not belong to, this is having a negative impact on her sense of self-worth, Kathleen is using media to positively identify with a particular lifestyle – that of a “competent cook”. Self-concept is also influencing the consumption behavior of our participants in terms of their product choices through packaging, and reviews of restaurants by perceived experts. The implication here is that media has a significant and wide-ranging impact on individuals. All of our participants were mindful of this impact and consequently filtered its consequences, but this may not be the case for the wider population. Here the social media influences that are clearly linked to “media influences” have been included under the broader theme of “media”, but the overlap between the social media influences and social influences is acknowledged. In addition to this theme reflecting the SEM level of “Community” (under which media resides), there are also implications for the levels of “Institutional”, for example, the role of regulation in food labeling and social structure, e.g. the role of policy in food regulation.

*Emotional associations* with food consumption were also apparent from the data. Positive and negative emotions were associated with eating (e.g. “[...] it’s relaxing, soothing, it’s like something that you do when you’re bored”, Brooke; “Like food was bound up with anxiety and stress about what I was eating”, Giles), cooking (e.g. “[...] when I’m cooking it’s [kind of] like in my own sort of space. It’s kind of room to experiment”, Nick; “[...] if you don’t have a particular ingredient you have to improvise and I can’t do that and so I don’t and so I get stressed out”, Sherna) and shopping (“I think [food shopping is] just, like, a stress killer sometimes”, Jarasporn). Our participants were mindful and aware of the pressure and pleasures associated with food, but again, this may not necessarily be the case in the wider community.

*Social influences* included such themes as upbringing or family norms (e.g. “I think it’s the food that we eat [that causes weight issues in my family]” Luisa), socializing and food consumption (e.g. “That’s kind of how we socialise and catch up is to go out for coffees and go out for dinner and things like that”, Tasmin), the influence of others on food choices (e.g. “I was following all these vegans on Instagram and I was, there was quite a big, like, vegan following. And they have a little community so I was trying out different recipes through that”, Julie), the impact of others’ opinions (e.g. “then she, like, met her first boyfriend [...] he was also obsessed with the way he looked so she was also obsessed with the way she looked”, Sherna) and consideration of others (e.g. “I also want my partner to stay healthy so
often I will want, I might lean towards getting a take-away or something, but you know, he may have been, you know, for a while he was not on a diet […] and so I would not get takeaways, to be encouraging”, *Jessica*. The motivations underlying weight loss and maintenance are often both cognitive and social, because of cultural and societal influences (Stryker and Burke, 2000); therefore, we argue that it is crucial to consider the role of groups in influencing attitudes and behaviors regarding weight, in addition to the role of identity and self-efficacy. We determined, therefore, that the role social influences play in the wider population’s consumption choices needs to be explored in relation to resilience within an obesogenic environment. This finding is in keeping with the “Interpersonal” level of the SEM framework which stresses that individuals are embedded within a network of primary groups, e.g. family and social networks, which help shape social identity and assist with personal role definitions.

*Organizational skills* was another theme, and encapsulated sub-themes such as time restraints (e.g. “some days I feel like eating’s an inconvenience, and it takes up too much time […]”, *Giles*), which invariably lead to some positive behaviors (e.g. “I think [we started using meal plans] because my step-mum started studying and so they didn’t want to have to spend so much time thinking, like, planning their meals for the next, like for the week”, *Daisy*) and some negative (e.g. “like if I’m late for work something […] like I’ll just pick something up from McDonalds or something like that”, *Ramari*). Again, the role of self-efficacy is clearly evident in that our participants were largely mindful of the need to be organized. Citizens with lower self-efficacy are more likely to feel overwhelmed if they do not have some intervention that raises their empowerment level (Ashford and LeCroy, 2009). Again, this theme has implications for the SEM framework’s levels of “Institutional” which focuses, for example, on informal structures such as schools which could push an agenda to empower people’s skills; the “Community” which, for example, could demand social change, and “Policy” which could, for example regulate or support healthy actions such as providing budgeting skills in schools.

*Financial resources* were also an important factor for the respondents in that consumption habits were related to their abundance or lack thereof. Most (if not all) respondents discussed the way financial restraints contributed to food choices (e.g. “If I go to a cafe I’ll always pick something sweet, it’s just [because], one, it’s cheaper; because if you pick a savory thing in a cafe it’s always [going to] be more expensive than a sweet thing”, *Luisa*); the relationship between enjoying food and perceived cost (e.g. “[Food shopping would be more enjoyable] if prices dropped down a bit on some things”, *Pente*); and the link between cost and food quality (e.g. “It’s really difficult to find something healthy around the university that’s not, like, ridiculously expensive”, *Daisy*). Our participants were young adults and so tended to be on a restricted budget; thus it is not unexpected that they were aware of the costs of food. However, despite previous work suggesting that young adults are susceptible to the environment (Laska *et al.*, 2010), we found our participants exhibited higher than anticipated involvement with shopping and food choices, again demonstrating high levels of efficacy and mindfulness. As with the previous theme, the links to the SEM levels of “Social Structure”, “Community” and “Institutional” are clear if empowerment of citizens is to be attained.

*Environmental factors*, another emergent theme, is clustered around the household environment (e.g. “Our oven and stove are really messed up at this house and we’re getting the kitchen renovated soon, but right now it’s really difficult to cook”, *Hugo*); the local neighborhood (e.g. “I used to be a member at a gym, but then that gym got closed down and there wasn’t any gym nearby” *Ramari*); work/study environments (e.g. “[I usually have portioned food in] study environments, [because] you’re kind of stress eating”, *Pente*); and
other situational factors (e.g. “[...] and I would take all the confectionaries away from the front [at the supermarket]”, Atah). These sub-themes seem to be contingent factors that affect (e.g. stimulate or inhibit) behavior. Certainly, the inclusion of environmental factors is an acknowledgement of the important role they play, for example in relation to food intake (Wansink, 2004), alongside, and integrated with, individual and social factors. Further, there is also evidence for intervention that allows for places of work/study to supply nutritious reasonably priced foods (level of “Community”), which may require a change in regulation (level of “Institutional”), which may only be possible by a change in policy (level of “Social Structure”).

These themes and sub-themes are summarized in Table I. The table also links these findings with the survey elements developed for the quantitative phase of this project. The survey items were developed through a reading of the literature in addition to the analysis of the phase one data.

**Phase two: quantitative survey methodology and methods**

Findings from the qualitative phase were utilized to develop a quantitative questionnaire to examine the factors which enable some people to resist the trend toward becoming overweight or obese. The quantitative phase of the study was extended to the broader New Zealand population to better understand the resistance strategies (or lack thereof) adopted by adults 17 years and older, and to allow comparison between those individuals with a healthy BMI (18.5 < 25), and those who were overweight or obese (BMI ≥25). We acknowledge that BMI is not a perfect measure of resilience to the obesogenic environment, as it is subject to a number of influences other than resistance strategies (e.g. genetics) and does not account for muscle mass. However, BMI has been demonstrated to relate to lifestyle choices in a number of prior studies (Cugnetto et al., 2007; Epstein et al., 2008; Green et al., 2015; Sundquist and Johansson, 1998). Furthermore, we are interested in how our participants experience the phenomenon of “weight”, particularly how this experience may impact on their sense of identity and status, and the influence of self-efficacy on resilience or indulgence. Consequently, we also validate the findings by investigating the impact of resilience strategies on BMI with other outcome measures (i.e. "resistance to overeating", “extent of overweight family members” and “extent of overweight friends”).

**Instrument and sample**

Drawing on an extensive review of relevant literature and the phase one interviews, an initial sample of $n = 34$ items to measure resilience was developed. Four expert judges evaluated the scale for conceptual consistency of items, face validity and content validity. The items were subjected to cognitive pretesting on a sample of 15 individuals to evaluate comprehension, retrieval of information, judgement and ability to formulate a response (Tourangeau, 1984; Collins, 2003). To ensure applicability of the survey to the wider New Zealand population, the pretest participants were selected from a wide range of age groups and with varying BMIs. To avoid any potential question order effects, all survey items were randomized in the online administration of the survey.

A sample of $n = 959$ individuals was recruited to take part in an online survey. As the study objective was to explore differences between overweight or obese adults and those of a healthy weight, those individuals with an unhealthy low BMI (<18.5) were removed from the study ($n = 38$) leaving a total usable sample of $n = 921$ individuals, ages 17 years and older. Survey quotas and data weighting were applied with respect to gender, age, ethnicity, location and respondents’ BMI (calculated as bodyweight in kg/height in meters squared) to ensure alignment between the sample and New Zealand population statistics.
<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub-themes</th>
<th>Survey items</th>
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<tbody>
<tr>
<td>Personal factors</td>
<td>Personal circumstances</td>
<td>I find it difficult to stick to diets and/or healthy eating</td>
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<td></td>
<td>Perceived predispositions</td>
<td>I over-eat before realizing that I am full</td>
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<td></td>
<td>Personal qualities</td>
<td>I find it difficult to stop eating, even when I have probably had enough</td>
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<td></td>
<td>Beliefs or attitudes</td>
<td>I think about my weight when choosing what I eat</td>
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<td></td>
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<td>I set weight loss goals for myself</td>
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<tr>
<td>Understanding of health/physical</td>
<td>Importance of eating certain foods</td>
<td>When I set weight loss goals, I achieve them</td>
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<td>impacts</td>
<td>(Un)importance of portion size</td>
<td>I am aware of how many calories are in the foods that I eat</td>
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<td></td>
<td>Consumption of take-away or junk foods</td>
<td>I monitor how much I eat</td>
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<tr>
<td>Media influences</td>
<td>Self-perception and exposure to media</td>
<td>I weigh myself and/or take my body measurements</td>
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<td></td>
<td>Learning new skills</td>
<td>I know how to cook and prepare meals</td>
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<td>Influence of advertising</td>
<td>I diet and/or participate in weight loss programs</td>
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<td>Social media</td>
<td>I like to try the latest weight loss programs and/or diets</td>
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<td>Emotional associations</td>
<td>Positive/negative emotions</td>
<td>I get hungry when I see food advertised</td>
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<td>associated with eating</td>
<td>I try new foods I see advertised</td>
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<td></td>
<td>Positive/negative emotions</td>
<td>I get ideas on what to cook from television shows, the internet, social media and/or advertising</td>
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<td>associated with cooking</td>
<td>I read food labels before choosing which foods to buy</td>
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<td></td>
<td>Positive/negative emotions</td>
<td>I generally enjoy cooking and preparing meals</td>
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<td>associated with shopping</td>
<td>When I was a child, I was rewarded with food</td>
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<td>Social influences</td>
<td>Ubringing/family norms</td>
<td>When I am around others, I make unhealthier food choices than I would if I was alone</td>
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<td></td>
<td>Socializing and food consumption</td>
<td>I attend functions, gatherings or celebrations where there is unhealthy food</td>
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<td></td>
<td>the influence of others on food choices</td>
<td>Food has always been important in my family</td>
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<td></td>
<td>The impact of others' opinions</td>
<td>Food is central to my culture</td>
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<td></td>
<td>Consideration of others</td>
<td>I enjoy cooking for others</td>
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<td>Organizational skills</td>
<td>Time-restraints</td>
<td>I plan my meals in advance</td>
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<td></td>
<td>Meal planning</td>
<td>I take time to prepare healthy meals</td>
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<td></td>
<td>Consumption of convenience food</td>
<td>I keep healthy snacks on hand for when I get hungry</td>
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<td>I skip meals</td>
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<td>I eat breakfast</td>
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<td>I generally eat meals at the same time each day</td>
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<td>Financial resources</td>
<td>Resources affect food choices</td>
<td>I can’t afford to eat healthy food</td>
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<td></td>
<td>Resources affect enjoyment of food/shopping</td>
<td>Healthy food is expensive</td>
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<td>Link between cost and food quality</td>
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<tr>
<td>Environmental factors</td>
<td>Household environment</td>
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<td>Local neighborhood</td>
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<td></td>
<td>Work/study environments</td>
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<td>Other situational factors</td>
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Exploratory and confirmatory factor analysis

The 34-scale items were subjected to a principal components exploratory factor analysis (EFA) with orthogonal rotation (Varimax). EFA was performed prior to confirmatory factor analysis (CFA) to identify the underlying factor structure without imposing any preconceived structure on the outcome (Child, 1990). The exploratory factor structure explained 62 per cent of the variance in the data and revealed the existence of nine distinct factors (Table II). Two items with factor loadings <0.4 were excluded from the analysis to enable a clearer interpretation of the factors (Tabachnick et al., 2001; Hair et al., 2014).

CFA using maximum likelihood estimation was subsequently conducted to assess scale dimensionality (Anderson and Gerbing, 1988). In the initial model development phase, four variables demonstrating standardized regression weights less than 0.5 were removed from the model. Less than 20 per cent of items were removed from the CFA model (as recommended by Hair et al., 2014).

The chi-square test for goodness of fit for the model was significant at the 5 per cent level, $\chi^2 (330) = 1,242.681, p < 0.00$; this is not unexpected with a large sample. Findings indicate an acceptable fit for the nine factor structure (GFI = 0.903, CFI = 0.902, RMSEA = 0.056) given the large sample size and larger number of observed variables (Hair et al., 2014). Discriminant validity was established by comparing the AVE with the squared correlations between the factors. Composite reliability estimates are all above 0.6 (with eight of the nine being above 0.7), and all remaining items have significant loadings on their corresponding factor, with standardized regression weights all above 0.5 and most above 0.7 as recommended by Hair et al. (2014). The factors represent inherent attitudes and behaviors that are likely to determine how resilience (or lack thereof) to the obesogenic environment will be manifested (Mehrabian and Russell, 1974).

Cluster analysis

Cluster analysis was used to investigate the resilience strategies of subgroups within the data. This technique has been effective at describing subgroups on similar topics (Green et al., 2015 used cluster analysis to investigate the characteristics of obese individuals). Factor scores were used to generate a cluster analysis. To produce the cluster analysis, data were randomly divided into two subsets (Lockshin et al., 1997; Michaelidou, 2012). The first subset was used to generate the possible alternative cluster solutions using hierarchical cluster analysis with Ward’s method (squared Euclidean distance). The dendrogram and agglomeration coefficients from the hierarchical cluster analysis suggested the usage of a four, five or six cluster solution. The second subset of data was then used to conduct a $k$-means cluster analysis using four, five and six cluster solutions. The initial centroids provided by the hierarchical analysis were used as cluster seeds in the $k$-means analysis (Punj and Stewart, 1983; Hair et al., 2014). A hierarchical cluster analysis was also performed on the second subset of data (using Ward’s method, squared Euclidean distance) and compared to the results of the $k$-means analyses from the same data file. This was conducted to provide an indication of the stability of the solution (Punj and Stewart, 1983). The four-cluster solution was chosen as the most appropriate in terms of stability and reproducibility. The data sets were then combined and a final $k$-means cluster analysis was conducted. The final cluster solution is presented in Table III.

In comparison to other clusters, Cluster 1 (Strivers; 23 per cent) has higher mean scores for weight focus and routine, and lower mean scores for inability to read body signals, family and cultural importance of food, cooking and preparing meals, and susceptibility to media and unhealthy social influences. Cluster 2 (Susceptible; 21 per cent) has higher mean scores for nearly all factors, with the exception of routine. Cluster 3 (Disengaged; 30 per cent)
<table>
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<tr>
<th>Survey items</th>
<th>1</th>
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<tbody>
<tr>
<td>I think about my weight</td>
<td>0.623</td>
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<td>I am aware of how many calories are in the foods that I eat</td>
<td>0.558</td>
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<td>I weigh myself and/or take my body measurements</td>
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<td>I monitor how much I eat</td>
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<td>I think about my weight when choosing what I eat</td>
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<td>I set weight loss goals for myself</td>
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<td>I diet and/or participate in weight loss programs</td>
<td>0.620</td>
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<td>I like to try the latest weight loss programs and/or diets</td>
<td>0.421</td>
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<td>When I set weight loss goals, I achieve them (reversed)</td>
<td>0.435</td>
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<td>I find it difficult to stick to diets and/or healthy eating</td>
<td>0.565</td>
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<td>I over-eat before realizing that I am full</td>
<td>0.816</td>
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<td>I find it difficult to stop eating, even when I have probably had enough</td>
<td>0.801</td>
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<td>I generally enjoy cooking and preparing meals</td>
<td>0.860</td>
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<tr>
<td>I know how to cook and prepare meals</td>
<td>0.707</td>
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<td>I enjoy cooking for others</td>
<td>0.856</td>
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<tr>
<td>I plan my meals in advance</td>
<td>0.633</td>
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<tr>
<td>I take time to prepare healthy meals</td>
<td>0.627</td>
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<td>I keep healthy snacks on hand for when I get hungry</td>
<td>0.676</td>
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<tr>
<td>I read food labels before choosing which foods to buy</td>
<td>0.641</td>
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<td>I eat breakfast</td>
<td>0.762</td>
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<td>I skip meals (reversed)</td>
<td>0.800</td>
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<td>I generally eat meals at the same time each day</td>
<td>0.699</td>
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<tr>
<td>My eating habits are influenced by other people</td>
<td>0.406</td>
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<tr>
<td>When I am around others, I make unhealthier food choices than I would if I was alone</td>
<td>0.538</td>
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<tr>
<td>I attend functions, gatherings or celebrations where there is unhealthy food</td>
<td>0.764</td>
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<td>I can't afford to eat healthy food</td>
<td>0.784</td>
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<tr>
<td>Healthy food is expensive</td>
<td>0.858</td>
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<td>I get hungry when I see food advertised</td>
<td>0.582</td>
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<td></td>
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<tr>
<td>I try new foods I see advertised</td>
<td>0.896</td>
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<tr>
<td>I get ideas on what to cook from television shows, the internet, social media and/or advertising</td>
<td>0.551</td>
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<td>Food has always been important in my family</td>
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<td></td>
<td>0.820</td>
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<td>Food is central to my culture</td>
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<td>0.771</td>
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has higher mean scores on financial factors, susceptibility to media and unhealthy social influences, and inability to read body signals; and lower mean scores on planning and preparation, routine and weight focus. Cluster 4 (Mindful; 26 per cent) has higher mean scores on planning and preparation, routine and cooking and preparing meals and lower scores on weight focus, inability to read body signals and susceptibility to unhealthy social and media influences.

To establish the external validity of the cluster solution, criterion validity was assessed using variables omitted when developing clusters (Hair et al., 2014). BMI, resistance to foods when emotional and reported extent of overweight peers (i.e. both overweight close friends and overweight family members) were chosen to validate the cluster solution because BMI is only one marker of resilience within an obesogenic environment. Emotional eating and weight of peers have also been associated with (lack of) resistance to the obesogenic environment (Neumark-Sztainer et al., 2007; Trogdon et al., 2008; Hruschka et al., 2011).

A MANOVA model was estimated using these four items as dependent variables. The MANOVA model is significant at the 5 per cent level ($F = 2421.1$, $p = 0.00$), providing support that these variables can be predicted by cluster membership. Figure 2 displays the sample means from the MANOVA analysis for each cluster. Tukey honestly significant difference (HSD) post hoc tests for differences between groups reveal that the Mindful cluster has a significantly lower BMI and is less likely to report having many overweight family members and close friends in comparison to the other clusters ($p = 0.000$ for all comparisons). The Strivers group has a significantly lower BMI than that of the Susceptible at the 5 per cent level ($p = 0.056$). The Mindful and Strivers groups also report significantly higher resistance to emotional eating than the Susceptible ($p = 0.000$ for both comparisons) and Disengaged ($p = 0.000$ for both comparisons). The Susceptible group are more likely to report having many overweight family members and close friends in comparison to Strivers (family members, $p = 0.001$; friends, $p = 0.003$) and the Disengaged (family members, $p = 0.006$; friends, $p = 0.000$).

For descriptive purposes, the clusters were further profiled on a set of additional variables not included in the clustering variate, or used to assess predictive validity. The Strivers are mostly male, mostly of age 45 years and older, mostly of New Zealand European ethnicity and have a relatively even spread in terms of personal income and education levels. The Susceptible group is mostly female, mostly aged below 45 years, comprises a higher proportion of Asians in comparison to the other clusters, and has higher income and education levels than the other clusters. The Disengaged group has an approximately even proportion of males versus females, mostly of age below 45 years and comprises the highest

<table>
<thead>
<tr>
<th>Themes</th>
<th>Clusters</th>
<th>ANOVA (F)</th>
<th>$p$</th>
</tr>
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<tbody>
<tr>
<td>Weight focus</td>
<td>3.1</td>
<td>3.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Inability to Read Body signals</td>
<td>2.4</td>
<td>3.2</td>
<td>3.2</td>
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<tr>
<td>Media influences</td>
<td>2.3</td>
<td>3.4</td>
<td>2.8</td>
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<td>Cooking and preparing meals</td>
<td>3.3</td>
<td>3.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Routine</td>
<td>3.5</td>
<td>3.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Planning and preparation</td>
<td>3.3</td>
<td>3.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Unhealthy social influence</td>
<td>2.5</td>
<td>3.3</td>
<td>2.8</td>
</tr>
<tr>
<td>Financial</td>
<td>3.0</td>
<td>3.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Family and culture</td>
<td>3.0</td>
<td>3.7</td>
<td>3.3</td>
</tr>
</tbody>
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Notes: *Cluster means are based on overall scores. Scores range from 1-5 (where 1 = low and 5 = high)
proportion of New Zealand Māori and Pacific Island members. The Disengaged are the group least likely to possess a bachelor’s degree or higher, and have lower income levels than the Strivers and Susceptible. The Mindful group has an approximately even proportion of males versus females and is mostly of age 30 years and older. They have lower income levels than the Strivers and Susceptible, but are the second most highly educated group.

In terms of eating habits, the Mindful cluster are the least likely to have consumed meals prepared outside of the home within the last week, the most likely to dine at home (with other members of their household) regularly, and the most likely to be the main decision maker on meals eaten in their household. Conversely, the Disengaged and Susceptible groups demonstrate a higher incidence of consuming meals prepared outside of the home within the past week, and are least likely to dine with other members of their household. The Disengaged are also the least likely to be the main decision maker on meals eaten in their household.

The Mindful and Strivers groups demonstrate the greatest resistance to unhealthy social influences. In comparison to unhealthy social influences, healthy social influences on eating habits are more commonly reported by all groups. However, the Mindful group are more susceptible to healthy social influences from peers (in particular those they live with),

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**Notes:** (a) BMI; (b) resistance to emotional eating; (c) ‘many people in my family are overweight’; (d) ‘many of my close friends are overweight’
compared to the other groups. The Susceptible group is sensitive to all healthy social influences, in particular advice on the internet and advice from radio, TV, books or magazines. Conversely, the Disengaged are less susceptible to healthy influences in comparison to the other clusters. Tukey HSD post hoc tests also reveal that the Mindful group are more likely to report enjoying dining with others in comparison to the other groups ($p = 0.000$ for all three comparisons).

Discussion

The main themes identified in phase one were largely echoed in the phase two factor analysis: weight focus, inability to read body signals, cooking and preparing meals, planning and preparation, routine, unhealthy social influence, financial, media influences and family and culture. This result demonstrates that these factors are concerns for the entire population and supports our contention that overweight and obesity are a social concern and have an impact throughout society; therefore, socially oriented interventions (Bandura, 2004) are more likely to be effective than a focus on the individual. Importantly, the need to consider metabolic disease using the lens of the SME framework was further underlined. The embeddedness of the individual and the interpersonal within wider society, institutional norms and the influence of policy and social structure are clear.

The cluster analysis reveals four distinct groups – Strivers, Susceptible, Disengaged and Mindful – with the Mindful group being most similar in attitudes and behaviors to the resistant young adults interviewed in phase one. Self-efficacy in both the Mindful and resistant participants is very high; they reported feeling in control, organized, educated and empowered by their social networks. This finding resonates with SCT’s assertion that belief in one’s efficacy to exercise control is a common pathway through which psychosocial influences affect health functioning (Schwarzer and Fuchs, 1996). Here, it must be recalled that whilst self-efficacy is often considered to be concerned with the individual, it is understood that its development is governed by the social environment and social contacts of the individual (Bandura, 1994). In contrast, the high levels of efficacy that are required for change to be attempted and sustainable are not in evidence in the other three groups, especially the Disengaged group, which contains the majority of our New Zealand Māori and Pacific Island participants, who come from a more collectivist culture where self-efficacy is more likely to be judged on inter-group behavior rather than individual achievement (Hofstede, 1980). A greater understanding of how to increase the self-efficacy of this group is necessary if any intervention, social or otherwise, is to be successful. However, clearly the Mindful and Strivers groups feel empowered within our society, whilst the disengaged group lacks such empowerment. The wider social structures are not facilitating their health focus and clearly intervention is needed to empower behavioral change.

Research clearly demonstrates that the influence of others can have a significant impact on people’s behavior (Bandura, 2004); the interpersonal level of the SEM framework. Both the resilient young adults and the Mindful group find positive support in their reference groups. Groups offer people a sense of value, belonging and self-worth (Stets, 2006) and lifestyles are a form of identification that people use to both differentiate themselves from and connect to others in their community (Evans and Jackson, 2007). The Mindful group also readily identifies with positive influence in their environment (“Community” level of the SEM framework), and in the media (“Community” level of the SEM framework). It would seem that their ‘in-group’ is anything positively health-related, whilst the low self-efficacy of the Susceptible and Strivers makes them more vulnerable to identifying with less healthy groups. The Disengaged group are less influenced by healthy media and social sources than any other group, but highly influenced by unhealthy social and media sources. This finding
suggests that they are highly identified with their own “in-group” social identity, and culture. Clearly further research is necessary to explore why these groups identify with different aspects of media and how other levels of the SEM framework can be best utilized to empower citizens to strive for a healthy metabolic state.

Conclusion

The aim of this study was to better determine a pathway for successful intervention that will improve the health of our citizens. Our concern is also one of providing solutions which will benefit individual health, social health, and health (economic) systems. Our findings suggest that social structures (SEM framework “Interpersonal” level) can positively affect individuals and their sense of self when trying to resist weight gain. Belonging increases feelings of status, self-efficacy and positive identity, suggesting that rather than focusing on the detrimental impact overweight has on the individual’s identity and status, more positive and social approaches to weight loss may have a greater influence on our battle with obesity and desire for a sustainable future. Empowering citizens and increasing efficacy and mindfulness are potential paths forward. Such pathways require a more holistic approach to be taken than simply focusing on the individual; we suggest that the SEM framework is an excellent way to approach this.

The field of health in general and obesity in particular is overwhelmed by contention. Political battles between individualist and structuralist approaches are all too common. Proponents of the individualist agenda claim that individuals can exercise a good deal of control over their health; therefore, it is their own responsibility to maintain it. Those of a more structuralist persuasion argue that health is largely the product of social, environmental, political and economic conditions, and that the individual has very little control over these. Our findings suggests that leadership in the area of obesity needs both approaches if we are to achieve sustained health for all citizens. It is our contention that the quality of health of a nation is a social matter, not just a personal one. Consequently, it requires changing the practices of social systems that impair health, and not simply changing individual habits. The main focus of a social approach to obesity is a collective enablement for changing social, political and environmental conditions that affect overweight and obesity, all found in the SEM framework.

Our main contribution to the conversation addressing increasing levels of overweight and obesity is research findings that demonstrate these are complex social problems and require complex intervention at the societal level, not the individual level. Interventions targeting the individual have failed repeatedly, costing taxpayers millions of dollars, and individual citizens, years of stress, and sometimes their lives. A third phase to this research would be to test our theory by creating an intervention to be experimentally tested. For this phase, we are particularly interested in the Strivers group who are, in many ways, similar to the Mindful group, yet fail in their endeavors, and the Susceptible who are currently vulnerable to negative social messages regarding healthy eating. Additionally, an interesting avenue for future research is the Disengaged group, which would require a focus on the issue of independent versus interdependent societies to better understand how high self-efficacy is socialized, understood and empowered in each society to target interventions more appropriately [Fifita et al.’s (2015) study on resistance to tobacco consumption]. The SEM framework to be of value as a framework for this work.

In conclusion, we urge research and intervention to shift from a lens on the individual to taking a more collective, societal focus that requires significant leadership from government. We assert, as do Kilbourne et al. (1997, p. 20), that the mainstream marketing academy needs
to increasingly take on board the issues being discussed by social marketers and others outside our academy. Metabolic health is a highly complex issue and no one discipline has the answers; it is only by working together that complex answers have any hope of emerging.

References


Thompson, W. and Hickey, J. (2005), Society in Focus, Pearson, Boston, MA.


Further reading


Corresponding author

Sandra D. Smith can be contacted at: sd.smith@auckland.ac.nz
Increasing women’s participation in the STEM industry

A first step for developing a social marketing strategy

Enav Friedmann
Faculty of Humanities, Bar-Ilan University, Ramat Gan, Israel

Abstract

Purpose – The purpose of this study is to investigate women and men’s differences in perceived importance of various job attributes. Analyzing the job attributes that derive value might help to form intervention ideas for promoting greater participation of women in Science, Technology, Engineering and Mathematics (STEM) industries. Current research has primarily focused on this issue from educational, sociological and gender-based approaches, suggesting interventions such as enriching women’s science literacy and skills, increasing their science self-confidence and changing stereotypical views of the STEM field as masculine (perceived as lacking altruistic or communal values). Other have suggested policy interventions that include workplace family supportive programs.

Design/methodology/approach – Choice-based conjoint and choice model analyses were conducted to examine the importance of different job attributes for women and men.

Findings – Salary and the ability to combine work and family obligations were the most important determinants of women’s career choices.

Practical implications – This study is a first step to inform future intervention designs based on social marketing strategy. Focusing on the attributes related to women’s career choices is suggested to facilitate women’s entry into the STEM industry.

Social implications – Increasing the value of STEM careers might lead to more equal representation of women in the STEM field.

Originality/value – For the first time, initial principals of a social marketing intervention is suggested after an examination of the core attributes related to women’s career choices.

Keywords Social marketing, Choice models, Conjoint analysis, STEM careers for women

Paper type Research paper

Introduction

Women face challenges when choosing, applying to programs or jobs, being accepted and thriving in the Science, Technology, Engineering and Mathematics (STEM) industries (Cheryan and Plaut, 2010). Women are only half as likely as men to choose STEM academic studies, regardless of mathematical ability (Hango, 2013). Women in the UK fill only 13 per cent of the STEM jobs (House of Commons Science and Technology Committee, 2014; Wilson, Broughan and Hillier, 2017). Similarly, USA Census Bureau in 2012 reported that among science and engineering graduates, men were employed in a STEM occupation at twice the rate of women (31 per cent vs 15 per cent) (Landivar, 2013). Social norms shape work-related gender roles (Charles and Bradley, 2009). Thus, this paper proposes a social marketing strategy aimed at changing social perceptions. Social marketing techniques have been successfully applied to the promotion of social objectives such as encouraging different healthy behaviors (Almestahiri et al., 2017), but no marketing interventions have been
suggested to deal with the inequality of women in STEM industries. This approach suggests communicating the value of STEM career for women, only after gaining understanding of the attributes that derive value for them.

Background
For centuries, men dominated in science, math and engineering; and women’s social status as primary homemakers and mothers deterred them from engaging in the STEM fields (Ceci et al., 2015). To illustrate, from 1901 to 2016, only 18 women (5.5 per cent), compared to 307 men (94.5 per cent), won Nobel prizes in STEM fields (www.nobelprize.org/nobel_prizes/facts/). Over the past 40 years, society has gradually accepted the possibility of female scientists and the women’s participation in science has increased dramatically. However, large gender gaps remain (Ceci et al., 2015; Cheryan and Plaut, 2010).

In the USA, boys and girls take similar numbers of high school math and science courses, but women are less likely than men to choose a STEM major in college. Thus, men college-graduates outnumber women in most science and engineering fields (Zafar, 2013). Nearly one in five female science and engineering graduates are out of the labor force, compared with less than one in 10 male science and engineering graduates (Landivar, 2013). The US Census showed a significant underrepresentation of women in engineering and computer jobs; occupations that constitute more than 80 per cent of all STEM employment in 2013. This despite findings that showed no clear gender differences between women’s and men’s mathematics abilities (Lindberg et al., 2010). The trajectory into positions of management and leadership in STEM sectors is termed the “leaky pipeline” where women leave STEM careers at every juncture at higher rates than men do (Gneezy et al., 2012; Saville, 2014).

Gender diversity is needed in the STEM field to achieve economic vibrancy, innovation and social equity goals, and failure to incorporate talented women is a waste of effective human resources (Carnevale et al., 2011). Hence, understanding the roots of the problem is essential for solving it. There are several explanations for women’s low participation in STEM fields as detailed in the next section.

Possible explanations for the issue
Two broad interdependent perspectives explain these phenomena: 1) Women are treated differently. By this structural deficit model, women receive fewer opportunities, having to contend with social barriers and stereotypes, which deter them from STEM progress (Stake and Mares, 2001; West and Zimmerman, 2009; Britton, 2016). This model points to subtle forms of sexism that exist in science education so that boys tend to receive more encouragement from science teachers and men are more cited and published in STEM texts. Later on, male social networks facilitate hiring and promotion through “old boy networks”. Furthermore, the stereotype still prevails that women have inferior capacities on mathematics-related tasks in comparison to men (Reuben et al., 2014).

2) Women act differently. This difference model focuses on the behavioral goals of women that are expressed in lower motivation, decreased competitiveness, poor esteem about themselves as scientists and more family responsibilities compared to men (Barbulescu and Bidwell, 2013; Howe-Walsh and Turnbull, 2016; Williams and Ceci, 2012). In addition, women may prefer the success of their families or community to personal achievements or may believe that the STEM field does not support collaboration with others (Diekman et al., 2015; Lee, 2002).

According to Blickenstaff (2005), there is more than one cause to women’s low STEM industry participation, with all explanations intersecting mainly on social norms. Science is a socially constructed system of communication and interaction, that is still largely
dominated by men (Sabelis, and Schilling, 2013; Britton, 2016). Social pressure on women to fill gender roles at home and at the workplace (Crawley et al., 2015) may influence women to act differently and, thus, be treated differently (Charles and Bradley, 2009).

To generate social change, changes in beliefs and attitudes must be made at the societal level and among the women themselves. Individual’s wants are affected by social expectations and norms and vice versa (Campos et al., 2008); hence, interventions should influence not only women’s wants but also normative beliefs to help in solving the problem.

Understanding the determinants that influence women’s career choices might help to design interventions, increasing the value that women attribute to STEM work choices and encouraging women to enter the field.

Current interventions in STEM gender promotion

Educational or psychological programs that aim to improve participation of women in the STEM fields have been developed in a variety of settings – in schools, community centers, businesses, and universities, varying also in the targeted age group (Jayaratne et al., 2003; Stake and Mares, 2001). Some interventions seek to enhance science literacy and skills for women, increasing motivation, enjoyment or self-worth, while others seek to change the stereotypical view of scientists by introducing young women to women in STEM industries, business and research (Best et al., 2013).

Programs have yielded mixed results: insignificant effects were found in science enrichment programs (Stake and Mares, 2001; Best et al., 2013) or in enhancing girls’ science interest by participating in summer science camp (Jayaratne et al., 2003). Similarly, no change was observed among girls’ science interest although the intervention increased self-efficacy, valuing and egalitarian attitudes toward computer science (Weisgram and Bigler, 2006). A well-funded national program in Germany showed minor changes in attracting young women into STEM career choices (Best et al., 2013). A positive impact on science performance was found, when girls were asked to write about important values, increasing grades in college physics classes (Miyake et al., 2010). In an intervention on beliefs about the STEM field, girls were presented with the altruistic value of scientific careers, which had a positive impact on their interest in science (Weisgram and Bigler, 2006).

Researchers have also suggested that better performance will occur when pedagogy changes by teaching science separately for boys and girls and adapting the curriculum to girl’s interests (Häussler and Hoffmann, 2002; Mason and Kahle, 1989). Other interventions showed success when focused on elevating girls’ self-efficacy in science, building mathematical confidence and skills (Reid and Roberts, 2006). When the self-efficacy interventions included information about gender-discrimination in STEM areas, the results were enhanced (Weisgram and Bigler, 2007). Other interventions with positive results focused on the view of STEM as a masculine field by changing the academic environments, for example, by exposing to women to positive STEM role models (Stout et al., 2011; Ramsey et al., 2013). “Diversity training” for faculty includes presenting facts about the representation of women in STEM, including implicit biases on hiring, promotion and retention processes. These efforts improved attitudes toward women, among men but not among women (Jackson et al., 2014; Moss-Racusin et al., 2016).

Most program evaluations were short term, taken immediately post-program, while long-term effectiveness in increasing the number of girls and women entering STEM fields was not assessed in these studies (Jayaratne et al., 2003). When long-term effects were measured, participation in intellectually stimulating programs for girls did not predict future pursuit of STEM careers (Demetry et al., 2009; Sharp, 1994). Monitoring change in perceptions and attitudes over the long term is one of the benefits of the intervention proposed here.
A social structural approach was suggested by including family supportive programs in the workplace, allowing for flexibility in work–family balance and recognizing that family events can affect career development (Goulden et al., 2011). Best et al. (2013) suggested rallying support from high-school teachers and parents to encourage young women in STEM subjects and changing the academic STEM culture to accommodate women students and faculty (Ihsen et al., 2008).

As this review suggests, no intervention was explicitly designed using a market analysis of the value of STEM careers compared to career alternatives for women. Analysis of the marketing environment including the competitor’s perceptions of other career options compared to the marketed “product” (STEM career) is essential to develop effective marketing strategies. Specifically, the gap revealed in the literature highlights the need to find a social solution to a structural problem, using social marketing strategies.

**Social marketing – A new perspective on the problem**

Kotler and Zaltman (1971) claimed that “The art of selling cigarettes, soap, or steel may have some bearing on the art of selling social causes” (p. 1) [...] Essential components include marketing research, “product” planning and communication (Kotler and Zaltman, 1971). Social marketing also “involves changing attitudes, beliefs, and behaviors of individuals or organizations for a social benefit, where the social change is the primary (rather than secondary) purpose of the campaign” (p. 3) (Rangun and Karim, 1991). The focus can either be on the individual, community, social structures, laws and public policies (Andreasen, 1994). Social marketing strategies focus on the personal benefits for the target population and not just for the general social good (Lefebvre, 2011; Spotswood et al., 2012; Gordon, 2011).

Edgar, Boyd and Palame (2009) have suggested social marketing has a greater potential for stimulating sustainable behavior change across targeted populations compared to other educational interventions. The expectancy value model of Fishbein (1967) suggests a basic theoretical approach for rational decision making. This approach is used when the decision has important implications; thus, a great deal of cognitive effort is invested in making this choice (Bettman et al., 1998). This model assumes that the evaluation of the total value of a “product” (i.e. STEM to women) is based on the product’s attributes (e.g. salary level, job interest, ability to combine work and family obligations (CWFO), belief in career success). Specifically, the total value of STEM is a function of the perception of the product’s attributes multiplied by the importance of each attribute. This can be represented by the following equation:

\[ V_j = \sum_{k=1}^{K=n} w_k x_{jk} \]  

Where:

- \( V_j \) is the overall expected value of consumer to product \( j \);
- \( w_k \) is the importance the consumer gives to attribute \( k \); and
- \( x_{jk} \) is the consumer’s perception of the product in the attribute \( k \).

Understanding what value is attached to each job attribute should help focus on those features amenable to change to increase the value of the “product”.

Reviewing the literature presented above, following research questions are posed:
Q1. What are the most influential attributes of career choices among young men and women?

Q2. Are there significant gender differences between the importance assigned to these attributes?

Q3. How do men and women rate STEM and non-STEM career options?

Methods

Two marketing statistical tools are commonly used to assess the importance of attributes: choice based conjoint (CBC) analysis and choice models (McFadden, 1986; Pracejus and Olsen, 2004). Both investigate the trade-offs individuals make when forming preferences for products, services or ideas (Green et al., 2001). Compared to direct measures (e.g. what is important to you when choosing a career?), these methods are considered more objective, with greater predictive accuracy, as the context parallels real-life choice behavior, thus bypassing social desirability bias (Steffens et al., 2014; Adamowicz et al., 1997; Caruso et al., 2009). In CBC analyses, consumers are asked choose between hypothetical products with different attribute levels, while in choice models real or simulated selection of products are presented (Louviere and Islam, 2008).

The next sections present methods and results from Studies 1 (CBC analysis) and 2 (Multinomial Logistic (MNL) Regression choice model). A preliminary search was conducted to select the attributes examined in Study 1 and the career options in Study 2. Based on a comprehensive literature review, a list of 14 attributes was generated (Eccles, 1994; Best et al., 2013; Weisgram and Diekman, 2017). These attributes were judged important by three early career STEM workers and eight attributes were selected for further examination in Study 1. The same judges were also given a list of 12 possible career options and classified them into non-STEM (1) and STEM jobs (7). The two most representative STEM and non-STEM careers were examined in the second study.

In both studies, participants were paid to answer an online questionnaire through Prolific website, an academic on-line survey service to recruit respondents of different demographic in July 2017. A recent evaluation of Prolific Academic and two other widely used on-line survey services reported Prolific has better data quality and participant diversity (Peer et al., 2017). In both studies, we recruited English-speaking participants whose ages were restricted to between 20 and 40 years, paralleling the age when young people make career choices.

Study 1

Sample

The sample consisted of 248 participants who answered an online questionnaire through the Prolific website (46 per cent from the UK, 49 per cent from the USA, 3.5 per cent from Canada and 2 per cent Australia). The sample included 121 men and 125 women. Mean age in Study 1 was 29.33 years (SD = 5.864). Family status included 53 per cent single, 30 per cent married and 11 per cent had no children. Educational level was: 10 per cent had up to 12 years, 35 per cent had studied 13-15 years, 41 per cent 16-20 years and 15 per cent more than 20 years. Regarding income, 40 per cent said they earn significantly below average, 22 per cent slightly below, 20 per cent average level, 13 per cent slightly above average and 5 per cent significantly above average. About one third (32 per cent) were students. Employment status was: 44 per cent were homemakers or unemployed, 23.5 per cent worked full time and 2 per cent worked part-time.
Procedure
A CBC analysis was designed, using eight attributes derived from the literature search. These were: 1. salary level 2. interest in the job 3. belief in my success at the job 4. support from significant others for the job choice 5. the ability to CWFO 6. gender compatibility 7. social status and 8. contribution to community. Respondents were asked to imagine making a career decision and were told they will need to select their most preferred choice between the two career options presented. Using Sawtooth software (2017), they were then randomly shown 14 comparisons of two job options (with varying levels of different characteristics). Each career option that was presented had different combinations of utility levels – low, moderate or high levels. For example, low salary but high interest in the job (see Appendix for example).

\(t\)-tests were conducted between men and women on each attribute’s importance, both by overall importance and in each level of the attribute (low, moderate and high levels). The CBC analysis used Sawtooth software that analyzes the importance of each attribute out of the career choice options (Chrzan and Orme, 2000).

Results of Study 1
Figure 1 demonstrates the averages of individual-level importance weights for men and women. As the figure shows, the three main attributes that were important to men and women were salary, the ability to combine work and family commitments and interest in the job. In a series of \(t\)-tests comparing between the importance of attributes of men and women, salary and CWFO were significantly different between the genders (the mean salary importance of men was 26.96, women 24.8, \(T(246) = 1.949\) \(\text{sig} = 0.05\); mean CWFO for men was 15.12, women 19.95, \(T(246) = -3.98\) \(\text{sig} = 0.00\)). Specifically, salary was more important for men than for women, and CWFO was more important for women than for men. Gender differences in job interest were marginally significant (\(\text{sig} = 0.063\)); men attributed greater value to job interest than women did. For women, salary was the most important attribute, then ability to combine family-work obligations, interest, belief in my success, support from significant others, social status, gender compatibility and last, the ability to contribute for society. Table I presents the estimates in each attribute level, derived from the CBC.

![Figure 1. Summary of the importance of job characteristics as perceived by women and men](image-url)
A t-test for examining gender difference in part-worth importance were conducted in each level of attribute as well. Gender difference were observed in high level of salary, where men stated it was more important to them than women did. Low level of belief that they will succeed in this job decreased men’s part-worth more than for women and a high level of gender compatibility was more important for men than for women.

**Study 2**

**Sample**

The sample included 258 participants (different respondents from those in Study 1), who were recruited through Prolific (68 per cent from the UK, 25 per cent from the USA, 5 per cent from Canada, 1 per cent from Ireland and 1 per cent Australia); 106 men and 152 women. Mean age was 28.55 years (sd = 6.03). Family status of the sample included 46 per cent single, 26 per cent married. More than half (57 per cent) had no children. Educational level: 12 per cent had up to 12 years, 22 per cent had studied 13-15 years, 47 per cent 16-20 years and 19 per cent more than 20 years. SES level was: 48 per cent said they earn significantly below average, 25 per cent slightly below, 14 per cent average level, 7 per cent slightly above average and 5 per cent significantly above average. About one third (27 per cent) were students. Employment status was: 43 per cent worked full time, 24 per cent worked part-time and 26 per cent were homemakers or unemployed.
Procedure

Perceptions of four career options were examined; two STEM careers (engineer, scientist) and two non-STEM careers (school teacher and administrator), on the same eight attributes. For example, participants were asked to rate the salary level of an engineer, scientist, school teacher and administrator on a scale from 1 (low salary) to 7 (high salary). These perceptions were examined for each of the attributes. Respondents also were asked to choose one out of the four options presented as their preferred career choice (“if you must choose one career option, which one will you choose?”).

The analysis used in this study was MNL regression where choice between alternatives was the categorical dependent variable (career choice). The predictor variables were the stated ratings by each respondent of these eight attributes (of the four careers options) including each attribute X gender interaction for examining gender differences in the attribute’s importance. Further analysis was conducted to examine the differences between perceptions of each career in each gender separately. Repeated measures Anova compared between mean values of the four career choices, using Bonferroni corrections of p value 0.01 for multiple comparisons (Abdi, 2007). Post-hoc analyses of the mean differences were analyzed to identify which comparisons were statistically different. Also, possible gender differences in attribute perceptions were examined using t-test between the genders for each career option.

Results of Study 2

The results of the choice models are summarized in Table II.

The regression model was significant $\chi^2 (51) = 138.681$, McFadden $R^2 = 0.218$, $p = 0.000$. As shown in Table II, for all respondents significant unique contributions were made by salary level and social status of the job. Gender differences were found in three attributes: salary level and social status of the job, which were more important for men than women and work–family combination was more important for women.

To further examine the difference in perceptions in each gender between the four options, repeated measures Anova was conducted with post-hoc tests using the Bonferroni

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Chi-square</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>7.278</td>
<td>0.064</td>
</tr>
<tr>
<td>Salary level</td>
<td>18.328</td>
<td>0.000*</td>
</tr>
<tr>
<td>Social status</td>
<td>11.886</td>
<td>0.008*</td>
</tr>
<tr>
<td>Contribution to community</td>
<td>3.156</td>
<td>0.368</td>
</tr>
<tr>
<td>My interest in the job</td>
<td>1.770</td>
<td>0.622</td>
</tr>
<tr>
<td>Belief I will succeed in this job</td>
<td>1.276</td>
<td>0.735</td>
</tr>
<tr>
<td>Support of significant others</td>
<td>4.715</td>
<td>0.194</td>
</tr>
<tr>
<td>The ability to CWFO</td>
<td>6.239</td>
<td>0.101</td>
</tr>
<tr>
<td>This job choice is compatible for my gender</td>
<td>1.233</td>
<td>0.745</td>
</tr>
<tr>
<td>Salary level X gender</td>
<td>23.891</td>
<td>0.000*</td>
</tr>
<tr>
<td>Social status X gender</td>
<td>9.239</td>
<td>0.026*</td>
</tr>
<tr>
<td>Contribution to community X gender</td>
<td>3.877</td>
<td>0.275</td>
</tr>
<tr>
<td>My interest in the job X gender</td>
<td>1.564</td>
<td>0.668</td>
</tr>
<tr>
<td>Belief I will succeed in this job X gender</td>
<td>1.597</td>
<td>0.660</td>
</tr>
<tr>
<td>Support of significant others X gender</td>
<td>6.362</td>
<td>0.095</td>
</tr>
<tr>
<td>The ability to CWFO X gender</td>
<td>7.765</td>
<td>0.05*</td>
</tr>
<tr>
<td>This job choice is compatible for my gender X gender</td>
<td>2.946</td>
<td>0.400</td>
</tr>
<tr>
<td>Gender</td>
<td>7.379</td>
<td>0.06*</td>
</tr>
</tbody>
</table>

Table II. Multinomial estimates of each attribute including attribute $\times$ gender interactions for examining possible gender differences
correction to examine the specific differences. All Anova results were significant at \( p = 0.000 \).

Table III present the results of this analyses for women.

From Table III, we can see women’s different perceptions between STEM careers and non-STEM careers in salary and the ability to CWFO. Interestingly, women see some similarity between scientists and school teachers in three attributes: social status, community contribution and the belief they will succeed in this job. The job of engineer was rated as less interesting than all other jobs among women. They perceived other’s support to be higher for non-STEM careers and significantly lower for the choice of engineer. Women significantly differentiated between the job’s compatibly to their gender, believing school teacher was the most compatible, then administrator, scientist and last engineer. The next table shows men’s results in relation to these same analyses.

In Table IV, one can see men’s different perceptions between STEM careers and non-STEM careers in interest and social status. STEM jobs were rated higher on salary, while men perceived school teachers earn significantly less than administrators. School teachers and scientists were rated higher on their contribution to the community, while men perceived administrators contributed significantly less than engineers. Regarding other’s support and the belief they will succeed, they ranked STEM careers higher than non-STEM career choices, but interestingly, there was no difference between scientist and other non-STEM jobs in these two attributes. Men believed that most jobs allow CWFO. The only significant difference was observed between school teacher and scientist. They significantly differentiated between STEM career choices and compatibility to their gender; engineer is ranked as most compatible, then scientist and last school teacher and administrator.

When looking at gender differences in the perceptions of attributes, gender compatibility of the job and support from significant others were perceived differently between men and women for each career option: men rated STEM jobs as more gender compatible and as jobs that will receive more support from others than women did, while women rated non-STEM jobs higher than men did on these two attributes.

Discussion

Women’s most important consideration of choosing a career was salary, but this consideration was slightly less important than among men. Women ranked salary of STEM jobs higher than non-STEM jobs. This is an encouraging finding, since if salary is women’s most important consideration, then the overall value of choosing a STEM career has shifted. Ramirez and Wotipka (2001) pointed out that the average number of women in the fields of science and engineering in higher education worldwide has more than tripled over 20 years (Ramirez and Wotipka, 2001; Ceci et al., 2015).

Pan and Zhou (2013) found that when people are satisfied with their careers, there was a strong relationship between salary and happiness. Increasing the importance of salary where the “product” (STEM) ranks higher than the competition (non-STEM) (Beede et al., 2011) will increase its overall value. This can be achieved, for example, by an ad campaign that indirectly states “If you make a STEM career choice, then you can earn a higher salary and you will achieve greater life satisfaction”.

Another attribute that can be a campaign focus is the ability to CWFO. Low level of ability to combine work and family decreased the job’s value for women more than for men, while moderate and high ability increased the value of career choices more for women. Non-STEM careers have the advantage on this important attribute relative to STEM careers in the eyes of women. Information that can change the perception of STEM careers as having attractive family–work balance could increase the value of STEM jobs.
<table>
<thead>
<tr>
<th></th>
<th>Engineer</th>
<th>Scientist</th>
<th>School teacher</th>
<th>Administrator</th>
<th>Anova</th>
<th>Post-hoc comparisons not significant all other comparisons significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary level</td>
<td>5.10 (1.239)</td>
<td>5.33 (1.216)</td>
<td>3.83 (1.207)</td>
<td>3.77* (1.227)</td>
<td>0.00</td>
<td>Engineer = Scientist School, Teacher = Administrator</td>
</tr>
<tr>
<td>Social status</td>
<td>4.63 (1.386)</td>
<td>5.10 (1.365)</td>
<td>4.42 (1.313)</td>
<td>3.77 (1.398)</td>
<td>0.00</td>
<td>Engineer = School teacher</td>
</tr>
<tr>
<td>Contribution to community</td>
<td>4.64 (1.422)</td>
<td>5.5 (1.360)</td>
<td>5.78 (1.150)</td>
<td>3.26 (1.342)</td>
<td>0.00</td>
<td>Scientist = School teacher</td>
</tr>
<tr>
<td>Interest in the job</td>
<td>2.95* (1.755)</td>
<td>3.71* (2.025)</td>
<td>3.78* (1.911)</td>
<td>3.55 (1.696)</td>
<td>0.00</td>
<td>Scientist = School teacher = Administrator</td>
</tr>
<tr>
<td>Belief I will succeed in this job</td>
<td>2.30* (1.625)</td>
<td>2.93* (1.919)</td>
<td>3.28* (1.879)</td>
<td>3.58 (1.768)</td>
<td>0.00</td>
<td>Scientist = School teacher School teacher = Administrator</td>
</tr>
<tr>
<td>Support of significant others</td>
<td>2.71* (1.828)</td>
<td>3.21* (1.913)</td>
<td>3.99* (1.723)</td>
<td>4.07* (1.685)</td>
<td>0.00</td>
<td>School teacher = Administrator</td>
</tr>
<tr>
<td>The ability to CWFO</td>
<td>3.85* (1.206)</td>
<td>3.76 (1.253)</td>
<td>4.81 (1.415)</td>
<td>4.86* (1.322)</td>
<td>0.00</td>
<td>Engineer = Scientist School teacher = Administrator</td>
</tr>
<tr>
<td>This job choice is compatible for my gender</td>
<td>3.96* (1.714)</td>
<td>4.92* (1.451)</td>
<td>5.74* (1.234)</td>
<td>5.39* (1.419)</td>
<td>0.00</td>
<td>All four are different</td>
</tr>
</tbody>
</table>

**Note:** *Significant gender differences in attribute perceptions using t-test between the genders, significance < 0.05*
| Table IV. Significant differences in attributes between the four career options among men |
|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                 | Engineer | Scientist | School teacher | Administrator | Anova |
| Salary level                    | 5.35 (1.222) | 5.18 (1.414) | 3.54 (1.406) | 4.28 (1.367) | 0.00 |
| Social status                   | 4.79 (1.134) | 5.14 (1.426) | 4.18 (1.399) | 4.03 (1.504) | 0.00 |
| Contribution to community       | 4.79 (1.340) | 5.48 (1.535) | 5.67 (1.387) | 3.57 (1.478) | 0.00 |
| Interest in the job             | 4.50 (1.704) | 4.34 (1.829) | 3.07 (1.831) | 3.25 (1.680) | 0.00 |
| Belief I will succeed in this job | 4.07 (1.948) | 3.65 (1.852) | 2.76 (1.793) | 3.30 (1.766) | 0.00 |
| Support of significant others   | 4.26 (1.712) | 3.89 (1.869) | 3.41 (1.733) | 3.54 (1.710) | 0.00 |
| The ability to CWFO             | 4.39 (1.268) | 4.08 (1.311) | 4.65 (1.451) | 4.47 (1.305) | 0.00 |
| This job choice is compatible for my gender | 5.76 (1.397) | 5.44 (1.435) | 4.78 (1.564) | 4.81 (1.551) | 0.00 |

Post-hoc comparisons not significant, all other differences are significant.
The gender differences in the perceptions of attributes demonstrates the structural problem and stereotypical beliefs about each job option.

In a Canadian survey from Year 2000, many women believed “most women really want a home and family over a job” (Statistics Canada, 2000). Indeed, the perceived binary choice between motherhood and a science career was suggested as a watershed moment in STEM career trajectories (Williams and Ceci, 2012). The dichotomy of the spheres could be changed by designing a message “science is not what you think” showing a person (men/women in different ads) working on a computer at home. Today, the STEM fields offer greater flexibility in working from home than before (Hill et al., 2014) by measuring performance or meeting work objectives not hours (OECD, policy brief, 2000). Working remotely enables greater CWFO (Salaff, 2002). For example, an ad including the logos of familiar companies (Xerox[1], Google[2] and Amazon) and stating “Currently advanced companies are looking for employees who can work effectively both from home and their office” may convince women that a STEM career is feasible. Universities or STEM-related research centers may also allow for some flexibility, given that it is acceptable to maintain flexible working hours and to work both from home and at the office.

Companies seeking to recruit women into STEM jobs should provide the necessary structural support for parents (e.g. on-site day care, allowing employees to take sick days for family crises). These companies need to make changes in the workplace reality by decreasing barriers and adding benefits and not just communicate the right message about increasing the value of STEM careers to women.

A campaign launched by Indesit Life Home appliances company[3] in 2017 in the UK showed gender equity at home: a man is shown taking care of the children and doing housework. The question appears on screen: “Would you have reacted in the same way if it had been a woman? In the UK 66 per cent of the housework is still done by women”[4] A survey from Israel found that 73 per cent of housework is still done by women (Heroti and Basol, 2015). Campaigns such as this are essential for changing social perceptions of women’s ability to CWFO. Community initiatives strengthening the bond between children and their fathers can help change beliefs about the role of fathers in childcare. For example, in Florida, Phil Morgese in 2015 started organizing “daddy-daughter hair workshops”, encouraging dads to spend time with their young daughters.[5]

Changing the traditional gender work norms will be less challenging for women as gender compatibility of the job was significantly less important for them (in the low and high levels). A more egalitarian marriage benefits families by increasing closeness and intimacy between partners, creating a better-quality relationship and promoting positive health outcomes (Dawson et al., 2015; Perry-Jenkins, and Wadsworth, 2017). A campaign message might be “sharing family responsibilities - the recipe for greater partner closeness”. These messages should appeal both men and women, as some women may be hesitant to trust fathers who want greater parenting responsibilities (Schoppe-Sullivan et al., 2015).

The positioning of the value of STEM career should be coherent using the four P’s (Gordon, 2012): Product (a STEM job and its core value examined here), Promotion (the main message suggested above) and also by Price (financial or behavioral costs for the woman who performs the desired behavior; this include the sacrifice exchanged for the promised benefits of a STEM job such as embarrassment or social disconfirmation when behaving in an un-normative manner, normalizing gender equity at home socially can help reduce this cost) and last, Place (the distribution of information or ideas about behavioral change rather than a physical product): Targeted campaigns for women are less effective in making a social change; thus, national campaigns that use main communication channels such as billboards on major transportation arteries, ads in national newspapers and in social media
should be aired. Repeated messages over a longer time have more positive attitudes than exposure for a shorter time (Kok and Siero, 1985; Hinyard and Kreuter, 2007).

In this paper, as Andreasen (2004) suggested, the first two steps of social marketing are applied. The first is listening to the target market, then planning how to position the “product” to the segment. The next stages should include pretesting by examining the segments’ reaction to elements of the plan; if positive, the campaign should be launched, and at last, monitoring, recycle and revise should be applied. Future research can run experiments in which different messages (that focus on salary or ability to CWFO) can be evaluated, by their ability to convince women to choose a STEM career.

Further research should also examine another crucial segment: those whose are positioned at crucial junctions along the “leaky pipeline”, such as school counselors or project managers in charge of hiring in STEM companies.

The choice model analysis highlighted more the social status consideration that were not prominent in the CBC analysis. This difference might be because of the samples, which differed slightly in countries of origin (e.g. Sample 2 had a higher proportion of UK respondents). Rating real jobs is more representative of real choice situations, even though the results might be dependent on the alternatives that were examined (Adamowicz et al., 1997). Nonetheless, both CBC (in some attributes levels) and choice model analyses highlighted gender differences in the importance salary level and CWFO (social status of the job was more important for men in the choice model but was only marginally different in high level of social status (significance = 0.07) in the CBC analysis. Future research could sample young women on the cusp of career choice, to reflect more accurately the importance of various utilities or use real job choices for better representation of the attributes’ importance. However, as Louviere and Islam (2008) have demonstrated, discrete choice-derived measures accurately reflect the importance of various utilities in actual market choices.

Implications and conclusions
The key to creating effective marketing campaigns is understanding what women really value in career choices and communicating these values (Andreasen, 2002). Campaigns should focus on the importance of high salary or on changing perceptions of STEM careers as being compatible to combine with family obligations. This can be done by creating strong associations between “STEM jobs”, “working at home”, “flexible work hours” and/or between “benefits for the family” and “equal partnership”.

Simultaneously, socially constructed laws and public policies should be allowed to shape the work environments of organizations. Change in public policies alone might not encourage a change in the value of STEM in women’s eye’s, thus communicating the structural changes through a targeted social marketing campaign can be effective in changing women’s STEM value. The careful planning and monitoring of campaigns is one of the reasons for social marketing’s success (McKenzie-Mohr, 2013). The campaign effects should be evaluated by asking: have women and men been exposed to the campaign? After the campaign, what were their perceptions of STEM attributes and how important are these attributes now? What career options will they choose? Most past evaluations did not measure the long-term effectiveness by assessing the change in number of women in STEM fields (Jayaratne et al., 2003; Demetry et al., 2009). This can be done by examining differences in the “part-worths” of utilities and even actual changes in participation in academia and the STEM industries over time. Furthermore, the ability to monitor perceptions and attitudes over time is a major benefit of the marketing strategy proposed here, which should then increase the actual number of women in STEM careers. Past successful social marketing initiatives have been applied in the fields of public health, environmental protection and
political marketing with significant success showing both attitudes and behavior change over time (Smith, 2006). All of these behaviors are by-products of social beliefs that are amenable to change. As the roots of the problem are socially structured, and based on beliefs formed decades ago, changing perceptions is a long-term gradual process; thus, the changes in women’s career choices should be measured repeatedly over time. The time has come to use social marketing to change women’s career choices and support the increased participation of women in the STEM workforce.

Notes
3. http://doittogether.indesit.co.uk/
4. www.youtube.com/watch?v=3YnLn7blgO4
5. www.youtube.com/watch?v=yGM01DrstU4

References


Heroti, T. and Basol, J. (2015), “Survey: when women earn higher salary, their partners are participating more in housework”, available at: www.themarketer.com/career/1.2705518


Sharp, L. (1994), *Short-Term Impact Study of the National Science Foundation’s Young Scholars Program*, (Contract No. SED 92-55369), National Science Foundation. (ERIC Document Reproduction Service No. ED 381 381), Washington, DC.


Further reading


Appendix

About the author
Enav Friedmann is a Lecturer at Bar Ilan University in Israel. She is currently working on a number of studies in the field of consumer behavior and decision-making regarding brand preferences and purchasing choices, tailoring to heterogeneous consumer strata, as well as social marketing. Specifically, she is focused on the marketing of health-related behavior and promoting women in the STEM field. She teaches a variety of marketing courses including advanced quantitative research methods, market research, consumer behavior and pricing. Enav Friedmann can be contacted at: enav.friedmann@biu.ac.il

Figure A1.
Summary of the importance of job characteristics as perceived by women and men

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>My interest in the job</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>This job choice is normative for my gender</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Belief I will succeed in the job</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Support of significant others in my choice of this job</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Salary level</td>
<td>High</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>The ability to combine work and family obligations</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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