



Reducing consumption of confectionery foods: A post-hoc segmentation analysis using a social cognition approach



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ABSTRACT

Considering confectionery consumption behaviour this cross-sectional study used social cognition variables to identify distinct segments in terms of their motivation and efforts to decrease their consumption of such foods with the aim of informing targeted social marketing campaigns. Using Latent Class analysis on a sample of 500 adults four segments were identified: unmotivated, triers, successful actors, and thrivers. The unmotivated and triers segments reported low levels of perceived need and perceived behavioural control (PBC) in addition to high levels of habit and hedonic hunger with regards their consumption of confectionery foods. Being a younger adult was associated with higher odds of being in the unmotivated and triers segments and being female was associated with higher odds of being in the triers and successful actors segments. The findings indicate that in the absence of strong commitment to eating low amounts of confectionery foods (i.e. perceived need) people will continue to overconsume free sugars regardless of motivation to change. It is therefore necessary to identify relevant messages or 'triggers' related to sugar consumption that resonate with young adults in particular. For those motivated to change, counteracting unhealthy eating habits and the effects of hedonic hunger may necessitate changes to food environments in order to make the healthy choice more appealing and accessible.

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1. Introduction

Excessive consumption of non-milk extrinsic sugars¹ (often referred to as free or added sugars) is associated with obesity and related illnesses, type 2 diabetes, and dental caries (Malik, Schulze, & Hu, 2006; Vartanian, Schwartz, & Brownell, 2007; Lustig, Laura, Schmidt, & Brindis, 2012; Te Morenga, Mallard, & Mann, 2013). Dietary guidelines across the world recommend that adults and children should consume sparingly foods that contain high amounts of these types of sugars (FAI, 2011; PHE, 2014; The HHS & USDA, 2015). However, studies show that on average adults are

exceeding guidelines set by the WHO to limit intake of free sugars to less than 10% of total energy per day (around 50 g) (WHO, 2015). Moreover, a reduction in intake of free sugars to below 5% of total energy per day (around 25 g) would have additional health benefits (WHO, 2015). Achieving such a significant change in people's eating behaviours is the challenge facing health experts and policy makers.

Social Marketing is concerned with voluntary behaviour change achieved through the adoption and adaption of contemporary commercial marketing theory and practice (Eagle et al., 2013). As in commercial marketing theory, market segmentation and targeting is a key concept (Andreasen, 2002; Dann, 2010; Grier & Bryant, 2005). This entails dividing up a large heterogeneous market into a number of homogeneous segments and devising customised marketing programmes for one or more target segments (Kotler, Brown, Adam, Burton, & Armstrong, 2007). Social cognition theories of behaviour are considered a core component of successful social marketing interventions (French & Blair-Stevens, 2006; Luca & Suggs, 2013) as they provide useful insights for elements of the social marketing mix (i.e. product, price, place and promotion) by

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¹ Sugars that are not incorporated in the cellular structure of foods like fruits and vegetables, whether natural or unprocessed, such as honey, or refined, such as table sugar, and, consequently, may have adverse effects on health (Department of health, 1991). Often referred to as free sugars (i.e. sugars added to foods).

identifying the key determinants behind overt behaviour (e.g. attitudes or perceived behavioural control). Therefore, the social marketer can make an informed decision on the focus of the intervention, e.g. changing attitudes or increasing behavioural control, directed at behavioural change. In this paper, a latent class analysis approach to segmentation analysis was conducted using social cognition variables to identify different types of people with regards their consumption of confectionery foods.

1.1. Segmentation & behavioural theory

The identification of homogeneous segments is dependent on the segmentation bases and methods used to divide the market (Wedel & Kamakura, 2000). According to Grier and Bryant (2005) bases such as readiness to change and psychographics (e.g. lifestyle, values) have been commonly used to identify distinct sub-groups in social marketing campaigns. These bases are considered to be more effective in identifying differentiated segments compared to demographic bases such as age and ethnicity (Vyncke, 2002; Wedel & Kamakura, 2000; Weinstein, 2004), which are commonly used in health behaviour research (Slater, 1996). In addition to segmentation bases, there are a variety of methods that can be used to group individuals into segments and they can be broadly categorised into a-priori and post-hoc methods. A-priori involves determining the type and number of segments in advance whereas in a post-hoc segmentation approach the type and number of segments emerges from data analysis. Kazbare, van Trijp, and Eskildsen (2010), using the segmentation evaluation criteria proposed by Kotler and Keller (2009), found that post-hoc segmentation of social cognition variables was more helpful in designing healthy eating campaigns than a-priori segmentation of demographic and behavioural variables as this approach provided more insight on who should be targeted and what should be communicated. Segment evaluation criteria include: measurability, referring to the extent to which segments can be feasibly identified and measured using segmentation variables; substantiality, meaning segments must be large enough to warrant developing and maintaining a special marketing mix; accessibility, considers the demographic profiling of segments in order that they can be effectively reached/targeted; and differentiability, which means that segments should be genuinely different on measured criteria and therefore should respond to different marketing mix initiatives.

In social marketing interventions audience segmentation must be accompanied by a detailed study of peoples' lives, behaviours, motives, and the environment in which they make choices. The objective is to develop an attractive value proposition based on understanding the costs and benefits associated with a new behaviour (French & Blair-Stevens, 2006; Grier & Bryant, 2005). Exchange theory is a fundamental principle of commercial marketing (e.g. consumer receives a product or service for a cash outlay) but social marketing is more complicated as there is rarely an immediate benefit for the adoption of a new behaviour and there are often immediate costs such as time and emotional discomfort (Grier & Bryant, 2005). For this reason, behavioural theories, including social cognition models, are considered a core component of successful social marketing interventions (French & Blair-Stevens, 2006; Luca & Suggs, 2013). According to Gordon, McDermott, Stead, and Angus (2006), based on a systematic review of studies that evaluate social marketing effectiveness, social marketing provides a very promising framework for improving health but issues related to research design and a lack of conceptual understanding must be addressed. Luca and Suggs (2013) carried

out a systematic review on theory and model use in social marketing interventions between 1990 and 2009 and concluded that there was an ongoing lack of use of theory or an underreporting of theory in social marketing campaigns.

1.2. Social cognition

Social cognition models can offer value in endeavours to integrate theory into the application of social marketing campaigns. These reductionistic models identify key variables that account for the numerous influences on behaviour (Bagozzi, 1992) with the most frequently used theory in social marketing campaigns being the transtheoretical model (TTM) (Luca & Suggs, 2013). This model is built on the proposition that when addressing a problematic behaviour individuals go through similar stages of change and different influencing variables are important at different stages (Prochaska & DiClemente, 1983). However, a systematic review carried out by Bridle et al. (2005) showed limited evidence to support the effectiveness of health behaviour change interventions based on the TTM. Indeed stage models have been criticised as being too vague in explaining what actually happens in each stage (Armitage & Conner, 2000; Povey, Conner, Sparks, James, & Shepherd, 1999). Other social cognition models, such as the theory of planned behaviour (TPB), have been more specific in identifying the variables that underlie behavioural motivation (Armitage & Conner, 2000). In these models intention to perform a specific behaviour is conceptualised as the most important and most immediate predictor of behaviour (Ajzen, 1991). According to Sheeran, Milne, Webb, and Gollwitzer (2005) intentions conclude the decision making process by signalling one's commitment towards the performance of a behaviour. However, meta-analysis studies show that behavioural intentions do not correspond strongly with actual behaviour (Armitage & Conner, 2001; Conner & Sparks, 2005). Moreover, evidence suggests that the intention-behaviour discrepancies are largely due to people having good intentions but failing to act on them (Sheeran, 2002).

In the health behaviour literature a number of variables have been identified to explain transitions from intention to action. Research indicates that having a dietary related lifestyle goal (e.g. weight loss) is associated with successfully implementing and maintaining healthy dietary change as individuals are more engaged in the change process and, therefore, more likely to overcome potential barriers to success (Berg-Smith et al., 1999; Schnoll & Zimmerman, 2001; Nothwehr & Yang, 2006). The concept implementation intention emphasises the significance of planning in translating intentions into behaviour. According to Gollwitzer (1993, p. 152) "*The purpose of an implementation intention is to lay down a specific plan that helps to promote the initiation and efficient execution of goal-directed activity*". A number of studies have found that healthy dietary change is significantly related to planning over and above the effects of intentions (Osch et al., 2010; Scholz, Nagy, Gohner, Luszczynska, & Kliegel, 2009). In addition, perceived behavioural control (PBC) is a central concept in explaining not only the actions a person is motivated to perform but also, once an activity is initiated, the likelihood of maintaining effort in the face of obstacles. It reflects an individual's assessment of external issues such as access to resources and internal issues such as emotions that act as barriers to healthy behaviour (Ajzen, 1991). Numerous studies have demonstrated a significant effect of PBC on dietary change and the concept has been incorporated into dietary change interventions that have yielded favourable outcomes (Ahluwalia et al., 2007; Linde, Rothman, Baldwin, & Jeffery, 2006; Steptoe, Perkins-Porras, Rink, Hilton, & Cappuccio, 2004). A

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