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### Research report

# Profiling healthy eaters. Determining factors that predict healthy eating practices among Dutch adults \*



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#### ARTICLE INFO

Article history:
Received 28 January 2014
Received in revised form 8 December 2014
Accepted 2 February 2015
Available online 10 February 2015

Keywords:
Diet
Nutrition
Healthy eating
Health promotion
Salutogenesis
Sense of coherence

#### ABSTRACT

Research has identified multiple factors that predict unhealthy eating practices. However what remains poorly understood are factors that promote healthy eating practices. This study aimed to determine a set of factors that represent a profile of healthy eaters. This research applied Antonovsky's salutogenic framework for health development to examine a set of factors that predict healthy eating in a cross-sectional study of Dutch adults. Data were analyzed from participants (n = 703) who completed the study's survey in January 2013. Logistic regression analysis was performed to test the association of survey factors on the outcome variable high dietary score. In the multivariate logistic regression model, five factors contributed significantly (p < .05) to the predictive ability of the overall model: being female; living with a partner; a strong sense of coherence (construct from the salutogenic framework), flexible restraint of eating, and self-efficacy for healthy eating. Findings complement what is already known of the factors that relate to poor eating practices. This can provide nutrition promotion with a more comprehensive picture of the factors that both support and hinder healthy eating practices. Future research should explore these factors to better understand their origins and mechanisms in relation to healthy eating practices.

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#### Introduction

Much research in the study of food choice has examined individual and environmental factors that predict unhealthy eating practices (Williams, Thornton, & Crawford, 2012). These have included, among others, lack of awareness of nutrition guidelines (Eurobarometer, 2006) and 'obesogenic' environments offering poor availability of affordable, healthy options (Bihan et al., 2010). Such factors have been the focus of nutrition promotion initiatives that aim to increase knowledge and awareness of the components of a healthy diet and make a wider range of affordable, convenient, and healthy options available in diverse settings. To date, these efforts have had limited effect in changing eating practices. National food surveys show that the majority of people still consume excessive amounts of fats and sugars and too few fruits, vegetables, whole grains, and fish (Van Rossum, Fransen, Verkaik-Kloosterman, Buurma-Rethans, & Ocké, 2011). Given the fact that the obesity epidemic continues unabated (Stevens et al., 2012), there is an acute

need for additional approaches that explore a wider range of factors that drive eating practices to inform new nutrition promotion strategies (Van Woerkum & Bouwman, 2012).

Since so much of the past research has focused on studying factors predicting unhealthy eating, this has led to an advancement in knowledge on and understanding of risk-factors. However, as noted by Ball and Dollman (2010), "this risk-factor approach, fails to consider that individuals also possess, or have access to, protective resources, which may also impact their likelihood of an adverse outcome, either directly, or via interactions with risk factors." Therefore, instead of looking at the determinants of unhealthy eating, it may be useful to take a different perspective and study factors that relate to resources for healthy eating and thus form part of the solution (Bouwman & Swan, 2014). This requires a perspective shift not only in factors studied, but also of the individuals we study. In order to understand how we can best promote healthy eating, we should also study those who are eating well rather than only the ones eating poorly. For example, there are still people who eat healthy despite the challenges around them. What combination of factors supports these people in having healthy eating practices? Answering such questions can give greater insight into factors that both support and enable people in maintaining healthy eating behaviors and add to the current risk-informed preventative measures. Such insights could have great potential if applied to future public health and nutrition promotion efforts (Williams, Veitch, & Ball, 2011).

<sup>\*</sup> Acknowledgements: In this paper we make use of data of the LISS panel administered by CentERdata. This study was made possible by funding from Wageningen UR and the Dutch Dairy Organization.

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Nearly 35 years ago, Antonovsky proposed his framework for health development, "salutogenesis", to study the origins of health and to explore factors that support a healthy life orientation (Antonovsky, 1979). "Salus" is Latin for health and "Genesis" is Greek for origin. The salutogenic framework is based on insights from the fields of sociology and social psychology. It is a theoretical perspective on health development that explores factors that contribute to a healthy life orientation and also a theoretical approach to change. Health is defined through this framework as a process and healthy means an active and productive life, a "good life". From the salutogenic perspective, the development of health requires active involvement, participation in important decisions and subsequent actions. Salutogenesis complements other perspectives that are conventionally taken in health promotion, such as "pathogenic" perspectives, from which the causes of disease and the potential to prevent disease and cure are investigated (Antonovsky, 1987).

The salutogenic framework includes two main constructs: the Sense of Coherence (SOC) and generalized resistance resources. The SOC was defined by Antonovsky as "a global orientation that expresses the extent that one has a pervasive, enduring, though dynamic feeling of confidence" (Antonovsky, 1987). SOC is a coping capacity and as such is a factor that supports people in dealing with challenging situations and maintaining a healthy life orientation. The SOC is made up of three different traits: meaningfulness (motivation to cope with stress); comprehensibility (ability to comprehend the challenge before you); and manageability (belief that you have resources to help you) (Lindström & Eriksson, 2006). Generalized resistance resources are a broad range of factors that facilitate and support coping. Specifically, Antonovsky described these factors as physical, biochemical, material, cognitive, emotional, attitudinal, interpersonal, or macro sociocultural characteristics of an individual or group (Antonovsky, 1979). Examples can include, among others, individual-level factors such as money, education, selfefficacy, locus on control, and social and physical-environmental factors such as social support, social networks and social capital (Lindström & Eriksson, 2006). The stronger a person's SOC, the greater his or her ability to identify and use these factors described above in a health-promoting manner (Lindström & Eriksson, 2010). It is this process described by Antonovsky as the "ease/ disease continuum", which enables people, when under the threat of various stressors to physical and mental health, to use factors in a health promoting way as a generalized resistance resource and therefore helps them to have a healthy life orientation (Antonovsky, 1987). Therefore, there is a reciprocal relationship between SOC and generalized resistance resources in the development of health (Moons & Norekvål, 2006).

Antonovsky developed scales to measure SOC (Antonovsky, 1987). Findings from an extensive systematic review by Eriksson and Lindström found that a strong SOC was associated with a better perceived physical and mental health (Eriksson & Lindström, 2006). Further, studies have suggested that a strong SOC is associated with lower incidence of cardiovascular disease (Poppius, Tenkanen, Kalimo, & Heinsalmi, 1999); reduced mortality from cancer (Surtees, Wainwright, Luben, Khaw, & Day, 2003); and lower rates of mental health problems (Torsheim, Aaroe, & Wold, 2001; Tselebis, Moulou, & Ilias, 2001). Consequently, SOC seems to promote well-being, strengthens resilience, and creates a positive state of subjective health (Eriksson & Lindström, 2006). Several studies have also proposed that a strong SOC is associated with healthier eating patterns and lifestyle choices than those with a weaker SOC. Lindmark and colleagues found in a cross-sectional study of Swedish adults that both men and women with a strong SOC score reported higher intake of healthier food choices such as vegetables and whole grains (Lindmark, Stegmayr, Nilsson, Lindahl, & Johansson, 2005). They further found that those with weaker SOC scores reported higher intakes of unhealthier food choices such as pizza, French fries, and

hamburgers. Moreover, research from a population-based cohort study in the United Kingdom found that men and women with a strong SOC were less likely to smoke cigarettes; less likely to be physically inactive; reported higher intake of fruits, vegetables, and fiber; and had a 20% reduced risk of all-cause mortality than those with a weaker SOC, independent of social class and education level (Wainwright et al., 2007, 2008). Ray, Suominen, and Roos (2009) found that a strong parental SOC was associated with their children having more regular child eating patterns, lower intake of energy-dense foods, and higher intake of nutrient-rich foods.

Since its inception over 30 years ago, the framework has been applied extensively in health promotion research to study the relationship between SOC and physical and mental health as well as lifestyle behaviors (Eriksson & Lindström, 2006). However, salutogenesis is much more than just the study of the relationship between SOC and health outcomes (Mittelmark & Bull, 2013). In the salutogenic framework, both SOC and the presence of generalized resistance resources play a mutual role in the development of health. Yet to our knowledge, no previous research has examined a set of factors encompassing both constructs and to test if they predict healthy eating practices. By having a deeper understanding of all of these factors, we can gain a more comprehensive picture and deeper understanding of the interplay of factors that support the development of healthy eating behaviors. This is also relevant since it can provide us with a more complete profile of factors that predict healthy eating to complement the known factors for unhealthy eating. Such understanding can help advance the theoretical base of salutogenesis within nutrition promotion research and can inform future nutrition promotion initiatives.

Therefore, the salutogenic framework acted as the theoretical underpinning of this research and guided this study in three main ways. Firstly, it guided the selection of factors we examined in our study. We chose to examine the concept of SOC as well as other factors identified from the literature in line with Antonovsky's generalized resistance resources construct. Therefore, we searched the literature for relevant factors that relate to healthy dietary behavior at the individual, social and physical-environmental levels. Additionally, since our study was part of a larger project interested in determining factors that promote healthy eating as a means to prevent obesity, we also identified factors from the literature that support obesity prevention and healthy weight. We also examined socio-demographic characteristics and BMI since these factors are more conventionally studied as factors in relation to unhealthy eating practices and we were interested to see whether they relate to healthier eating practices within our study population. This led to the inclusion of the following set of factors that we examined in our study: individual-level factors - SOC, nutrition knowledge, situational self-efficacy for healthy eating, internally-oriented health locus of control; flexible control of eating, socio-demographic characteristics, and BMI; social and physical-environmental factors - perceived social support and discouragement for healthy eating; neighborhood collective efficacy; and perceived food affordability, accessibility and availability. Figure 1 provides a full overview of all the factors examined within the study.

Secondly, because the salutogenic framework guides the study of factors supporting health, it also guided the selection of participants that we studied in our analysis. Rather than what is more commonly done and only examining populations with unhealthy eating practices, we also studied those with healthy eating practices. Therefore, we examined those in our study population reporting the healthiest dietary practices including high weekly consumption of fruit and vegetables, fish, and whole grains, and compared differences between this group and the group reporting unhealthier dietary practices. Thirdly and lastly, the framework guided the chosen statistical analysis in our study. The key idea behind the salutogenic framework is that a varied, multidimensional

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