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Research report

Breakfast habits, beliefs and measures of health and wellbeing in a nationally representative UK sample ☆

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ABSTRACT

The aim of this study was to report UK adult breakfasting habits, beliefs and the relationship of both with measures of personality, health and wellbeing including physical activity and body mass index (BMI). A nationally representative sample of 1068 adults completed a web-based survey, combining standardised scales and self-designed questionnaire statements. Sixty-four percent of respondents consumed breakfast daily whilst 6% never ate breakfast. Breakfasting frequency was found to correlate with conscientiousness, wellbeing and age and general health. The survey found that breakfast eaters strongly believe that breakfast helps weight control and weight loss. Breakfast eaters were more likely to partake in vigorous exercise, although there was no significant difference in BMI. Multi-variate analysis identified conscientiousness, cognitive restraint and age as making unique contributions to predicting breakfast frequency. This study provides further support for the view that breakfast eating is likely to be a proxy-variable for a healthy lifestyle. The role of breakfast and related beliefs should be taken into consideration in breakfast behaviour research, interventions and health and wellbeing campaigns.

Introduction

Breakfast eaters have been reported to be slimmer with a lower body mass index (BMI), have better nutrient intakes, be less depressed and show better cognitive performance than people who skip breakfast (Rampersaud, Pereira, Girard, Adams, & Metzl, 2005). In addition, the type of food consumed at breakfast has been linked to cognitive performance, with the consumption of bran based, low glycemic index breakfasts showing less deterioration in cognitive performance in the post-prandial hours compared to breakfast cereals with a high glycemic index (Ingwersen, Defeyter, Kennedy, Wesne, & Scholey, 2006). In contrast, breakfast skipping may be linked to the up-regulation of appetite later in the day which can result in not only weight gain but deleterious changes in the risk factors for cardiovascular disease and diabetes (Giovannini, Agnosti, & Dhamir, 2010), affecting the metabolic and hormonal responses to food consumed later in the morning (Astbury, Taylor, & Macdonald, 2011).

Despite the large volume of literature linking the consumption of breakfast with a generally healthy lifestyle (de la Hunty & Ashwell, 2007; Ruxton & Kirk, 1997) limited information exists that directly relates breakfasting habits to measures of health and wellbeing in people living around the UK. In addition, comparatively few studies have reported breakfasting habits of adults in the face of the plethora of studies investigating breakfast consumption of children and adolescents (e.g. Keski-Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003; Lattimore & Halford, 2003; Pearson, Biddle, & Gorely, 2009; Timlin, Pereira, Story, & Neumark-Sztainer, 2008). Hallstrom et al. (2011) reported that adolescent girls were more likely to skip breakfast than boys and that hunger, taste, health concerns and notably parents were the most important influences on breakfast behaviours. Whilst parents have a strong role in the development of breakfast habits, pester power has been investigated and has shown that children also have significant influences on the purchase of food bought in supermarkets including breakfast cereals (Wilson & Woods, 2004); nevertheless parents are usually in financial control of such purchases. Since parental breakfasts habits have been strongly correlated with the breakfast consumption of their offspring from birth to adolescence (Rampersaud et al., 2005) it is important to know and understand the breakfast eating and skipping habits of adults in the UK.

Beliefs about breakfast

Beliefs about breakfast may also influence a person's likelihood of consuming breakfast and subsequent psychological reactions to

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this meal (Chapman, Melton, & Hammond, 1998). For example the calorie content of foods eaten at breakfast has been linked to body image satisfaction (Geshwind, Roefs, Lattimore, Fett, & Jansen, 2008) and other indicators of health and wellbeing. Specifically, Lattimore, Walton, Bartlett, Hackett, and Stevenson (2010) reported that women were significantly less hungry, fuller, happier and more relaxed and satisfied with their body image and weight after consuming a cereal-based breakfast compared to a muffin, despite similar calories being provided by both breakfasts. Furthermore it has been shown that conscientiousness, possibly more so than the other factors of the five factor personality theory (Costa & McCrae 1992) may influence health status directly via changes in health behaviours such as increased fruit and vegetable consumption and lower consumption of high fat snacks (O'Connor, O'Conner, Jones, McMillan, & Ferguson, 2009), however the relationship between conscientiousness and breakfast to our knowledge has yet to be explored.

When it comes to breakfast consumption many individuals have their own habits, definitions and beliefs. Chapman et al. (1998) in a study of Canadian university students reported that the majority of respondents believed breakfast to be important in providing energy and increasing productivity in the morning. In contrast, Unusan, Sanlier, and Danisik (2006) compared attitudes to breakfast in Turkish children living in Turkey and Germany and found that those living in Turkey reported significantly more positive effects associated with breakfast, whereas significantly more children in Germany believed that breakfast made them feel tired.

Habitual breakfast eaters may also be more likely to exhibit higher levels of physical activity than breakfast skippers (Cohen, Evers, Manske, Bercovitz, & Edward, 2003; Keski-Rahkonen et al., 2003). However, only one UK study, again in children, found evidence for this; habitual breakfast eating was associated with higher levels of cardio-respiratory fitness possibly as a result of higher physical activity levels (Sandercock, Voss, & Dye, 2010).

In light of this the rationale for the present study was to explore and understand factors that affect UK breakfasting habits and beliefs regarding breakfast. Specifically the aim was to identify possible correlates of breakfast beliefs and behaviour including health, wellbeing and physical activity.

Methods

Study design

A cross-sectional web-based survey was carried out on a representative sample of adults living in the UK. A combination of standardised questionnaires and self-designed questionnaire items were used to study breakfast eating frequency, related beliefs and health and wellbeing variables.

Sample

One thousand and sixty-eight adults were recruited by YouGov Ltd., (http://research.yougov.co.uk) using its panel of over 350,000 adult UK residents. The sample was representative in terms of gender, age distribution, education and socio-economic class as reflected in newspaper reading preference (tabloid vs. broadsheet). YouGov employed a quota sampling strategy based on UK census data and the National Readership Survey (NRS), and applied an iterative rim weighted process to achieve representativeness for all adults above the age of 18 years in the UK. The system also removes the issue of fast responder bias since respondents are invited by e-mail to a link on the YouGov system rather than individual surveys. YouGov reimburses participants on completion of questionnaires.

Procedure

Recruitment followed standard procedures established by YouGov. Completion of the questionnaire took around 15 min. Ethical approval was granted by the University of Roehampton; informed consent from the participants was required to access the survey. Data collection took place between 18 and 22 February 2011.

Questionnaires

An internet-based pilot study was carried out on 32 respondents using SurveyMonkey Inc. (www.surveymonkey.com) to obtain information on the questionnaire completion times, acceptability and clarity of the breakfast related belief items. The final survey comprised standardised questionnaire scales which have been used previously and whose psychometric properties are available in the literature. The following questionnaires were used: The *WHO-5 Wellbeing Index* (Bech, 1998) a short self-report measure of psychological wellbeing that assesses positive mood, vitality, and general interest; an adapted version of the *International Physical Activity Questionnaire*, short edition in English (Craig et al., 2003); the *Three Factor Eating Questionnaire* (Lauzon et al., 2004) a measure of three dimensions of human eating namely cognitive restraint, uncontrolled eating and emotional eating (De Lauzon et al., 2004); and the conscientiousness subscale taken from the NEO-PI personality questionnaire (Costa & McCrae, 1992) an inventory to measure what are (?) commonly termed the big five personality traits (agreeableness, extraversion, neuroticism, openness as well as conscientiousness). All scales achieved alpha Cronbach reliabilities of a minimum of 0.80 with most of the reliabilities close to 0.90 which is considered to be good or excellent. Questions on subjective beliefs about breakfast, its importance and effects were developed for the purpose of this study. These questions were divided into eight sub-sections that asked for information about the frequency of breakfast consumption, particular foods consumed, how breakfast may or may not affect previous or subsequent meals and how breakfast may influence subsequent mood, feelings and activities. Participants were also asked to self-report their height and weight, and their waist circumference. Information on participant gender, age (years) and socio-economic status were made available through YouGov; higher and lower socio-economic status are referred to as ABC1 or middle class and C2DE or working class respectively; this classification is widely used in the UK (Market Research Society, 2006). Once logged into the survey, in most cases, the participants could only move onto the next question when the previous question was answered with the exception of the height, weight and waist circumference reports which could be omitted. Furthermore, breakfast skippers did not answer questions about breakfast itself and beliefs related to breakfast.

Data analysis

All analyses were carried out on the weighted data set to achieve representativeness in terms of the adult population of the UK. Descriptive statistics were presented as frequencies, means and standard deviations. Distributions were checked for normality using the Kolmogorov–Smirnoff test and histograms. Where normality was violated, non-parametric procedures were used for correlations and tests of difference analyses. Because not all questions were relevant to all participants, details on sample size are provided as necessary. The items containing breakfast related beliefs were further analysed using principle components analysis (PCA) to identify possible scales. The specific analysis strategy used was exploratory principle components analysis, using oblique rotation and a minimum Eigenvalue of 1 for component extraction. An iterative process was used to arrive at meaningful factors which