



Happiness and health behaviour in Iranian adolescent girls



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A B S T R A C T

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This study was conducted to examine the association of happiness in adolescent females with leisure time and health related behaviours namely diet, physical activity and first or second hand smoking. Using a self-administered questionnaire, data were collected from 8159 female high school students ages 11–19 years. Multivariate linear regression analysis revealed statistically significant associations between happiness and weight, regular exercise, exposure to second-hand tobacco smoke, daily fruit or vegetable consumption and the way participants spent their leisure time. Happiness was associated with lower BMI, regular physical activity, absence of exposure to second-hand smoke, higher consumption of fruits and vegetables, and spending leisure time with family (all $P < 0.005$). These exploratory findings suggest that encouraging children and adolescents to adopt healthy behaviours, providing family time and a smoke-free environment may make them not only healthier but also happier.

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Happiness is a subjective emotional state associated with a vast and wide number of personal and socio-economic factors (Gerdtham & Johannesson, 1997; Melin, Fugl-Meyer, & Fugl-Meyer, 2003). For example, education, physical activity and general health are directly associated with happiness, while obesity, unemployment and smoking, are adversely associated with happiness. Some of the above factors are claimed to be more important contributors to happiness than financial status (Graham, 2008; Strine, Chapman, Balluz, Moriarty, & Mokdad, 2008). Although associations between self-reported happiness and specific contributing factors – in particular socioeconomic status – have been thoroughly investigated, mechanisms of effect are still subject to debate as findings are not consistent from country to country especially, between developed and developing countries (Graham, 2008; Ysamb et al., 2003). Reverse causality has also been suggested, for example, health related factors (especially BMI), marital status, education and income level may not only affect but also be affected by happiness (Graham & Felton, 2005; Katsaiti, 2011; Veenhoven, 2008).

Among the factors influencing happiness; some are non-modifiable (e.g. age, genetic and macro-socioeconomic factors) and some can be, to some extent, modified (e.g. personality, education, income, leisure, and social status) (Argyle, 1997; Natvig, Albrektsen, & Qvarnström, 2003). Health behaviours are also among modifiable factors which via their

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contribution to individual's physiological and psychological status may affect happiness. Diet for example seems to alter happiness significantly via specific molecular mechanisms (Blades, 2009; Gomez-Pinilla, 2008).

In adolescents, happiness is considered to be particularly important due to its contribution to their future success (Flouri & Buchanan, 2003; Lyubomirsky, King, & Diener, 2005; Natvig et al., 2003). Regarding the special importance of women's physiological and psychological well being (Frenk, Gomez-Dantes, & Langer, 2012), we investigate the association of happiness with a wide range of variables including health behaviours in Iranian high school girls living in the country's most deprived area (Kohkilooyeh and Boyerahmad province). Adjusted for known socioeconomic and demographic factors, we measured the associations with happiness family warmth, physical activity, dietary and leisure behaviours and exposure to tobacco smoke. The results may help to improve levels of life satisfaction and health in young females, and in particular those from more deprived backgrounds.

Methods

Participants and procedures

After brief explanation by trained staff, a self-administered questionnaire was distributed to volunteers among female high school students ages 11–19 years. Students provided information anonymously on their demographic and educational status, as well as on health-related behaviours. In total, out of 9867 high school girls from 67 schools registered in the province of Kohkilooyeh and Boyerahmad educational office, 8159 (82.7%) returned the questionnaire; the remainder were absent on the day that the questionnaire was distributed or chose not to participate.

Measures

To collect the data, a self-administered questionnaire was designed and a pilot study was conducted with 50 questionnaires completed and analysed. The questionnaire was revised and shortened to improve the response rate. Happiness was measured using the single-item scale developed by German Socio-Economic Panel, which has been extensively used in sociology (Schwarze & Winkelmann, 2005; Winkelmann, 2009; Zimmermann & Easterlin, 2006) and shown to have good stability, validity, reliability and viability (Abdel-Khalek, 2006).

The question "How happy are you at present with your life as a whole?" was answered on a Likert scale ranging from 0 (extremely unhappy) to 10 (extremely happy). The answers on the Likert scale were assumed to be ordinal and OLS regression was used to model associations of happiness with measured factors. Ferrer-i-Carbonell and Frijters (2004) discussed methodological considerations of using this method in detail (Ferrer-i-Carbonell & Frijters, 2004). Open ended, multiple choices and yes/no questions were used to measure the independent variables. Frequency of fruit and vegetable consumption and physical activity were measured by single item scales similar to those used by Janssen et al. (2005). Demographic information including parents' job and education was obtained via open or multiple choices questions. Height and weight were reported by the participants. Self-reported health information including self reported height and weight is widely used in psycho-social studies (Linna et al., 2013; Murphy, Donnelly, Shibli, Foster, & Nevill, 2012; Page et al., 2009; Veloso, Matos, Carvalho, & Diniz, 2012).

Data collection

In Iran, any activity involving research in educational fields has to be authorized and supervised by the provincial office of the Ministry of Education. After authorization was obtained a letter from the office was sent to all girls high schools introducing the trained local interviewers to the schools' principles with a sample of the questionnaire. Parental agreement on student's participation to the study was obtained by the principles who sent consent forms to students' parents/care givers. In addition to parental consent only willing students were interviewed. This study was approved and supervised by Yasuj University of Medical Sciences Research Committee.

Data analysis

Analysis of variance and univariate regression analysis were used to assess the unadjusted associations of student's happiness with the explanatory variables. Multivariate linear regression analysis was used to control for potential confounding factors. The final model was built nested in the saturated model which included the following 15 covariates: mother's and father's job and educational level, student's age, number of siblings, weight, height, grade point average for the last educational year, place of residency (rural/urban), being exposed to second-hand tobacco smoke, daily vegetable and fruit consumption, suffering from any disease at the time of questionnaire completion, and physical activity. Using a backward selection method, variables were retained/removed according to the Akaike Information Criterion (AIC). The final model was built with 12 explanatory variables (Table 3).

Results

Descriptive statistics are presented in Table 1 and unadjusted associations between happiness of school girls and their parents' jobs and education are presented in Table 2. There is a significant positive association between parent's education

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