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Original article

Declining Well-Being in Young Swedes Born in 1990 Versus 1974

Ebba Brann [a,*], John E. Chaplin, Ph.D. [b], Monica Leu Agelii, Ph.D. [a], Agneta Sjöberg, Ph.D. [c], Aimon Niklasson, M.D., Ph.D. [d], Kerstin Albertsson-Wikland, M.D., Ph.D. [e], and Lauren Lissner, Ph.D. [a]

[a] *Section for Epidemiology and Social Medicine (EPSO), Department of Public Health and Community Medicine, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden*
[b] *Department of Pediatrics, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden*
[c] *Department of Food and Nutrition, and Sport Science, University of Gothenburg, Gothenburg, Sweden*
[d] *Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden*
[e] *Department of Physiology, Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden*

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A B S T R A C T

Purpose: Well-being is affected by the environment, including societal changes. In this study, specific dimensions of well-being were compared in two cohorts of Swedish adolescents born 16 years apart.

Methods: Two groups of 18-year-olds, "Grow up Gothenburg" 1974 and 1990 birth cohorts, completed a self-reported questionnaire including the Gothenburg Well-Being in adolescence scale (GWBa). In addition, height and weight were measured, resulting in 4,362 participants (1974 birth cohort) and 5,151 participants (1990 birth cohort) with age, height, weight, and well-being data. The GWBa consists of a total score and five dimensions: mood, physical condition, energy, self-esteem, and stress balance.

Results: Total well-being was significantly lower in the later-born cohort, and the greatest difference was seen for the dimension *stress balance* (feeling calm, unconcerned, unstressed, and relaxed), although effect sizes were modest. In both boys and girls, well-being was lower for all dimensions in the later-born cohort, with the exception of *Self-esteem* in girls, which was higher in the later-born cohort. In both cohorts, boys reported higher well-being than girls for all dimensions. The mean body mass index *z*-score was higher in boys from the later-born cohort, but after adjusting for weight status, the differences in well-being between the cohorts persisted.

Conclusions: Well-being was lower in the later-born cohort, particularly for the dimension *stress balance*. Differences were not explained by the shift in weight status indicating that other societal changes have had an impact on well-being levels. Managing high levels of stress might be an area of intervention in adolescents for improved well-being.

IMPLICATIONS AND CONTRIBUTION

Comparing the cohorts born in 1990 relative to 1974, well-being in the later-born cohort was lower, and particularly, stress was worse. Despite this unfavorable development, self-esteem showed some improvement in later-born girls. Wider recognition of decreasing levels of well-being in boys and girls will support future design of gender-sensitive interventions to improve their stress management and self-esteem.

Subjective well-being has recently been defined as "an umbrella term for the different valuations people make regarding their lives, the events happening to them, their bodies and minds, and the circumstances in which they live" [1]. In addition to the importance of assessing well-being in individuals, measuring it in populations is also needed to assess and

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* Address correspondence to: Ebba Brann, Section for Epidemiology and Social Medicine (EPSO), Department of Public Health and Community Medicine, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Box 453, 405 30 Gothenburg, Sweden.
E-mail address: ebba.brann@gu.se (E. Brann).

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understand the impact of societal changes and to design and improve health policies that could enable people to live better lives [2].

As noted previously, well-being is affected by the environment in which the individual is living and, as society changes, so does the perception of one's own well-being. Adolescents could be particularly susceptible to environmental changes, compared to younger or older individuals as they are in a volatile stage of transition to adulthood [3]. The more recent, wider societal changes, such as an increasing urbanization, migration, and access to digital media, are believed to profoundly affect adolescents [3]. Similarly, national societal changes, for example, the recession in Sweden during the 1990s, with high unemployment rates and economic stress, have been reported to impact adolescents' perceived health [4] and might be a cause of the increase in reported psychosomatic complaints in young people [5], particularly among girls [6,7]. In addition, changes in the Swedish school system in the 1990s and in living conditions (e.g., less time spent with parents, increased isolation due to the use of personal and digital media), are possible factors contributing to psychosomatic complaints [8]. Therefore, it is important to understand how adolescent well-being has changed during the last decades while these societal changes occurred and whether boys and girls have been affected by these changes differently.

One significant change in recent decades has been the rapid increase in childhood obesity worldwide [9]. Although this has occurred in Sweden, it has also been noted that the increased prevalence rates are leveling off [10]. A study of secular trends in weight and height in the same Swedish cohorts that will be described here reported on an increased body mass index (BMI) in boys but not in girls [11]. How, and the extent to which, weight status affects well-being in children and adolescents has been examined in other cohorts. For instance, some studies found reduced quality of life (QoL) in overweight (including obese) [12–15] or only obese [16,17] young people, whereas others found no meaningful difference [18]. Because of design differences in the studies previously mentioned [12–18] comparisons should be made with care. It is of interest to understand how increasing obesity, with accompanying public awareness about risks of excess weight, has affected the well-being of young people.

The overall aim of this study was to compare well-being at ages around 18 years in two Swedish school-based cohorts born 16 years apart. Because of aforementioned societal changes during this period, our hypothesis was that perceived well-being in adolescents would also be affected in a negative way. With the increase in childhood obesity, particularly in boys in these two cohorts, a secondary hypothesis was that the difference in well-being could be explained by this shift in weight status. Thus, special attention will be paid to gender differences and to the possible role of weight status.

Methods

Study population and procedure

Two cross-sectional surveys with similar protocols, the Grow up Gothenburg studies, were conducted in 1992 and in 2008–2009, among Swedish high-school students attending their 11th or 12th school year. The two studies were identical in the process of recruiting participants, measuring height and weight, and in the completion of self-reported questionnaires filled in at the same time point as the measurements. The participating boys and girls were born around 1974 or 1990 and attended schools in Gothenburg and surrounding areas. A study team visited the schools and measured weight and height using standardized methods [19,20]. The participation rate, based on both availability and willingness to participate in either weight and height measurements or questionnaire surveys divided by total number of all invited, was 88% in the 1974 birth cohort [19,21] compared with 63% in the 1990 birth cohort [20]. Of the 4,488 (1974) and 5,779 (1990) participants, 97% (1974) and 89% (1990) had data on weight, height, and well-being. This resulted in an analytic sample of 4,362 (50% girls) from the 1974 cohort and 5,151 (49% girls) from the 1990 cohort. Study protocols were approved by the regional ethical review board in Gothenburg (formerly the Ethics Committee at the University of Gothenburg).

BMI and weight status

The World Health Organization (WHO) BMI-for-age reference [22] was used to generate BMI *z*-scores. This BMI classification system is adjusted for age and gender up to the age of 19 years. For participants aged >19 years (n = 1,456), age was set to 229 months (~19 years = the maximum age for the WHO BMI-for-age reference) to calculate a BMI *z*-score. Weight status, that is, underweight, normal weight, overweight (excluding obese), or obese, was classified according to the predefined BMI *z*-score cutoffs; underweight ≤−2SD, overweight ≥+1SD to ≤+2SD, obese ≥+2SD. Participants aged >19 years were classified according to the WHO adult BMI classification [9], that is, underweight BMI <18.5, overweight BMI ≥25 to <30, obese BMI ≥30.

Well-being

Well-being was measured using the Gothenburg Well-Being in adolescence scale (GWBa) whose dimensions fall within the broad definition of well-being as defined by Diener [1]. It is composed of a series of bidimensional visual analog scales with end points denoting the extreme opposites of the attribute to be measured (e.g., sad-happy or tense-relaxed). The GWBa consists of a total score and five dimensions: *mood* (four items), *physical condition* (four items), *energy* (four items), *self-esteem* (six items), and *stress balance* (four items). Scoring of the dimensions and the total score are given in the range from 0 to 100 with a higher score indicating higher well-being. Examples of the 22 items eventually included in the five dimensions: sad-happy (*mood*); slow-quick (*physical condition*); uninterested-interested (*energy*); fearful-brave (*self-esteem*); and stressed-unstressed (*stress balance*). Cronbach α for the total well-being score was .89 and .90 for the 1974 and 1990 birth cohorts, respectively, with a range between .72 and .86 (1974) and .72 and .89 (1990) for the different dimensions. An earlier version of the well-being scale, the Gothenburg Well-Being in children scale (GWBc), was developed for ages 9–13 years [23] including the same item pool and has been used in previous studies [24,25]. The procedure used to develop the GWBa dimensions for adolescents is summarized in the next section.

Derivation of the Gothenburg Well-Being in adolescence scale

To derive the factor structure for the GWBa, an exploratory factor analysis was performed on a randomly selected half of the 1990 cohort and a confirmatory factor analysis on the remaining