Body image and perceived health in adolescence

Eivind Meland1*, Siren Haugland2 and Hans-Johan Breidablik3

Abstract
Perceived health is an important health predictor, and self-assessed health during adolescence is of great interest. This study examined the relationship between perceived negative health and body image in early and mid-adolescence, focusing on age and gender differences. Analyses were based on Norwegian data from a World Health Organization cross-national survey (Health Behaviour in School-Aged Children) among 5026 pupils aged 11, 13 and 15 years. The response rate was 76%. Stratified analyses with presentations of frequency and relative risk were performed, as well as logistic regression analyses. Girls are more likely to report negative health than boys are, and the probability of such reports increases with age. Girls and older age groups report dieting and dissatisfaction with weight and appearance more often than boys and younger age groups. Body dissatisfaction is associated with an increased risk of perceived negative health, also when controlling for the possible confounding effects of age and gender. The present ‘ideals’ of weight and appearance might contribute to an unfavourable perception of health in this age group.

Introduction
Young people typically have low rates of serious physical morbidity. However, a large and increasing number of adolescents report on subjective health complaints and health worries [1]. Such complaints increase during a few critical years of adolescence and are strongly associated with a deterioration of self-evaluated health. Self-rated health is therefore an important health measure in adolescence. Prospective studies in adult populations have demonstrated that perceived health may predict morbidity, mortality, the use of health services and disability pensioning [2–5].

The individual’s evaluation of biological changes, health and illness is shaped by sociocultural and social–psychological factors [6]. Social factors also constitute an important frame of reference for perceived health, e.g. social roles [3]. Health is conceptualized during childhood and adolescence [7, 8]. Based on qualitative studies among adults, self-rated health is a weighted sum of different aspects, including health status, life situation and lifestyle [9]. Adolescents seem to include functional ability, psychological well-being, social factors and lifestyle in their evaluation of health [10, 11], as well as absence of disease [11].

Previous studies suggest that physical appearance and body image may influence perceived health. Adolescence is a period of increased awareness of bodily cues and self-reflection, including evaluation of body and appearance. In Western

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cultures, adolescents who depart from socially
determined norms of attractiveness or individual
ideals are vulnerable to body dissatisfaction. Body
dissatisfaction may be defined as the discrepancy
between an individual’s perceived current body size
and perceived ideal body size [12]. Body dissatis-
faction, negative body image, concern with body
size and shape represent attitudinal aspects of body
image. The concept of body image has been defined
different terms, according to scientific discipline.
Body image is also often discussed without a def-
inition, or used interchangeably with other con-
structs [12]. For the purpose of this paper, body
image is defined as the individual, subjective sense
of satisfaction or dissatisfaction with one’s body
or physical appearance [13].

Previous studies suggest that adolescents who are
dissatisfied with their bodies are more likely to
perceive their health as fair or poor and more likely
to show depression, low self-esteem and low social
functioning [14]. Adolescents who are overweight
are more likely to express weight-specific concerns
and engage in dieting and binge eating compared
with non-overweight adolescents [15, 16]. However,
causality or direction of effect is not established.

Previous research suggests that there may be age
and gender differences in body dissatisfaction. The
dual process of sociocultural and peer pressure may
contribute to such gender differences [17, 18], as
well as markers of identity. Social comparison is
linked to the important but vulnerable process of
social identity making [19]. Among females, even
normal-weight individuals are often concerned
about body shape, and the vast majority wants
to be thinner [12].

In a longitudinal study, gender differences in
body dissatisfaction emerged between 13 and 15
years of age, and were maintained at 18 years.
Throughout this period, girls increased and boys
decreased body dissatisfaction [20]. However, re-
cent research suggests that a growing number of
adolescent boys tend to exercise, diet or take
steroids to adhere to the social and individual ideals
of a more muscular body [21].

The objectives of the present study were to ex-
plor the relationships between body dissatisfaction
and self-rated health. In particular, we wanted to
discern gender and age differences, testing the
hypothesis that body dissatisfaction is more likely
to be associated with perceived negative health
among girls and older age groups. Finally, we
aimed at translating our findings into a sustainable
strategy for dealing with these issues in the school
health services and interdisciplinary work.

Methods

The analyses were based on Norwegian data from
a World Health Organization (WHO) cross-national
survey, Health Behaviour in School-Aged Children
(HBSC). The overall goal of the survey was to
increase the understanding of lifestyle and health
behaviour, and their context in the lives of young
people [22]. The HBSC study has been carried out
every fourth year, from 1983–84 onwards. The
present study was based on the Norwegian data
from the 1997–98 study. In Norway, these studies
were conducted by the Research Centre for Health
Promotion, University of Bergen.

Sample and design

The sample was selected by systematic cluster
sampling. The primary sampling unit was the
school class, that is, cluster sampling. Because
children in the same class tend to be similar in many
ways, standard errors may be higher than would
be the case if the same sample size was acquired
through simple random sampling. A design factor
model was therefore used to predict standard errors.
Nearly all the design factors were found to lie
within the range of 1.0–1.5. The sample was
therefore based on a design factor of 1.5, resulting
in a sample size that was 1.5 times larger than it
would have been if individual students had been
selected randomly [22]. Allowing for this factor, the
sample can be treated as representative. The sample
was drawn from three age groups with mean ages
of 11.5, 13.5 and 15.5 years, respectively. Boys
and girls were equally represented.

The response rate was 76%. After internal clean-
ing procedures that excluded 3.5% of the sample,
5026 pupils (2547 boys and 2479 girls) were included in the present study. The cleaning procedure is based on strict criteria developed for the international study, e.g. excluding pupils who were older or younger than the sample or >25% of the responses were missing from a questionnaire [23]. Missing responses were mainly due to non-cooperation of classes or schools or pupils being absent when the questionnaire was administered. There was no substitute sampling. Pupils who were non-responders on single variables were included in the analyses on variables with valid response.

Data collection
Data were collected in December 1997, via anonymous, self-completion questionnaires, which were pre-coded. Each school administered the survey during 1 day, thus, excluding pupils who were absent on that day. Teachers administered the surveys in the classroom, and the pupils returned the questionnaires in sealed envelopes.

Measures
‘Perceived health’ was measured by the following question: ‘How healthy do you think you are?’ with three response categories ‘very healthy’, ‘quite healthy’ and ‘not very healthy’. To measure ‘body image’, the pupils were asked four questions to obtain information about general satisfaction/dissatisfaction about body and physical appearance (response options in parentheses). ‘Do you think your body is’ (‘much too thin’, ‘a bit too thin’, ‘about the right size’, ‘a bit too fat’, ‘much too fat’, ‘I don’t think about it’). These categories were reduced to four in the analyses by combining ‘much too thin/a bit too thin’ and ‘much too fat/a bit too fat’. Similarly, they were asked to consider physical appearance by choosing one out of six categories: ‘Do you think you are’ (‘very good looking’, ‘quite good looking’, ‘about average’, ‘not very good looking’, ‘not at all good looking’, ‘I don’t think about my looks’). The numbers of categories were reduced by combining ‘very good looking/quite good looking’ and ‘not at all good looking/not very good looking’. In addition, the following items were included: ‘Are you on a diet to lose weight?’ (‘no, because my weight is fine’, ‘no, but I need to loose weight’, ‘yes’) and ‘Is there anything about your body you would like to change?’ (‘yes’, ‘no’). Reduction of analytic categories was based on frequency distribution and preliminary bivariate analyses.

Reliability and validity
Although a measure of perceived health including three response categories is a crude measure of a complex construct, predictive and construct validity have been documented for similar items in adult populations [2]. Previous studies show that 11- to 15-year olds can evaluate and respond to survey measures [24, 25]. A study among Norwegian 16-year olds showed that a similar one-item measure is correlated to subjective health complaints and depressed mood (although including five response categories). The results of this longitudinal study also showed stability in reporting over time [26]. The variables concerning body dissatisfaction are similar but not identical to variables of proven validity in the literature on body image disturbances [27]. Dieting is commonly looked upon as a construct of its own in this literature. However, the concept of body image pertains to an individual’s perception, attitudes about the perception, as well as associated behaviours. Dieting also has a strong correlation with body dissatisfaction, and is associated with some types of body image disturbances.

Statistics
Perceived negative health (not very healthy) was treated as the dependent variable. Together with the background variables gender and age (grade), the four items on body image constituted independent variables in the present study. All independent variables were treated as categorical. Measures of relative risks and odds ratios are presented with 95% confidence intervals (CIs) for both genders and the three age groups (11, 13 and 15 years). The program Confidence Interval Analysis release 1.0 was used to calculate relative risks with CIs. Effect modification was tested by performing stratified analyses, and was also examined by logistic regression. Binary logistic regression analysis was
conducted to adjust for possible confounders, by means of SPSS-PC 11.0. Interaction effect was controlled for when significant. Statistical significance was accepted at the 5% level.

## Results

Table I shows perceived health and body image according to age and gender. The results show that reports of perceived negative health increase with age, and that girls report negative health more often than boys do. A great majority, however, reports their health to be very or quite healthy, although reports of ‘very healthy’ were most common among boys and 11-year olds. Compared with boys, the number of girls who reported the most favourable category was significantly lower for all age groups, and this effect of gender increased with age.

Table I also illustrates that body dissatisfaction is prevalent in the studied age groups. Girls are more likely to report body dissatisfaction. Among boys, the need for body change was reported most frequently. A substantial increase in body dissatisfaction is observed across age groups among girls. Reports of dieting and concern about body shape and physical appearance increase with increasing age for girls. A majority of 15-year-old girls wants to change their body; 51% of girls in this age group consider themselves too fat and 36% view themselves as not good looking. A total of 28% of 15-year-old girls are already dieting, and another 28% report that they are not on a diet but need to lose weight.

Table II summarizes the probability of reporting ‘not very healthy’ as relative risk according to age and gender. Favourable categories concerning body image are used as references. The risk of reporting

<table>
<thead>
<tr>
<th>Table I. Perceived health and body image variables according to gender and age (number and per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys 11 years, n (%)</td>
</tr>
<tr>
<td>Perceived health</td>
</tr>
<tr>
<td>Very healthy</td>
</tr>
<tr>
<td>Quite healthy</td>
</tr>
<tr>
<td>Not very healthy</td>
</tr>
<tr>
<td>On diet</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No, need loose</td>
</tr>
<tr>
<td>No, weight fine</td>
</tr>
<tr>
<td>Change body</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Think about body</td>
</tr>
<tr>
<td>Fat</td>
</tr>
<tr>
<td>Thin</td>
</tr>
<tr>
<td>About right</td>
</tr>
<tr>
<td>Don’t think about it</td>
</tr>
<tr>
<td>Think about looks</td>
</tr>
<tr>
<td>Not good</td>
</tr>
<tr>
<td>Average</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Don’t think about it</td>
</tr>
</tbody>
</table>


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*Sum of the categories: ‘A bit too fat’ and ‘much too fat’. bSum of the categories: ‘A bit too thin’ and ‘much too thin’. cSum of the categories: ‘Not at all good’ and ‘not very good’. dSum of the categories: ‘Very good’ and ‘quite good’.*
not very healthy increases significantly if dieting or dissatisfied with weight, with the perceived need for changing body, the evaluation of being too fat and the perception of not being good looking. The relative risk of reporting negative health in relation to body dissatisfaction decreases with increasing age. The stratified analyses in Table II show significant interaction between gender and age for dieting. This interaction effect was confirmed in logistic analysis. Even though the relative risk of reporting ‘not very healthy’ was greatest among young girls on a diet, the increasing prevalence of dieting with increasing age add to the absolute impact of this risk. No significant gender difference was observed for perceived negative health in relation to body dissatisfaction. However, the higher prevalence of body dissatisfaction among girls increases the effect of this risk.

Table III shows the results of logistic regression analyses for each of the body image variables in relation to perceived negative health (unadjusted) and adjusted for age and gender. Reports of ‘not very healthy’ are associated with female gender and increasing age. Dissatisfaction with body is associated with reports of negative health. This is also evident after controlling for the possible confounding effects of age and gender in the multivariate models. Due to significant interaction, the interaction term between age and gender was entered in the model in the second column in Table III. The results show that gender differences in perceived health are mediated by dieting. Such a mediation effect was not found for dissatisfaction with appearance.

**Discussion**

The results of this large Norwegian national survey show that perceived negative health is prevalent in adolescence, and that these prevalence rates are highest among girls and older age groups. Prevalence rates of body dissatisfaction are also high. Furthermore, this study shows that perceived negative health is associated with body dissatisfaction in early and mid-adolescence. This association is significant across age and gender. Body dissatisfaction is most frequently reported and most
strongly associated with perceived negative health among girls. Gender differences in the relationship between body dissatisfaction and perceived health seem to be mediated by dieting. The relative impact of body dissatisfaction on perceived health decreases with increasing age among girls, but this decrease is outweighed by the substantial increase in prevalence of body dissatisfaction in the studied age group.

The results are based on a cross-sectional survey. Thus, causal relationships or direction of effect cannot be established, but the findings highlight associations that can be examined further in longitudinal studies. Pupils who were absent on the day of the survey were not included in this study. Pupils who reported poor health, and adolescents who experience body dissatisfaction, are likely to be overrepresented among absentees. The expected pattern of missing may have decreased the prevalence of these categories and weakened the association between body dissatisfaction and perceived negative health.

The included measure of perceived health is a rather crude one-item measure with three response categories, which may have contributed to misclassification and self-reporting bias. However, similar measures have demonstrated construct and predictive validity in other studies [2]. Results from 29 countries revealed differences between countries in reports of ‘not very healthy’, but the patterns according to age and gender were consistent with the present findings [23].
In the present findings, gender differences in perceived health may, in part, be attributed to gender variance in concern about physical appearance, as demonstrated for dieting. In addition, girls may be more willing to report on negative health than boys are [28]. Gender differences may also be explained by differences in pubertal timing. In the studied age groups, more girls than boys have experienced pubertal changes. Maturing girls tend to increase in weight and proportion of fat, which may increase the discrepancy between body shape and ideal. In contrast, maturing boys gain muscle mass, approaching current ideals.

A previous Scottish study found that pubertal timing influences body image and self-esteem. The results showed that among 11-year-old girls, ‘early’ maturation and dissatisfaction with body size and appearance were associated with low self-esteem. For this age group, there was evidence that body image mediated the relation of pubertal timing on self-esteem. Among 13-year-old girls, concerns about body size and appearance and ‘late’ maturation were predictive of low ratings of self-esteem, without evidence of mediation [29].

The present findings suggest that body image is an important target of intervention to improve subjective health in adolescence. The results show that a large number of adolescents give reports of body dissatisfaction, and girls report more concern about appearance and weight than boys do. These findings are consistent with a survey among English adolescents in 1994. Half of the girls and every third boy reported to be concerned about their body, and twice as many girls as boys wanted to lose weight. Douvan and Adelson [30] showed that >60% of high school girls wished to change their physical appearance compared with 27% of the boys. The noted gender differences in weight concerns among 15-year olds correspond to findings in other European countries.

In the present study, 79% of the boys and 44% of the girls were satisfied with their weight. The present study showed an increase in body dissatisfaction with increasing age for girls, but no significant change was observed for boys. A similar study revealed an increase in reports of body dissatisfaction among girls and a decrease among boys [21].

Our study shows that body dissatisfaction is associated with perceived negative health among Norwegian 11- to 15-year olds. These findings correspond with studies among young adults in Sweden (18–34 years), showing that both obesity and underweight were associated with perceived negative health, also when health problems were controlled for [32]. This relationship between body image and perceived health may be explained by adolescents’ views of health. A global definition of health suggests that several domains related to self-esteem may influence the responses, including body image. Adolescents may also have learned (from health personnel) that factors such as obesity and a sedentary lifestyle are unhealthy. Consequently, adolescents may rate their health as ‘not very healthy’ based on lifestyle factors. Perceived negative health may also have lead to body dissatisfaction. However, a 5-year longitudinal study among Norwegian 13-, 15- and 18-year olds showed that body image predicted changes in depressed mood both for boys and girls, but showed no support for a causal effect of depressed mood upon body image [33].

Ego identity and definition of self are important in preparing for the adult role, and physical appearance seems to be important in the social negotiations of identity [19]. Adolescents may experience increased vulnerability during such processes.

Previous studies suggest that both school and school health services may influence perceived health and body image in adolescence [34, 35]. School staff and health personnel are also important in the fight against obesity and physical inactivity. Risk communication with a strong emphasis on perfect health and absence of bodily symptoms may, however, contribute to health worries and the undermining of subjective health. Social identity theory emphasizes that adults, in spite of good
intentions, may actually strengthen dysfunctional identities and add to adolescent worries [19].

As part of a health-promotive strategy, building of self-esteem and self-confidence is recognized as important task. Recent research shows that it is possible to unite preventive efforts against obesity with efforts against body dissatisfaction and eating disorders [34, 36, 37]. There is also evidence that intervention may be more effective if it is not explicitly presented as an eating disorder prevention programme. Integrated approaches may enhance the effects of intervention and reduce the possibility of potential harmful effects of programmes that address only one end of the spectrum [36]. In schools, it is possible to implement a conjunction of environmental and educational changes, both as universal programmes and aimed at high-risk individuals.

An ecological perspective on health promotion suggests that pupils, school staff and parents need to determine how self-confidence and humanistic values can be promoted at a system level in schools. Increased physical activity and healthy eating may be promoted through curricular and structural changes, e.g. daily physical activity and healthy school meals [37, 38]. School health services have a unique position, as a potential partner in planning, implementing and evaluating health-promotive strategies within the school system.

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Conflict of interest statement

None declared.

References


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