Adolescents' perceptions of oral health and influencing factors: a qualitative study

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Östberg A-L, Jarkman K, Lindblad U, Halling A. Adolescents' perceptions of oral health and influencing factors: a qualitative study. Acta Odontol Scand 2002;60:167–173. Oslo. ISSN 0001-6357.

Accounts of self-perceptions of oral health have hitherto been rare, although they are of great interest for strategies in health promotion. The objective of this study was to increase our knowledge of adolescents' perceptions of oral health and influencing factors. Semi-structured interviews of 17 Swedish adolescents were performed. Criteria for strategic sampling were age (15, 18 years), gender (male, female), and dental health (healthy, unhealthy). Data were analyzed according to the constant comparative method. Areas of focus were general oral health, personal oral health, dental care, and life-style issues. Oral health awareness was generally low among the informants. Two categories of oral health were identified: action (the physical things we do to effect the condition of our mouths) and condition (the physical status of the mouth). Conditional aspects were most frequent in evaluations of personal oral health. The informants considered their possibilities to influence oral health limited. Perceptions of influences on oral health were related to personal and professional care, social support and impact, and external factors. 'Concern for oral health' was derived as the core category in perceived influence on oral health. The study indicates that it is important to find factors that enhance adolescents' awareness of their own resources and to seek mechanisms that govern internalization. There is a need to find strategies to convey such knowledge to the intermediaries: dental personnel and parents. □ *Adolescence; influence; interviews; qualitative method; self-perceived oral health*

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The concept of health has been the subject of intensified interest in recent years (1, 2), where the dominating professional aspects have been questioned. In dentistry, Locker (3) has emphasized that if oral health is to be actively influenced (4), subjective perspectives need to be added to objective clinical assessments.

At a conference in Chapel Hill in 1996, methods for measuring oral health outcomes were examined (5). The quantitative view, which dominated, assumes that the human being is best analyzed as an object. However, as individuals are also subjects with feelings, motives, and intentions, the qualitative approach is often a vital complement to the quantitative.

Previous studies on self-perceived oral health have mostly concentrated on adults or old people (6, 7). The time trends, both in society and in dental diseases (8, 9), necessitate a focus on the period of adolescence, when many life-long habits are founded (10). Former studies in adolescents have often focused on attitudes and behavior (11, 12), whereas perceptions of oral health have seldom been investigated. In a comprehensive school survey, associations between oral health attitudes, behavior, and self-perceived oral health were found (13, 14). This awakened our interest in using a qualitative design to achieve a better understanding of the students' reasoning on oral health shown in previous questionnaires.

The aim was twofold: first, to increase knowledge of adolescents' perceptions of oral health in general and of their own in particular and, second, to explore their perceptions of which factors influence their oral health and which of these they can control.

Materials and methods

Participants

A strategic sampling from epidemiological registrations made in 1998 by the Public Dental Health Service in Skaraborg County, Sweden, which constituted the choice of informants, was related to gender (male, female), age (15, 18 years), and dental health (decayed surfaces approximally: DSa = 0 equals "healthy"; DSa > 0 equals "unhealthy"). The purpose of strategic sampling is that the material should give adequate data with depth and breadth and a potential to fulfill the aim of the study. Skaraborg County is a rural area with small municipalities and a few medium-sized towns. The informants were randomly selected from each subgroup with the help of a computer program (15). This procedure was designed to provide a range of different views, not to compare groups. Initially, 16 young people were invited. Most informants

Table 1. Distribution of informants according to strategic sampling

	15 years		18 years	
	DSa = 0*	DSa > 0	DSa = 0	DSa > 0
Girls	2	2	2	2
Boys	2	2†	2‡	2§

* DSA = decayed surfaces approximally; † 4 subjects declined to participate and were replaced; ‡ 2 subjects declined to participate and were replaced; 1 subject was excluded and replaced; § 1 subject declined to participate and was replaced.

expressed positive feelings about being selected for an interview. All the girls invited accepted. Seven boys, five with approximal caries, declined to participate. Ethical considerations prevented asking why, but the spontaneous reaction was often "I don't want to". To supplement, new informants fulfilling the same criteria were selected from the database. After analysis, statements by a severely physically handicapped boy were found to deviate strongly and were excluded from the results. This boy was also replaced by a new informant (Table 1). Thus, 17 interviews were performed in all. The Medical Faculty Ethics Committee of Göteborg University approved the study.

Data collection and instruments

Data were collected in semi-structured interviews, which were performed in conversations with open-ended questions, and conducted by one dentist (A-LÖ). The selected individuals were invited by mail, and separate letters informed the parents of those below 18 years. After about 1 week the participants were contacted by telephone and asked whether they agreed to participate. The interviews were performed locally on premises unconnected with dental care; for instance, parish houses. At the beginning, information on the aim of the study, confidentiality, and voluntary nature was repeated.

The areas of focus were general and personal perspectives of oral health, dental health attitudes and habits, perceived influences on oral health, and social and life-style issues. Typical questions included: Can you describe what you mean by oral health? I would like you to describe your own oral health in your own words. What do you think has influenced your current oral health? How do you think you can influence your oral health in the future? I would like you to talk a little about your family/ your leisure time.

The interviews lasted 45–60 min. Often the same themes appeared repeatedly, giving opportunities to control statements. To further enhance validity, the interviewer made brief summaries and asked the informants to verify or reject them. After 17 interviews, no additional data were found, whereby properties of categories could be developed (16). The interviewer then considered that what is called saturation was attained.

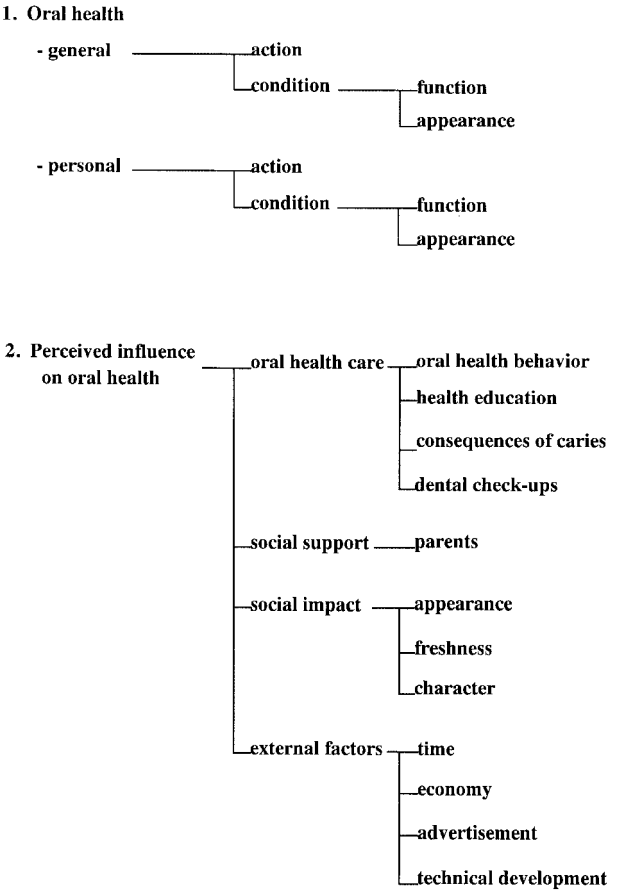

Fig. 1. Themes and categories in the material.

Data analysis

The interviews were tape-recorded, transcribed verbatim, and consecutively analyzed according to the constant comparative method (16, 17). Data were interpreted by A-LÖ and discussed with a sociologist (KJ). The constant comparative method means that in the first stage the text is coded by underlining substantive words and phrases in focusing the contents of the interviewees' statements. Codes were then compared with respect to similarities and differences in order to get as wide a spectrum of perceptions as possible. Related codes were grouped in categories based on the two aims of the study, by continuously comparing categories, codes, and interview protocols to confirm their descriptive content and their grounding in the data. In the next stage of analysis, higher-order categories were identified through investigating relationships between the first categories. A core category of perceived influence on oral health, related to all higher-order categories and on the highest level of abstraction, was derived by looking at all possible coded categories and understanding the context drawn from the subjects' narrative descriptions. This represents the central phenomenon of the problem investigated.

Results

The results were organized according to the two major themes: oral health and perceived influence on oral health (Fig. 1).

Oral health

General level. The majority seldom considered oral health consciously. Some didn't understand the notion, even when given time to reflect: *"I've heard of it, but I don't really know what it is* (girl 15, DSa = 0). Two categories of oral health were identified: action (the physical things we do to effect the condition of our mouths), and condition (the physical status of the mouth). Action could be seen as a means to reach a condition:

> *"Well, bad oral health, I think that's when you don't brush your teeth, perhaps. A lot of tartar, and some holes in your mouth . . . But good oral health, that's, well, nice teeth. Health—well, that's taking care of your teeth"* (boy 15, DSa = 0).

Most informants identified both action and condition in the concept, but assigned them different levels of importance.

When defining oral health as an action, common expressions were "to look after" or "to take care of". Thus oral health was equated with healthy behavior. The most frequently mentioned activity was toothbrushing:

> *"The way you take care of your teeth, how often you brush them and how you do it and such, I think"* (boy 18, DSa > 0).

A few informants also mentioned brushing the gums and flossing. Only one informant (girl 18, DSa > 0) mentioned eating behavior, in defining bad oral health as eating unhealthy food.

Teeth were crucial in definitions of oral health. Conditions of supporting tissues and gums were more seldom used to describe oral status. When asked specifically, the participants often commented on other aspects of oral health with "never thought about it" or "I don't know". An 18-year-old boy (DSa = 0), when explicitly asked whether he knew of other oral diseases than caries, said:

> *"Oh, I suppose it's inflammation of the gums or something. I don't know much about that, I'm no good at that".*

One male informant, however, had a more holistic view of the mouth (18, DSa = 0):

> *"It must be the condition of my teeth, or all around them, the whole mouth. Or the gums, the palate. That's what I think".*

The informants identified two aspects of condition: function and appearance.

Good oral health could be functionally described as having "strong" or "good" teeth. "Strong" teeth were mainly understood as resistant to caries but also as not losing them. The principal function of teeth was eating and chewing. Absence of disease was often used to define good oral health ("no holes"). Some individuals who had had caries defined oral health as "having no pain", which might be regarded as a low demand.

When appearance criteria were used, teeth were described as "white", "clean", "fine", or "being well-shaped": *"something to do with looks, perhaps that they look nice"* (boy 18, DSa > 0). Neglected or ugly teeth caused automatic negative reactions.

Personal level. When asked to evaluate their own oral health, informants often became slightly confused or surprised. Awareness was low. References to dental personnel were often made: "they said".

The condition aspect was more common than the action aspect in evaluations of personal oral health. A few informants used action criteria. One 18-year-old boy (DSa > 0) stated: *"I brush when I'm supposed to, and that's enough for me".*

The most outstanding criterion for evaluation of personal oral health was the presence or absence of cavities that had had to be filled. Many informants talked about "small holes" or "the beginning of holes" (= initial caries). Self-perceptions of oral health were seldom based on the occurrence of such lesions. One 18-year-old girl (DSa = 0) said:

> *"I have never had real holes, only on the way to being holes, so my oral health is good enough".*

One boy (18, DSa = 0) had a vague memory of having a cavity, which "they" (dental personnel) had not judged large enough "to treat".

Appearance was the other main basis for self-perceived oral health. Whiteness was emphasized, as motivated by one 18-year-old boy (DSa = 0):

> *"It looks fresher, actually. It's also a matter of looks perhaps, but you look smarter. And then it's also a sign of health".*

Shape and position of teeth were other common criteria. A small deviation could be decisive for the evaluation, such as a chipped tooth. No need for orthodontic treatment, as assessed by the dentist, was seen by some informants as a sign of oral health. Only a few used gum-bleeding for self-evaluation.

Future personal oral health was usually vaguely, but optimistically, approached. The informants hoped or believed that they could maintain or improve their oral health. Insecurity was also common. One 15-year-old boy (DSa > 0) speculated on his teeth in 5 years hence:

> *"I think they will be better then. I hope so, teeth are more important the older you get".*

Perceived influence on oral health

The constant comparative method used on the respondents' narrative descriptions led us to discover 4 higher-order categories of perceived influence on oral health: "oral health care", "social support", "social

impact", and "external factors" (Fig. 1). The core category of perceived influence is presented separately.

Oral health care

The most commonly perceived influence was behavior, and the most important influences were cleaning the teeth, and eating and drinking habits.

Cleaning the teeth was usually equated with toothbrushing and was practiced by most informants at least once a day. Expressions of habitual behavior were used: "tradition", "routine" or "reflex". Routines from childhood were emphasized: *"it begins when you are small"* (girl 15, DSa > 0). Though a habit for the majority, some felt the opposite: *"I don't really do it automatically, probably because it isn't very fun"* (boy 15, DSa > 0). Toothbrushing frequency tended to be used as an overall measure of care. No cavities were proof of good toothbrushing. One 18-year-old girl (DSa > 0) expressed it this way: *"it's also a test of how carefully you brush your teeth"*. Excessive behavior was recognized by another girl, which led to guilt feelings. On the other hand, some boys with caries admitted that they periodically ignored toothbrushing.

Only one informant spontaneously mentioned flossing. Some did it occasionally, but a few chose it for their own sake:

> *"In the beginning it wasn't a habit. And then you do it for your own sake, not theirs. If it was for their sake, I think I would probably skip it"* (girl 18, DSa = 0).

One 15-year-old boy (DSa > 0) had noticed his gums were bleeding and the dentist advised him to floss *"so now I will take care of it"*. Awareness of the benefit of fluorides was low, and they were not a preventive means the informants consciously chose.

Girls expressed more concern about how their behavior influenced their oral health. Gender differences concerning eating and drinking habits were obvious. Boys simply ate and drank what was at hand with little reflection: *"I eat when I'm hungry, what's available and what I want"* (boy 18, DSa > 0). Girls were more often conscious of, if not actually practicing, healthy habits – for instance having regular meals. Some (both boys and girls) were aware of bad eating habits but had little control of the situation and chose repression. A couple of girls mentioned eating disorders. The greatest gender differences were revealed regarding candy. Girls held weight control and boys financial reasons to be the most important in this matter. Concern for their teeth, though mentioned, was of subordinate importance to both genders. Eating candy was something they "just did".

Some informants stressed clinical dental health education as the most important influence on their concern:

> *"Lately, when I've been to the dentist, there has been a lot of nagging about brushing my teeth better and flossing and all that so you begin to think a little more, I think"* (girl 15, DSa = 0).

But the need for manual instruction, not just oral advice, was pointed out:

> *"So that they don't just tell you, you know, but so you also get instructions on how to use floss"* (boy 15, DSa = 0).

Dental health education at schools was often vaguely remembered:

> *"That was a long time ago, at the junior or intermediate level. I don't think it really helped very much, because I didn't think about my teeth much then"* (girl 18, DSa > 0).

One 18-year-old boy, however (DSa = 0), had lively memories of dental education at school:

> *"Those fluoride mugs were actually very good. And all that about caries, that was really amusing. Once you understood, you were affected. It's that dangerous to eat candy! Then you began, well, and actually brushed, and thought about it. And got reminded, because you did that rather often"*.

One 18-year-old girl (DSa = 0) had positive memories of the "fluoride aunt" (healthcare worker giving fluoride rinses in schools). Some remembered tobacco information at school.

The informants often used passive expressions when talking about cavities. You "get" cavities, "it just is so". Girls, more often than boys, acknowledged their own responsibility.

> *"You have yourself to blame, it's something you have done or something you haven't done"* (girl 15, DSa = 0).

Caries could be stated as a reason for healthy habits:

> *"I get holes very easily, so if I don't want any more fillings, that is also a reason for me to take care of my teeth"* (girl 18, DSa > 0).

Nobody mentioned initial carious lesions as a motive for better care. Cavities were a concern, but were mostly not regarded as a major problem:

> *"If I get a hole, then it's not such a big deal . . . you just go and get it fixed, and it's alright"* (boy 18, DSa > 0).

But it is not fun, and cavities can cause pain. When compared with appearance, cavities were of subordinate importance, because *"you can't see holes very much"* (girl 18, DSa = 0). A few thought filled teeth were weaker and not as nice as the original teeth. Otherwise, they were usually regarded as equal in function and strength to intact teeth.

Promoting motives for future dental check-ups included attaining something good:

> *"I want to keep my teeth in order. Clean teeth and good-looking, otherwise it's not so nice"* (boy 18, DSa = 0).

The most important motive, however, was to avoid something bad or prevent illness. The main reason given was that cavities could not be felt, especially small ones, which cannot be noticed by the individual. One boy (15, DSa > 0) wanted to *"check if I'm doing anything really wrong in how I take care of my teeth"*.

Social support

The social support of parents appeared to be very important. Parents were either concerned about oral health or not. Their interest could be outspoken:

> *"They say that you should brush properly, because it'll be worth it in the long run"* (boy 15, DSa = 0).

Or, it could be more indirect:

> *"They probably think it's important, since they have talked about (teeth)"* (girl 15, DSa = 0).

In some families, these matters were not discussed. One boy (18, DSa > 0) was astonished when asked his parents' opinion about the importance of oral health and said he had no idea. Parents' dental problems were often perceived as a reason for the young persons' concern. Furthermore, parental dental problems sometimes served as motivation: *"I really don't want to have teeth like that when I'm fifty"* (girl 18, DSa = 0). Informants occasionally put forward ideas about a congenital reserve of health. Thus, parents' oral health was used as a reference for their own oral health, and theories of heredity were suggested by some of the informants.

The parents serve as models concerning oral health habits, dental visits, and awareness and engagement. *"My parents taught me when I was little. That's when you learnt the basics"* (boy 15, DSa > 0). Mostly, the mother is the one who teaches, helps, buys the toothpaste, and so on. One 15-year-old girl (DSa > 0) said: *"My mom insists on me brushing my teeth"*. Access to dental floss in the home was decisive for whether the informants flossed.

Other sources of social support were practically absent in the interviews. Dental issues were seldom discussed among peers.

Social impact

Appearance was of the highest concern for both genders and a motive for caring for the teeth:

> *"What white teeth you've got! When you get a compliment like that, you really feel proud. That's an extra kick to look after your teeth"* (girl 15, DSa = 0).

One 18-year-old boy (DSa = 0) motivated his carefulness with:

> *"It's because I had very ugly teeth when I was little . . . then I got braces. You get interested when you see improvements"*.

Getting up in the morning and knowing you would be meeting other people increased concern for being fresh and nice. One 15-year-old boy described his personal hygiene activities *"I go into the toilet, do my hair, put on perfume, and then brush my teeth"*. The morning brushing is thus ruled by social interaction motives. Going to a party or other special events could result in an extra toothbrushing.

Teeth were identified as a character trait. *"I have always thought that teeth say a lot about people"* (boy 15, DSa = 0). Neglected teeth are ugly and repellent. Uneven teeth could awaken thoughts about why the person had not done anything about them and was seen as a "sin of omission".

External factors

Time aspects kept emerging from the material in various contexts. Many informants were busy with activities outside school. Time was important not only for habits such as toothbrushing and eating breakfast but also regarding dental visits in the future: *"It depends on how I feel. And if I've really got time"* (boy 18, DSa = 0).

Lack of time was often stated as a reason for insufficient healthy behavior: *"There is not enough time. Just change clothes and off to school"* (boy 15, DSa > 0). The same boy stated that if he had skipped toothbrushing in the morning, he tried to do it when he returned home: *"I try, if I don't have anything very important and if I don't forget it"*. Time could thus be viewed in a transferred sense as forgetfulness. "Forgetfulness" concerning toothbrushing was greatest when the adolescents were tired in the evening. Different time priorities were striking. Those who were careful about caring for their teeth recognized that you have to spend time on them: *"I don't want any holes. I spend a lot of time on my teeth"* (boy 18, DSa = 0). Some informants believed that cavities inevitably developed at a certain rate.

Economic aspects were emphasized for future costs of dental care and as reasons for abstaining from sweets and other things. The potential cost of future dental care was presumed to be high. Most informants considered regular check-ups useful and worthwhile. But some boys regarded them as unnecessary and a waste of money: *"It feels like an unnecessary expense. You don't get anything for it"* (boy 18, DSa = 0). But cost could be a motive for healthy habits:

> *"I'll have to pay in the future, and it will also be expensive, . . . in the long run. So you start to think"* (girl 18, DSa > 0).

Mainly girls gave economic reasons for healthy behavior, while boys would more often abstain from dental check-ups.

Advertising in different media did have an impact, though the adolescents were skeptical:

> *"It's not only in commercials for toothpaste and so, it's in everything. Really white, like paper. They probably fix it in the computer"* (boy 18, DSa > 0).

Nevertheless, they felt influenced *"when those nice-looking dentists say so"* (girl 18, DSa = 0). Many informants mentioned a widely advertised brand of chewing gum.

Some male informants hoped technical advances and research would solve future oral problems. *"I think they will have developed new things in dental care too"* (boy 18, DSa = 0).

Perceived influence on oral health – core category

Three aspects of how the informants perceived influences on their oral health were distinguished: (i) what

they do today, (ii) what they know they could do, and (iii) what they know is trying to influence them.

The informants experienced toothbrushing as the one main influence that they currently had on their own oral health and that they might possibly improve. Most of them were aware that other factors, such as flossing and eating habits, could be influenced but deemed these difficult to master. The influences of social impact and external factors were recognized, and these were often seen as the determining factors for oral health behavior. The essential point was what attitude they had to the perceived influencing factors.

The core category indicates the highest level of abstraction in an analysis. However, it is important that it is still close to the raw data and encompasses all subsidiary categories (16). This central phenomenon of perceived oral health influence, which could be identified by studying all possible categories in their context, was "Concern for oral health". The results show that to establish and maintain one's own perceived influence, concern for oral health is required both of the individual and of other important persons, e.g. dental personnel and parents.

Discussion

Awareness of oral health was generally low among the informants. Two categories of oral health were identified: action and condition. In evaluations of personal oral health, conditional aspects were most frequent. Limited possibilities to influence were perceived. Perceptions of influences on oral health were related to personal and professional care, social support and impact, and external factors. "Concern for oral health" was derived as the core category, the central phenomenon, of perceived influence on oral health.

In a previous quantitative study, we found strong associations between attitudes and self-perceived oral health (14). The qualitative method used in this study enabled more relaxed discussions and allowed attendant questions to be posed. One dentist with a prior understanding of the field carried out the interviews. That made conversation easier but entailed a risk that the interviewer might take things for granted. There was also a risk that the informants, when confronting a dentist, would try to appear better than they really were (18). However, during the interviews most informants seemed to relax, and doubtful statements were followed up. Furthermore, the analysis was performed in cooperation with one non-dentist (sociologist). Informants of both genders were comparatively talkative. All non-participants were boys, which might be related to boys' lower interest in health issues (19). Characteristics of this group are not further known, and it is possible that this is a group that needs to be investigated with another approach. However, the strategic sampling provided a range of different views. Dental health was dichotomized from epidemiological characteristics (20). The informants were strategically selected from a population representing the adolescents in the area, but generalization to the whole population is not possible. However, the qualitative information gathered from the selected group can be of benefit in a broader context and also quantitatively tested in further studies.

Lay people often have so-called common-sense perceptions of disease, illness, and health (21, 22), which is the prevailing conception in a person's social and cultural context. This might have affected the informants' perceptions of oral health. The informants' emphasis on negative aspects of oral health is consistent with definitions of health as an absence of disease (5, 23). Appearance was deemed to be very important. Today, people have many superficial contacts, and appearance is important as a marker (24). Teeth play an essential role in appearance and are considered to be part of one's character. Ugliness often represents wickedness and discrepancy, both historically and culturally (24). Some informants consistently gave social impact as a motive for healthy behavior.

Our study indicates that dental professionals have difficulties explaining initial carious lesions. Diffuse expressions such as "beginning of holes" and "not big enough to fill" might give the wrong signals. The conceptual worlds of adolescents and professionals could also differ and result in their talking at cross-purposes. It is important that dental personnel "speak the same language" as their patients when informing and motivating them (10).

Lack of time was considered a restricting factor for various activities. Tooth cleaning is one, even if it does not actually take much time. A parallel could be drawn with other activities, for instance physical exercise, which also has health implications and for which many people have little time. The phenomenon might be better explained in terms of priorities. However, when a certain habit has been internalized, those who do it do not reflect over the amount of time spent, and the act is automatically performed. Healthy behavior is more likely to be internalized if exposure is regular (25).

The informants thought dental care was expensive, though they have not yet had to pay for it. This probably mirrors the attitude of parents and significant others. Johansson & Fridlund (26) found that young adults deemed costs for dental care to be important. The reorganization of Swedish dental insurance in recent years might also have had an impact.

Gender differences in health consciousness were indicated. There are large differences between girls and boys in psychological development and socialization during childhood and adolescence (27). For instance, boys typically find explanations in external circumstances, while girls blame themselves when encountered with difficulties and failures. Attitudes of, and support from mothers and fathers for health habits also differed, as it was primarily the mother who taught and helped the children. Oakley (28) denotes women as "health providers".

During adolescence, awareness of bodily functions

grows (29). However, awareness of oral functions does not seem to grow consistently. Oral health care has historically and organizationally been separated from general health care; this is still the case in Sweden and most western countries. A parallel can be seen in midwifery, which until about a hundred years ago was separated from the medical profession (30). Sheiham emphasized a need for a similar development regarding oral health, thus integrating dental care with medical care to a higher degree (31). This may be even more important for activities regarding public health promotion and prevention.

This study indicates that it is important to find factors that enhance adolescents' awareness of their own resources and to seek mechanisms that govern internalization. There is a need to find strategies to convey such knowledge to the intermediaries: the dental personnel and the parents.

Acknowledgements.—This study was supported by the Skaraborg County Council and the Skaraborg Institute, both gratefully acknowledged.

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Received for publication 30 October 2001
Accepted 8 February 2002