# Variation in assessing the need for change of snacking habits in schoolchildren's oral health counselling

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#### International Journal of Paediatric Dentistry 2008; 18: 107–116

**Objectives.** This study examined counselling communication activities that were used for assessing schoolchildren's need for change of snacking habits. In addition, the schoolchildren's assessment of their need for change was explored after a follow-up year (2002–2003).

**Material and methods.** The follow-up research data included 66 counselling sessions in 2002 and 31 counselling sessions in 2003, with 31 schoolchildren. The sessions were conducted by four dental hygienists. The audio-taped data were analysed qualitatively by using content analysis.

**Results.** In 2002, the needs assessment was realized in three ways. Infrequently, the schoolchildren either disclosed their need for change or the counsellor

## Introduction

Schoolchildren's dietary behaviour, as related to oral health and practices of oral health counselling, requires special attention. Despite a decreasing trend, schoolchildren's dental caries has not been eradicated<sup>1</sup>. Dietary factors have been found to influence schoolchildren's oral health. There is convincing evidence for an association of the frequency and amount of sugar intake and dental caries<sup>2,3</sup>. According to a recent report, the consumption of soft drinks has increased in the past few decades. Currently, about 30% of schoolchildren consume them daily in the many countries studied. High consumption of sweets is also common among schoolchildren. The same tendency is observed in many developed countries, although there

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Kirsti Kasila, Research Center for Health Promotion, Department of Health Sciences, PO Box 35, FIN-40014 University of Jyväskylä, Finland. E-mail: kirsti.kasila@sport.jyu.fi explicitly determined the schoolchildren's need for change. Usually, however, the schoolchildren's needs assessment for change occurred through the counsellors' communication activities of assessment, advice, and change-inducing questions. In one-third of the cases, the schoolchildren's need for change remained ambiguous during the sessions in 2002. With respect to positive changes in 2003, the schoolchildren themselves were aware of the need for change. Alternatively, the sessions included change discussion that addressed readiness for change and making changes during the counselling in 2002.

**Conclusion.** Our results revealed that a thorough needs assessment of schoolchildren's snacking habits provides a foundation for behaviourally focused counselling.

are also large differences<sup>4,5</sup>. Finnish schoolchildren were classified as below-average daily consumers of sweets and soft drinks<sup>4</sup>. Nevertheless, the amounts of these products consumed have also increased in Finland during the past few decades<sup>6</sup>.

Although oral diseases are potentially preventable, influencing the dietary origins of these problems is complicated and challenging. A multitude of factors influence schoolchildren's snacking habits. These are not isolated but integral to their lifestyle and appear as a complex function of interacting influences at physiological, cognitional, and psychological levels. Furthermore, a complex set of environmental variables, such as parental influence, school context, eating away from home, peer pressure, cultural issues, persuasive marketing and advertising, and socio-economic factors, have been associated with the development of various eating patterns among schoolchildren<sup>7,8</sup>.

One of the aims of the World Health Organization (WHO) Global Oral Health Programme is to improve dietary counselling by focusing on good dietary behaviour that is directly linked to oral health<sup>9</sup>. The empowering goal of oral health change counselling is to enhance schoolchildren's reflection on their health behaviour and their awareness of attitudes. values, and problems. The means to accomplish this involve providing them with knowledge and encouraging them to be involved in negotiative conversations<sup>10–13</sup>. Oral health knowledge is considered to be an important prerequisite for health-related behaviour<sup>14</sup>. Yet mere knowledge gain is not enough for producing behaviour change. It seems that oral health knowledge does not always sufficiently reach all schoolchildren<sup>15,16</sup>. This fails to empower them to make informed decisions about their oral health.

The purpose of the transtheoretical model is to explain how individuals change their behaviour and describe their readiness for change and their experiences during the process of change. Readiness for change can be understood as individuals' current thoughts, feelings, and attitudes regarding their intention to institute changes in oral health habits, also influenced by external factors<sup>17</sup>. Motivational interviewing is a goal-directed, individual-centred counselling style for helping individuals to consider and resolve ambivalence regarding behavioural change. The intended focus of motivational interviewing is issues of change for which a person is not ready and willing, or is ambivalent about<sup>18</sup>. The stages of change are integrated with different individual-centred counselling strategies of motivational interviewing, which are based on empathetic encouragement and confidential relationships<sup>17,18</sup>.

The basis of behaviour change is the assessment of behaviour and the need for change<sup>17,18</sup>. Because of the complex nature of schoolchildren's dietary behaviour, the diagnosis of their dietary needs is a complex and demanding process of information gathering and analysis. Open, receptive, and conversational style of needs assessment has been shown to be an effective and acceptable style. The use of structured assessment instruments has been associated with failure to either identify individually relevant needs or to enable the individual to participate in the process<sup>19,20</sup>. Miller and Rollnick emphasize, in their individual-centred

counselling method, that for achieving behaviour change it is important that the schoolchild rather than the counsellor assesses health behaviour and presents arguments for change<sup>18</sup>. However, evidence from healthcare practice suggests that the involvement of children and young people is both limited and inconsistent<sup>13,20</sup>. Professionals collect information from children but exclude them from problem definition and decision-making<sup>21–23</sup>. Normative (i.e. professionaldominated needs assessment) is the established practice in oral health care. It fails to consider the subjective perceptions of individuals. The socio-dental approach, which takes into account personal behavioural aspects, has not been systematically used in the needs assessment process<sup>24,25</sup>.

The aim of this study was to explore the counselling communication activities that were used for assessing schoolchildren's need for change of snacking habits. In addition, the schoolchildren's assessment of their need for change was examined 1 year later, in 2003. Recent systematic reviews and studies of oral health education have exposed its limitations<sup>26–28</sup>. Current studies on the frequency and content of oral health instruction<sup>29,30</sup> do not give evidence of the actual and interactive processes of oral health counselling. We do not know how the communication of oral health counselling is constructed in the practice. Therefore, to improve the current counselling practice, qualitative studies of counselling processes are needed.

## Materials and methods

# Design of the study

This study was a part of a larger follow-up research project (2002–2005). The aim of the study was to investigate oral health counselling of schoolchildren diagnosed with at least one active initial caries lesion by public dental care in Finland. The aim was to describe the variation in the naturally occurring counselling interaction phenomena. One experienced public health dentist examined the school-children's teeth. She had been carefully trained for the examination. Caries was registered clinically using the criteria of Nyvad *et al.*<sup>31</sup> with

special emphasis on assessing the criteria scores 1 and 2. The score 1 of active caries (intact surface) is defined as follows: surface of enamel is whitish/yellowish opaque with loss of luster; feels rough when the tip of the probe is moved gently across the surface; generally covered with plaque; and no clinically detectable loss of substance. Consequently, the score 2 of active caries (surface discontinuity) is defined as follows: same criteria as score 1; localized surface defect (microcavity) is in enamel only; and no undermined enamel or softened floor detectable with the explorer<sup>31</sup>.

The protocol of whole research project was constructed in collaboration between all participants of the organization and the coresearchers. The study protocol was strongly dental knowledge based. According to the protocol, dietary counselling comprised information about the aetiology of dental caries, dietary recommendations (e.g. eating frequency  $\leq 6$  per day) and examples of recommended and harmful diets. The counselling protocol also included Streptococcus mutans and lactobacilli tests, the results of which the dental hygienists often presented during the sessions. The function of the tests in counselling conversation was determined as a tool for addressing habitual factors that influence bacterial levels.

Many national reports, including the Finnish Nutrition Recommendation, set target levels for free sugars, the average being 10% or less of calories, which is equivalent to a daily intake of 40–55 g per person<sup>2,32</sup>. According to the WHO recommendations, the frequency of consumption of foods and/or drinks containing free sugars should be limited to a maximum of four times per day<sup>9</sup>. The recommendation commonly used in Finnish oral health education advises snacking sweets no more frequently than once per week and drinking soft drinks no more frequently than two to three times per week<sup>33</sup>. In this study, snacking habits were defined as less structured eating patterns of schoolchildren that comprised the consumption of sweets, chips, soft drinks, juice, biscuits, and buns or cakes. Detailed criteria for snacking habits regarding the frequency and the amount of sugar intake were not determined in this study.

All counselling sessions were audio-taped and conducted by four female dental hygienists.

During regular scheduled appointments, the dental hygienists systematically recruited voluntary schoolchildren who met the inclusion criterion to participate in the study. Later, only one schoolchild withdrew from the study. The dental hygienists did the recording themselves. After receiving training on recording techniques, the counsellors experienced no problems with producing the tape recordings. Prior to commencing the study, the participating dental hygienists also received one-time training on the principles of the stage of model of change<sup>17</sup>, on motivational interviewing<sup>18</sup>, and on applying them both to oral health counselling<sup>23</sup>. In this study, the dental hygienists were allowed to freely apply the knowledge of interaction provided during their training to their counselling. Ethical approval for the study was given by the relevant authorities. Moreover, informed consent was obtained from all participating schoolchildren, their guardians, and the dental hygienists.

# Research data

The data of a larger follow-up research project (2002–2005) comprised seven counselling periods that were carried out at intervals of 6 months. The number of counselling sessions varied from one to four per schoolchild per period. The research data of this study included 66 counselling sessions in 2002 and 31 counselling sessions in 2003, with 31 11- to 13-year-old schoolchildren (n = 31, 16 boys). In 2002, the sessions were conducted within 1 month, with the exception of one schoolchild whose counselling sessions took place over an interval of 6 weeks.

The first counselling sessions in 2002 were selected for this study on the basis of the theoretical view that the basis of change counselling is the assessment of behaviour and the need for change<sup>17,18</sup>. This article provides a detailed description of the communication activities during needs assessment in 2002. In 2003, needs assessment conversation was based on a structured questionnaire in which the schoolchildren were requested to assess their need for change of snacking frequency by using a 2-point scale (true/false). In 2003, the assessments were conducted during a single session, with the exception of two schoolchildren.

The assessment of one took place during two sessions. The other did not assess his need for change of snacking habits during the sessions in 2003. This article presents the results of the schoolchildren's assessments in 2003 but does not describe in detail the communication activities of that assessment process.

#### Methods of the study

The data were analysed by using inductive content analysis<sup>34,35</sup>. At first, all counselling sessions were audio-taped and transcribed verbatim into computer text files. Next, the counselling conversations about dietary issues within the counselling sessions were identified and recorded in separate text files. The analysis then continued by identifying and labelling the participants' communication activities. The principle behind the analysis was to examine what communication activities were used in constructing the assessment of need for change of the schoolchildren's snacking habits. The analysis focused on the characteristics of communication, with special attention to the meaning of the verbatim text. The particular phrases, incidents, turns, or types of behaviour were identified and coded, with due regard to the schoolchildren's individual descriptions of their snacking habits and the dental hygienists' communication activities. They were subsequently classified by comparing similarities and differences between the coded issues. The major categories and the subcategories were derived on the basis of these classifications and named according to their content (Table 1).

The analysis yielded two categories regarding the realization of snacking recall: concise and extended. On the one hand, the snacking recall was mainly based on the dental hygien-

ists' predetermined, close-ended questions that only addressed the frequency of consumption. On the other hand, the dental hygienists also presented open-ended questions. Thereby the snacking recall was considerably extended to include the frequency of consumption, types of delicacies and individual favourite products, eating manners (e.g. eating snacks all at once or during a long time), contexts, and situations. The analysis included a total of 34 cases of counselling conversation with respect to needs assessment of snacking issues (Table 1). The analysis yielded two major categories of needs assessment practice: schoolchild-determined and counsellor-determined. Furthermore, the latter category was divided into seven subcategories of communication activities (see Table 1). The analysis included both a description of the counselling communication activities and individual-level information about the schoolchildren's situation. The following transcription symbols are used in the data extracts: SC, schoolchild; DH, dental hygienist; ..., omission of text; (), researcher's comment.

## Results

Consideration of snacking issues was begun by recalling the schoolchildren's snacking habits, with regard to different snacking products. The snacking recall was conducted during the schoolchildren's counselling, with the exception of two schoolchildren whose sessions did not include dietary issues in 2002. In 12 counselling sessions the snacking recall was realized very concisely and in 17 sessions the recall was considerably extended. The extended recall information enabled assessment of snacking habits whereas the concise recall often remained a quite separate part of the counselling and

Table 1. The categories of the communication activities of needs assessment of thange	Table 1.	The	categories	of the	communication	activities	of needs	assessment	of	change
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		The counsellor determined and assessed the schoolchild's need for change Through several counselling speech practices								
The schoolchild disclosed her or his need for change	≻ Explicitly	Assessment or advice	Assessment + advice	Assessment + change-inducing question	Assessment + change-inducing question + advice	Assessment + question about actual changes	Question about actual changes			
n = 5	<i>n</i> = 4	<i>n</i> = 8	<i>n</i> = 6	<i>n</i> = 2	n = 7	<i>n</i> = 1	<i>n</i> = 1			

was not associated with further counselling conversation. As a whole, the schoolchildren's descriptions of their snacking habits were usually minimal and ambiguous in this study data (see Extract 1). In this data, either the schoolchild disclosed his or her need for change or the counsellor determined the schoolchild's need for change explicitly or implicitly, by means of the various communication activities. In a few cases, the communication activities of needs assessment varied in different snacking areas.

#### Extract 1

SC: Sometimes maybe twice a day (eating candy). I don't, these days I don't have very much at all but every now and then. Before, things used to be really bad sometimes. I mean, I used to eat an awful lot of candy in a day but I don't have terribly much any more.... Now I don't, not every single day, every second day, a few times every week.

In this data, the schoolchildren might begin to assess their need for change spontaneously at the beginning of the counselling, besides considering the causes for any initial caries diagnosed. Alternatively, the schoolchildren might disclose that they had already attempted to decrease their consumption of sweets. Usually, the dental hygienists confirmed the schoolchildren's appraisals on the basis of the recall. In this data, the counsellor also explicitly determined and assessed the schoolchildren's need for change of snacking habits after the snacking recall. In a few cases, there were indications that the schoolchildren's perception of the need for change differed from that of the counsellor. For instance, in one case the dental hygienist distinctly states the schoolchild's need for change and then asks about the schoolchild's readiness for change (Extract 2; lines 1–3). The schoolchild discloses that he is aware of the need for change as he has already tried to eat fewer sweets (lines 4, 5, 7). After the counsellor rewords the questions about the schoolchild's earlier frequency of consumption (lines 8, 9, 11), the schoolchild reveals that his change is related to the amount of sweets (lines 12, 13). The issues of total amount and consumption frequency were not differentiated as it occasionally remained ambiguous which of the two is being discussed. On the whole, discussing the amount of sugar intake was not a common topic in this data.

## Extract 2

- 1 DH: Maybe the candy business is what should
- 2 be cut down. Do you think you could eat
- 3 candy less often? Could you manage that?
- 4 SC: I've tried to eat a little less candy
- **5** already.
- 6 DH: Yeah.
- **7** SC: I do eat a little less candy these days
- 8 DH: Right. Then, earlier you used to eat
- **9** more than two to four times, or what?
- 10 SC: Yeah
- 11 DH: Yeah. Did you have it every single day?12 SC: Not every single day but I used to eat
- 13 more candy back then

In many cases, the schoolchildren's needs assessment remained on the level of the counsellor's assessment or advice after the snacking recall. In these cases, the snacking recall was often conducted very concisely, with attention only given to the frequency of consumption. The counsellor's assessing statements usually addressed the results of the salivary tests, for example: 'In the end, then, these (lactobacilli counts) didn't go terribly high, so it was quite all right. If you'd eaten more sugar, it would have gone this (high).' The form of advice was usually very general; more detailed and focused advice was rarely provided (Extract 3). The most often, the schoolchildren's personalized and detailed needs assessment for change remained incomplete during the sessions that only involved concise snacking recall and the counsellors' general advice based on raised lactobacilli counts.

## Extract 3

*General advice* DH: Of course, thinking about that, you could do something about that, of course it would be better, to do something so that the bacteria wouldn't get food, you should try and see how you, how you eat sweet foods.

*More detailed advice* DH: You could now think about it, eating candy, ... try cutting it down a little, have candy as rarely as possible.

In many cases, the assessment of the schoolchildren's need for change was founded on several counsellor-controlled communication activities. It was principally realized through the combined activities of assessment, advice giving and/or change-inducing questions. These were usually based on raised lactobacillus counts and/or the outcomes of the snacking recall. Exceptionally, in a few cases, the schoolchild's need for change was manifested through the counsellor's question about the schoolchild's actual changes after the first session. These cases, however, did not include needs assessment discussion.

The following extract highlights, in more detail, the complexity of conducting the needs assessment in this data. In this case, the dental hygienist poses recall questions of varied content and type (Extract 4; lines 1–3 and 7–9). They, however, fail to make the schoolchild participate actively in the recall. After the question-answer-question recall, the counsellor hastens to pose a detailed change-inducing question (lines 28-30). Thus, the counsellor determines the schoolchild's need for change on his behalf. In this data, the counsellors' assessing statements often preceded questions about change readiness, which is not manifested in this extract. Yet it was usual that the dental hygienist omitted the stage of mutual needs assessment when questioning the schoolchild's readiness for change immediately after the recall. In this example, the dental hygienist does not request the schoolchild to assess an association between eating sweets and initial caries until after the schoolchild manifests change resistance (line 31).

## Extract 4

- 1 DH: ... How then, how often do you eat2 candy, can you say, thinking how many3 times per week you would have candy?
- 4 SC: Five
- **5** DH: Five times. Almost every day
- 6 SC: Hmm
- 7 DH: Right. Then, what is your favourite
- **8** candy, what do you usually have when **9** you want to eat candy?
- 10 SC: Well, I couldn't say, I eat all sorts
- 11 DH: Whatever you happen to have?

- **12** SC: Hmm
- 13 DH: Yeah. Then what do you drink when
- 14 you get thirsty? What's your favourite
- 15 drink when you are thirsty?
- 16 SC: Well, water usually
- 17 DH: Usually water
- 18 SC: or some juice
- 19 DH: Yeah. Then, could you say that you
- 20 have juice every day?
- 21 SC: No
- **22** DH: No. What if you think of a week, then
- **23** how many times per week would you have
- **24** juice?
- **25** SC: Well, maybe four
- 26 DH: Right. What about soft drinks?
- 27 SC: Well, maybe twice a week
- 28 DH: Right. All right. Then how would you feel
- **29** if you should try and cut them down a little.
- 30 Candy and juice and
- 31 SC: Awful
- 32 DH: You'd feel awful? Yeah.

The schoolchildren's minimal and ambiguous responses and manifestation of change resistance at questions about their readiness for change underlined that it is of vital importance for counsellors to encourage change. The schoolchildren's defensive attitude was manifested when they replied to the counsellor's assessment by offering excuses for their detrimental behaviour. For instance, the schoolchild might generalize his or her snacking habits as being usual for his or her age and school grade, or the schoolchild might use a defensive argument that would focus on a positive aspect of his or her behaviour.

In this data, there were only a few cases in which the counsellors, after their own assessments or change-inducing questions, encouraged the schoolchildren to participate in assessing the outcomes of the recall and consider a possible association between reported habits and initial caries. In these cases, the counsellors, for instance, might indicate their assessment by using conditional statements: 'Somehow I feel a bit like you just might have had a little too much candy?' Alternatively, the dental hygienist might disclose that she had become perplexed as to what habitual factors were behind the schoolchild's dental status. This increased the schoolchild's participation in the discussion, and she actively began to produce sweets eating appraisals and consider possible causes for initial caries.

To conclude the analysis, the schoolchildren's changes in snacking habits were explored after a follow-up year, in 2003. Eight schoolchildren had made positive changes during the followup year. Regarding the positive changes, the schoolchildren themselves were aware of the need for change. Alternatively, the sessions included change discussion regarding readiness for change and making changes during the counselling in 2002. New negative snacking habits had appeared in eight schoolchildren's behaviour after the follow-up year. On the whole, most schoolchildren assessed that they still had a need for change of snacking habits in 2003. In 10 cases, where the schoolchildren's need for change of snacking habits remained ambiguous in 2002, it was impossible to explore the schoolchildren's changes during the follow-up year. Eight of these 10 schoolchildren disclosed that they had a need for change of snacking habits in 2003. It was occasionally difficult to explore the schoolchild's actual behaviour change when the needs assessment in 2002 remained on the level of the counsellor's indications of the schoolchildren's need for change. In some cases, the schoolchildren might report that they had no need for change while some factors concurrently raised their lactobacilli counts.

#### Discussion

The results presented here reveal that needs assessment of change that involves schoolchildren in counselling is a complex and demanding process that entails a number of concerns<sup>13,19,22</sup>. Our study also reaffirms the long-standing principle that changing snacking habits is a difficult and prolonged process<sup>36</sup> that always needs to be considered in the individual and environmental life context<sup>8</sup>. It was observable in this study data that the complex nature of schoolchildren's snacking behaviour<sup>8</sup> requires systematic, detailed, and sensitive snacking recall as well as continuous itemizing of schoolchildren's minimal and occasionally ambiguous responses. Mere recall of consumption frequency may not be sufficient for assessing the need for change of snacking habits<sup>2,9</sup>.

In this data, more extended question-answerquestion sequences, including the counsellors' assessing comments, were more exploratory in nature, enabling the schoolchildren to express their own varied perspectives more readily. On some occasions, confusion and somewhat conflicting views on the topic had an effect on the needs assessment of change.

The schoolchildren's reflection on their health behaviour, including its attitudinal aspects, lays a foundation for individualized needs assessment and change discussion<sup>17,18</sup>. In this data, the principle of the individual-centred change counselling method<sup>18</sup>, which implies that it is the schoolchild rather than the counsellor who assesses health behaviour and presents arguments for change, was largely not manifested. There was little evidence for the schoolchildren being invited to self-assess their information and to disclose their own appraisals of their need for change. However, there were some encouraging indications of enhanced communication activities, for instance, when the counsellor's speculative style contributed to the schoolchild's participation in the counselling conversation.

In this data, mutually constructed assessment of need for change was rarely seen. Often, the assessment of the schoolchildren's need for change was counsellor-controlled. This was observable from the data through a variety of the counsellors' communication activities of assessment, giving advice, and change-inducing questions of the sequential variety. This research indicated, as many previous studies have done<sup>23,37</sup>, that giving normative advice is a commonly used counselling strategy when addressing the need for change. In this data, the counsellors responsibly guided the schoolchildren in what would be considered beneficial for their oral health according to dietary recommendations. Usually, the schoolchildren's personalized and detailed needs assessment for change remained incomplete during the sessions that only involved concise snacking recall and the counsellors' general advice based on raised lactobacilli counts.

Besides advice giving, the counsellors also posed change-inducing questions, which more concretely directed the discussion toward the issue of behaviour change. However, although the counsellors' detailed change-inducing questions were personalized and based on snacking recall, the schoolchildren responded with minimal and ambiguous expressions and sometimes manifested change resistance. The change-inducing questions considered readiness for change, which is a necessary issue in the change process. However, the stage of mutual needs assessment, which was often omitted or ignored in this data, naturally precedes the issue of change readiness<sup>17,18</sup>.

The study finding that the schoolchild's perception of the need for change may differ from that of the counsellor emphasizes the importance of the negotiative assessment process. There, the counsellor and the schoolchild do not represent opposing viewpoints but, rather, cooperate for the benefit of the schoolchild<sup>18</sup>. Acknowledging schoolchildren's own agendas as valid does not conflict with the professional responsibility of the counsellor (Franklin & Sloper<sup>13</sup>). Being listened to and informed, being able to express views, and participate in problem definition prepares schoolchildren to be actively involved in the further course of the change process<sup>13,22</sup>. Steps should be taken to create structures that allow schoolchildren to have a voice in counselling.

The fact that schoolchildren formed a challenging and heterogeneous group for counselling should be kept in mind when considering the study findings. Schoolchildren have their own ways of participating in counselling conversation<sup>38</sup>. It is also important to point out that the principal reason behind the counselling practices described could involve the traditional, normative oral health care culture<sup>24,39</sup>. In adopting the socio-dental approach<sup>24,25</sup>, it is necessary to accomplish a reorientation from normative and curative methods towards empowering and participating approaches of behaviourally orientated health promotion. The challenges of the practical implementation of these innovations are associated with lack of time, existing professional predisposition and skills, and schoolchildren's inexperience of participation<sup>20</sup>. Counsellors would be advised to change their role. For their part, schoolchildren should learn that they are expected to participate in a negotiative conversation, although participation must always be voluntary. Schoolchildren should also be encouraged to take responsibility for their own behaviour.

At the professional level, training for new approaches to counselling should be equally focused on selectively suppressing old counselling habits (i.e. persuading, directing, confronting, asking closed questions instead of listening) and on enhancing new ones (i.e. asking open questions, listening reflectively, affirming)<sup>18,40</sup>. Counsellors should observe what communication activities they use and thus gain professional self-awareness and discover new tools to work with. One-time training and mere awareness of the principles are unlikely to alter counselling practice (Miller & Mount<sup>40</sup>). The combination of theory (Prochaska & Norcross<sup>17</sup> and Miller & Rollnick<sup>18</sup>) and empirical information can lead to an improved understanding of the process of schoolchildren's change counselling. This may consequently enable the future development of more appropriate and effective counselling strategies in the oral health care context.

In this study, on the basis of a large number of cases, we reliably observed the variation in these phenomena. The entire database was systematically analysed and categorized. To ensure credibility, explicit descriptions of the categories, including numerous quoted examples from the original data, were presented. Throughout the analysis, regular operational reflection and discussion on the criteria of categorization were conducted. The analysis was carried out without significant disagreements. The issues regarding the reliability of the findings and the interpretations of the analysis were discussed with the participating counsellors<sup>41</sup>. Since the data were quite restricted, the descriptions of the dental hygienists' communication activities cannot be generalized. However, the current findings may be transferable to other health counselling settings when carefully applied and the limitations of the study taken into account. What also needs to be recognized is that the categorization of the data simplified and restricted the description of the counselling reality<sup>41</sup>. The communication of the counselling sessions in this data was natural and the counsellors were allowed to freely apply the knowledge provided during their prestudy training. However, the study protocol and the normative counselling approach, which is the established practice in oral health care, had an effect of directing the counsellors' formulation of counselling towards a more structured format and existing counselling habits. A more extensive description of training part of this study will be offered late.

In conclusion, three issues related to counselling practice need to be considered. First, based on this study, we suggest that a change of time frame (from past causal changes to future causal potential) is of vital importance during the process of needs assessment of change. Recounting the causes of initial caries considers past behaviour while the assessment of need for change is orientated towards future action. In addition, causal factors do not inevitably constitute a need for change in the present. Second, in this study, salivary lactobacilli counts were used as a counselling tool in order to motivate sugar discipline, although this did not always individualize the further course of counselling (Nylander et al.<sup>30</sup>). The preventive role of antilactobacillus measures is not clear<sup>30</sup> but, in counselling, they may function as a tool for initiating conversation and addressing habitual factors that influence lactobacilli levels. However, considering the inconvenience and cost of lactobacilli tests, they could hardly be justified in regular counselling practice. Third, we indicate, based on the study findings regarding ambiguous snacking habits and needs assessment, that there is a need for clearer application of recommendations that address the personal level. We suggest that a structured assessment tool, when flexibly incorporated in conversation, can be a useful means of ensuring more clear, personal, open and conversational counselling of schoolchildren (Mitcheson &  $Cowley^{19}$ ).

#### What this paper adds

• This study explored the neglected issue of the needs assessment process in schoolchildren's oral health counselling.

Why this paper is important to paediatric dentists

- The description of communication activities is useful for identifying counselling components that need to be taken into consideration and improved on and for increasing schoolchildren's awareness of health behaviour and need for change.
- Identifying counselling components may foster clearer, more systematic and more efficient approaches to counselling practice, currently subject to criticism.

#### Acknowledgements

We gratefully acknowledge financial support for this study by the Ministry of Social Affairs and Health of Finland and the Finnish Cultural Foundation.

#### References

- 1 World Health Organization. *The World Oral Health Report 2003*. Geneva, Switzerland: WHO. [WWW document] URL http://www.who.int/oral\_health/publications/report03/en (accessed September 2005).
- 2 Sheiham A. Dietary effects on dental diseases. *Public Health Nutr* 2001; **4**: 569–591.
- 3 Ruottinen S, Karjalainen S, Söderling E, Pienihäkkinen K. Sucrose intake since infancy and dental health in 10-year-old children. *Caries Res* 2004; **38**: 142–148.
- 4 Vereecken C, Ojala K, Jordan MD. Eating habits. In: Currie C, Roberts C, Morgan A, et al. (eds). Young People's Health in Context Health Behaviour in School-Aged Children (HBSC) Study: International Report from the 2001/2002 survey. Health policy for Children and Adolescents, No. 4. Copenhagen, Denmark: WHO Regional Office for Europe, 2004: 110–119.
- 5 Vereecken C, Inchley J, Subramanian SV, Hublet A, Maes L. The relative influence of individual and contextual socio-economic status on consumption of fruit and soft drinks among adolescents in Europe. *Eur J Public Health* 2005; **15**: 224–232.
- 6 Domestic sales of Finnish food products. Forkful of Facts. Finnish Food and Drink Industries' Federation. [WWW document] URL http://www.finfood.fi/ tietohaarukka (accessed September 2005).
- 7 Freeman R, Heimonen H, Speedy P, Tuutti H. Determinants of cariogenic snacking in adolescents in Belfast and Helsinki. *Eur J Oral Sci* 2000; **108**: 504–510.
- 8 Story M, Neumark-Sztainer D, French SA. Individual and environmental influences on adolescent eating behaviors. *J Am Diet Assoc* 2002; **102**(3 Suppl.): S40–51.
- 9 World Health Organization and Food and Agriculture Organization. *Diet Nutrition and the Prevention of Chronic Diseases: Report of a Joint WHO/FAO Expert Consultation*. Geneva, Switzerland: WHO, 2003.
- 10 Contento I, Balch GI, Bronner YL, *et al.* Nutrition education for school-aged children. *J Nutr Educ* 1995;
  6: 299–311.
- 11 Berg-Smith SM, Stevens VJ, Brown KM, *et al.* A brief motivational intervention to improve dietary adherence in adolescents. *Health Educ Res* 1999; **3**: 399–410.
- 12 Baer JS, Peterson PL. Motivational interviewing with adolescents and young adults. In: Miller WR, Rollnick S (eds). *Motivational Interviewing Preparing People for Change*, 2nd edn. New York: Guilford, 2002: 320–332.
- 13 Franklin A, Sloper P. Listening and responding? Children's participation in health care within England. *Int J Child Rights* 2005; 13: 11–29.

- 14 Watt R. Public health strategies for oral health improvement. *Euro Observer* 2005; **7**: 6–7.
- 15 Pirouznia M. The association between nutrition knowledge and eating behavior in male and female adolescent in the US. *Int J Food Sci Nutr* 2001; **52**: 127–132.
- 16 Poutanen R, Lahti S, Hausen H. Oral health-related knowledge, attitudes, and beliefs among 11 to 12year-old Finnish schoolchildren with different oral health behaviors. *Acta Odontol Scand* 2005; 63: 10–16.
- 17 Prochaska JO, Norcross JC. *Systems of Psychotherapy: A Transtheoretical Analysis*, 5th edn. Los Angeles, CA: Thomson Learning, 2003.
- 18 Miller WR, Rollnick S. *Motivational Interviewing: Preparing People for Change*. New York: Guilford, 2002.
- 19 Mitcheson J, Cowley S. Empowerment or control? An analysis of the extent to which client participation is enabled during health visitor/client interactions using a structured health needs assessment tool. *Int J Nurs Stud* 2003; **40**: 413–426.
- 20 Cavet J, Sloper P. The participation of children and young people in decisions about UK service development. *Child Care Health Dev* 2004; **30**: 613–621.
- 21 Tates K, Meeuwesen L. Doctor-parent-child communication. A (re)view of the literature. *Soc Sci Med* 2001; 52: 839–851.
- 22 Tates K, Meeuwesen L, Elbers E, Bensing J. 'I've come for his throat': roles and identities in doctor–parent–child communication. *Child Care Health Dev* 2002; **28**: 101–108.
- 23 Kasila K, Poskiparta M, Kettunen T, Pietilä I. Oral health counselling in changing schoolchildren's oral hygiene habits: a qualitative study. *Community Dent Oral Epidemiol* 2006; **34**: 419–428.
- 24 Tsakos G. Redefining the way dental needs are assessed. *Euro Observer* 2005; **7**: 7–8.
- 25 Gherunpong S, Tsakos G, Sheiham A. A sociodental approach to assessing dental needs of children: concept and models. *Int J Paediatr Dent* 2006; **16**: 81–88.
- 26 Kay EJ, Locker D. Is dental health education effective? A systematic review of current evidence. *Community Dent Oral Epidemiol* 1996; 24: 231–235.
- 27 Kay EJ, Locker D. A systematic review of the effectiveness of health promotion aimed at improving oral health. *Community Dent Health* 1998; **15**: 132– 144.
- 28 Hugoson A, Lundgren D, Asklöw B, Borkglint G. The effect of different dental health programmes on young adult individuals. A longitudinal evaluation of

knowledge and behaviour including cost aspects. *Swed Dent J* 2003; **27**: 115–130.

- 29 Honkala S, Honkala E, Rimpelä A, Vikat A. Oral hygiene instructions and dietary sugar advice received by adolescents in 1989 and 1997. *Community Dent Oral Epidemiol* 2002; **30**: 124–132.
- 30 Nylander A, Kumlin I, Martinsson M, Twetman S. Effect of a school-based preventive program with salivary lactobacillus counts as sugar-motivating tool on caries increment in adolescents. *Acta Odontol Scand* 2001; **59**: 88–92.
- 31 Nyvad B, Machiulskiene V, Baelum V. Reliability of a new caries diagnostic system differentiating between active and inactive caries lesions. *Caries Res* 1999; **33**: 252–260.
- 32 National Nutrition Council. *Finnish Nutrition Recommendations. Committee Report* 7. Helsinki, Finland: Ministry of Agriculture and Forestry, 1999.
- 33 Karjalainen S, Söderling E, Sewón L, Lapinleimu H, Simell O. A prospective study on sucrose consumption, visible plaque and caries in children from 3 to 6 years of age. *Community Dent Oral Epidemiol* 2004; 29: 136–142.
- 34 Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005; **15**: 1277–1288.
- 35 Krippendorff K. *Content Analysis: An Introduction to Its Methodology*. Thousand Oaks, CA: Sage Publications, 2002.
- 36 Van Horn L, Obarzanek E, Friedman LA, Gernhofer N, Barton B. Children's adaptation to a fat-reduced diet: the Dietary Intervention Study in Children (DISC). *Pediatrics* 2005; **115**: 1723–1733.
- 37 Karhila P, Kettunen T, Poskiparta M. Negotiation in type 2 diabetes counseling: from problem recognition to mutual acceptance during lifestyle counseling. *Qual Health Res* 2003; **13**: 1205–1224.
- 38 Pyörälä E. Interaction in Dietary Counselling of Diabetic Children and Adolescents. Helsinki, Finland: University of Helsinki, 2000.
- 39 Kasila K, Poskiparta M. Cultural and communicational traits of oral health care: results of a Finnish case study. *J Health Organ Manag* 2006; 20: 537–550.
- 40 Miller WR, Mount KA. A small study of training in motivational interviewing: does one workshop change clinician and client behavior? *Behav Cogn Psychother* 2001; 29: 457–471.
- 41 Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004; **24**: 105–112.

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