Using Mobile Phones in Health Behaviour Change - an Exploration of Perceptions among Adolescents in Sweden

Anna Seiterö, Kristin Thomas, Marie Löf & Ulrika Müssener

To cite this article: Anna Seiterö, Kristin Thomas, Marie Löf & Ulrika Müssener (2021) Using Mobile Phones in Health Behaviour Change - an Exploration of Perceptions among Adolescents in Sweden, International Journal of Adolescence and Youth, 26:1, 294-306, DOI: 10.1080/02673843.2021.1930561

To link to this article: https://doi.org/10.1080/02673843.2021.1930561

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Published online: 03 Jun 2021.

Submit your article to this journal

Article views: 235

View related articles

View Crossmark data
Using Mobile Phones in Health Behaviour Change - an Exploration of Perceptions among Adolescents in Sweden

Anna Seiterö, Kristin Thomas, Marie Löf, and Ulrika Müssener

Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden; Department of Biosciences and Nutrition, Karolinska Institutet, Sweden

ABSTRACT

Health promotion interventions delivered via mobile phones (mHealth) need to be carefully tailored to end-users to optimize engagement and effects on health outcomes. However, tailoring requires an in-depth understanding of the users’ context and under which circumstances end-users are willing to engage. The aim of this study was to identify and describe how high school students perceive health behaviour change and how mobile phones are used in the process of change. Thematic analysis was used to analyse data collected through 6 focus groups with 21 Swedish high school students (16–19 years). The results showed that behaviour change among adolescents were promoted by having an open approach, being able to be independent, and self-accepting. Mobile phones can provide resilience in long-term behaviour change. These findings may be useful in the development of mHealth interventions, but also for professionals in promoting healthy behaviours among adolescents.

Background

Health behaviours established during adolescence affect not only the health of youths today but also the public health in the future (Gore et al., 2011; Mokdad et al., 2016). Efforts are therefore being made worldwide to address the ‘big four’ health behaviours (physical activity, food habits, alcohol, and smoking) that are causing non-communicable diseases, and to support healthy behaviours into adulthood (Busch et al., 2013; Champion et al., 2019). Traditionally, efforts to provide young people with skills to improve health behaviours have been given in school settings through face-to-face interventions between a student or a group of students and a teacher, mentor or professional from the school health centre (Langford et al., 2014). However, aspects such as staff turnover, funding, time and material resources challenge schools’ capacity to sustain health interventions (Herlitz et al., 2020). In addition, adolescents may perceive barriers to seeking help for behavioural problems from professionals in school and may prefer seeking help from friends and from digital sources (Van Den Toren et al., 2020).

The term mHealth is defined as a medical or public health practice that is supported by mobile devices (WHO Global Observatory for eHealth, 2011). A great benefit often highlighted in regard to mHealth is the wide acceptance and the ability to easily scale up, as well as the low cost to reach many individuals irrespective of socioeconomic status (Anderson-Lewis et al., 2018; Fiordelli et al., 2013). Several systematic reviews and meta-analyses conclude that mHealth interventions that are informative and motivating, support goal setting and prompt self-monitoring short-term, can...
positively affect adolescents’ health behaviour change (Fedele et al., 2017; Loescher et al., 2018; Shin et al., 2019). However, mHealth interventions also need to be tailored to support adolescents’ engagement in healthy behaviours long-term (Jeminiwa et al., 2019; Shin et al., 2019).

Development of mHealth interventions should therefore be guided by formative evaluations to meet the needs of the end-user (Gemert-Pijnen et al., 2011). One aspect of tailoring is to adjust the layout and content to optimize end-users’ willingness to use the mHealth intervention. In this respect, the term ‘engagement’ is linked with human-computer interaction. For instance, usability testing may lead to identification of pitfalls that can be taken care of during the development of the mHealth intervention. The term engagement can also refer to engagement in health behaviour change. That is, the dynamic process of establishing new behaviours, which is influenced by the culture within families, schools, and the broader society (Yardley et al., 2016). For example, social structures in the school environment create a context that either promote or inhibit students’ engagement in healthy behaviours (Cappella & Hwang, 2015; Mccann et al., 2019; Montgomery et al., 2020). It is known that adolescents base their health-related decisions on different factors compared to adults. In addition, the influence of social media on attitudes, values, and behaviours differ between adolescents and other age groups (G. C. Patton et al., 2016). User-centred design of an mHealth intervention therefore requires an in-depth understanding of user’s knowledge, skills, behaviour, motivations, culture and context (Gemert-Pijnen et al., 2011).

This study was conducted as part of a formative process to develop an mHealth intervention (LIFE4YOUth) that addresses multiple health behaviours targeted at Swedish high school students (Bendtsen et al., 2020; Müssener, Löf et al., 2020). Given this, the aim of this study was to identify and describe how high school students perceive health behaviour change and how mobile phones are used in the process of change. A clinical randomized controlled trial is ongoing to assess the effectiveness of the LIFE4YOUth mHealth intervention (Bendtsen et al., 2021) that have been developed in consideration with findings in this study as well as previously conducted formative evaluations (Müssener, Thomas et al., 2020).

Method

Study design

A qualitative approach using focus groups with high school students (16–19 years) in Sweden was used to explore participants’ thoughts on health behaviour change and the role of mobile phones (Kitzinger, 1994). The study takes a perspective based on participants’ understanding of their reality (M. Q. Patton, 2015). An inductive approach of latent thematic analysis was chosen for interpreting the patterns of shared meanings across data (Braun & Clarke, 2006, 2019).

Recruitment process

Three different schools located in two urban locations in the county of Östergötland, Sweden were invited to take part in the study. One school (A) was chosen by convenience sampling through an established contact between staff at the school and the researchers. A purposeful sample of students (M. Q. Patton, 2015) who varied in age and gender were invited to participate in the study by staff at the school who had been given written information to use during recruitment. Due to study dropouts, additional students were recruited using convenience and snowball techniques (M. Q. Patton, 2015).

The second (B) and third (C) schools were selected strategically by the head of school nurses in the municipality to overall access students from different educational backgrounds. Such strategy was used to enrich data by recruiting participants with potentially different experience of reading and reflecting on health information. The school nurses liaised with principals at each of the schools, who approved data collection during school hours. Thereafter, the school nurses invited eligible students
from vocational and introductory education programs. Eligible criteria were the ability to understand and be able to express themselves in Swedish and to own a smartphone. Recruitment occurred during routine health visits over a two-week recruitment period. Students notified their school nurse of their interest to participate in the study who arranged contact with the teachers concerned and coordinated time and place for the focus groups.

**Setting and participants**

Twenty-one high school students aged 16–19 years participated in the study, including both males (n = 10) and females (n = 11), please see Table 1. All focus groups (n = 6) were conducted at participants’ schools, during the period May-November 2019.

Each participant attended one focus group session and participants did not know each other before the session. The groups were homogenous in terms of participants’ age, gender, and educational profile.

All focus group sessions were introduced with an informal conversation and participants were informed about the study and the role of the moderators (either UM or AS). Participants were told that UM (female) has previously been involved in studies in the field of mHealth interventions targeting high school student and that AS (female) is a former school nurse and current PhD-student with no experience of focus group methods. Both moderators therefore had an understanding of the phenomenon being studied but had no relationship with the participating students.

**Data collection**

Focus group discussions were guided by pre-formulated and open-ended questions addressing three areas: a) health behaviours among adolescents, b) perceptions of health behaviour change, and c) use of the mobile phone for health issues (see Table 1). Special interest was given to the following health behaviours: food habits, physical activity, alcohol consumption and smoking. The semi-structured guide had formerly been tested in a pilot interview (M. Q. Patton, 2015) with one single participant, and was therefore not included in the analysis despite no revisions being made after the pilot-interview. In addition, participants in the two first focus groups were shown screenshots of an mHealth intervention prototype that was used to prompt discussion about their perceptions of mobile phones in health behaviour change. In the following sessions, these screenshots were replaced with images illustrating health behaviours to promote discussions regarding health behaviours in general.

**Table 1.** Participant characteristics including topics discussed for each focus group.

<table>
<thead>
<tr>
<th>School</th>
<th>Focus group</th>
<th>Participants n (gender)</th>
<th>Educational profile</th>
<th>Topics</th>
</tr>
</thead>
</table>
| A      | 1 n = 2 (1 female) | Theoretical degree courses (n = 5) | • Health behaviour manifestations  
• Motives, barriers, and attitudes to health behaviour changes  
• Use, experiences, and opinions about mHealth |
|        | 2 n = 3 (1 female) | | |
| B      | 3 n = 3 (3 females) | Theoretical degree courses (n = 1) Introductory degree courses (n = 2) | • Social and psychological meanings of health behaviours  
• Meanings of conducting health behaviour change  
• Strategies to find appropriate objectives and support |
|        | 4 n = 4 (4 females) | Introductory degree courses (n = 4) | |
| C      | 5 n = 6 (2 females) | Vocational degree courses (n = 9) | |
Each focus group lasted between 30 and 59 minutes (average 49 minutes). A female assessor (either a research assistant, or UM) observed the dynamic between participants, took field notes and complemented the process with questions at the end of the session. Reflective notes were written before the first conducted focus group, and field notes of contextual details were written directly after each focus group. Table 1

**Ethical Approval**

The study was approved by the Swedish Ethical Review Authority (Dnr 2019–01320). All participants have been provided with written and verbal information about the study, that participation is voluntary, that they have the right to ask questions and leave the study at any time without giving reasons. Written consent was obtained from all participants, but not from guardians, in accordance with ethical approval.

**Data analysis**

The focus group sessions were recorded and transcribed verbatim. The transcripts were analysed using thematic analysis (Braun & Clarke, 2006, 2019). An inductive approach was chosen to explore the latent meanings and create a deeper understanding of the participants’ perspectives (Braun & Clarke, 2006). The agreement between transcribing and audio recording was verified by AS and the transcripts were read and re-read by AS, UM and KT. NVivo 12 software was used to organize data and to create codes subjectively (AS) based on the interpreted meaning of respondents’ statements that reflected the purpose of the study. The continued process aimed to develop the codes into preliminary themes by sketching a thematic map that was continuously revised as and when themes were formulated. The degree of robustness of themes was assessed with the full transcripts and the reflective notes, to ensure that the themes were clearly based on the data. The process of analysis has involved three authors (AS, UM, and KT), all of whom have contributed to deepen understanding.

**Result**

The overall aim of the study was to explore how high school students perceive health behaviour change and how mobile phones are used in the process of change. The results have been analysed in the context of Swedish high school students. Two major themes were constructed: ‘Striving for social ideals of success’ and ‘Developing a personal approach’. An overview of the result is visualized in Figure 1. Figure 1

**Striving for social ideals of success**

The theme ‘Striving for social ideals of success’ is characterized by how adolescents use health behaviours to express or achieve social ideals. Participants perceived that the comparison with social ideals was central in the appraisal process, i.e. when considering a behaviour change. Social ideals could be experiencing togetherness with friends, having an attractive appearance or doing well in school. Ideals such as togetherness could be expressed or manifested through shared health behaviours in a social group. In this regard, participants emphasized that actual interaction with friends was also considered to be success.

To engage in normative behaviours was perceived as unproblematic from both a social and a bodily perspective despite knowledge about health risks. Furthermore, social media was considered to reinforce certain social ideals of success such as, having an attractive appearance, and present an overall desirable way of living. Use of social media therefore contributed to participants’ dissatisfaction with themselves and with life in general. In addition, negative experiences with social media contributed to feelings of inferiority and efforts to prove to others that they were capable of
achieving normative ideals. Attempts to engage in health behaviours could therefore be a way to prove success in one’s social group.

Respondent 1: Alcohol, that’s something you share. You go to parties together and … everyone has … (Male)

Respondent 2: Like this … (Female)

Respondent 1: Everyone drinks a little too much. Everybody’s got this hangover. They share it. It’s something they do together.

Respondent 3: It’s normalized. So that’s okay. It’s not something you need to change. (Male)
Respondent 2: You get . . . a kind of higher position if you are involved in doing things like that. If you hang out with them yes, but in those gangs. So it’s a bit more like, like this, that you should prove to yourself and others that you . . .

Respondent 3: Yes.

Respondent 2: . . . are someone. (Group 2)

However, deviating from norms could be a trigger for change. Changing was not perceived as being socially complicated as long as the intention for change was directed towards socially accepted behaviours. For instance, if participants perceived themselves as drinking more alcohol than friends, it was no big deal to intend to consume less alcohol. Also, if friends were interested in exercise and healthy eating, it was easy to adopt those behaviours. Similar, risky activities encouraged by peers, such as drinking alcohol and smoking, were sometimes carried out due to fear of being excluded. Thus, the role of the social group in health behaviour change could be a source of conflict if the ideal of the group differed from the ideal of the individual. That is, disagreement between health behaviours aimed at supporting togetherness on the one hand, but improved functioning in school, on the other hand.

Respondent 4: If you hang out with people who just party, who just . . . do bad things, unhealthy things and you don’t want to do it, but you want to be healthy and you want to feel good. But they are dragging you into all this partying, drinking alcohol, all that. If you say no, they look at you and just ‘hey, are you going to be boring?’ (Female)

Respondent 5: Yes, exactly. (Male)

Respondent 4: Although it’s better to say no than to do something you don’t want. (Group 5)

Appraisal of the pros and cons of trying a new behaviour was mainly based on the social cost of doing the behaviour versus not doing the behaviour. For example, eating fast food was considered an everyday social activity that strengthened togetherness in a social group. Therefore, it would be easier to establish new health behaviours if experiencing togetherness in more than one group of friends and where healthy behaviours were the norm in at least one of the groups. Self-esteem and the desire to be independent were also instrumental in facilitating behaviour change in cases where the behaviour was incongruent with the social norm. Participants with experiences that deviated from shared health behaviours of cultural, religious, or idealistic reasons felt that this was an expression of independence. However, some participants reported experiencing emotional stress because they perceived that they would never manage to make changes in accordance with the ideals they compared themselves to. In these cases, participants described self-acceptance to try to be satisfied with themselves without changing.

Respondent 6: There are a lot of trends and norms and stuff. If you’re on like, Instagram, then you see girls who have beautiful bodies and you think that . . . (Female)

Respondent 7: You’ve become kind of motivated, but you still don’t (make a change). (Female)

Respondent 6: And depressed [laughter].

Respondent 7: Yes. But you’re still not taking action, so it will be like just ‘oh, so I wish too, maybe in another life.’ (Group 4)

**Developing a personal approach**

The theme ‘Developing a personal approach’ involves adopting approaches and strategies to realize the social ideals of success. Having an open approach to try new things was perceived as essential in
order to grow as a person. Personal growth involved continuously processing health-related information from different channels such as social media, friends and family. Participants’ descriptions of an open approach also included having an experimental attitude: to try things, dare to break patterns, be curious, and be open for support from friends. For example, curiosity of personal health data such as duration of sleep and number of steps per day, that are commonly collected by health applications via mobile phones was expressed as a way to adopt an open approach.

Respondent 8: There are many who publish like exercise-stuff that you can do and what to eat for eating healthier and how much you should eat. (Female)

Respondent 9: But much of that stuff, you don’t know that … It’s not made for you, it’s made for … (Male)

Respondent 10: No, so it doesn’t work for you either, so you … Look, it’s going to be expensive, but you have to try your way.

[…]

Respondent 10: I think everyone has an individual way of doing things. […] The only way, then, to know how … what works for you, is to try it yourself. (Group 5)

However, health data collected via mobile phones was described as difficult to interpret and use. Therefore, online searches on Google, YouTube and other types of social media were considered necessary to achieve a broader understanding of realistic goals and strategies. Searches for specific information require critical thinking skills, particularly due to conflicting messages which can cause misunderstandings and loss of interest. Being inspired by social influencers on social media was also described as motivating behaviour change alongside a need to distinguish between advertising, facts, and personal opinions.

The internet provides access to people all over the world and therefore gives an opportunity for people to find experts who appeal to personal interests. Although participants perceived that they have to try out what works for themselves, they also assumed that online published exercise or dietary schedules made by other people had been tested and in this sense were considered evidence-based. Tips on health applications were appreciated because of the wide range of available applications which would otherwise involve a time-consuming search for appropriate support. In addition, some applications cost money and participants expressed concern about not having applications that are better than the one they had installed. Such concern may also lead to a large turnover of mobile health applications. Overall, the explorative search for workable strategies to develop a personal approach was perceived as a continuous process.

Respondent 11: … Disadvantages are that there are many different kinds of apps. They can say different [information]. (Male)

Respondent 12: Mm, various information coming from … (Male)

Respondent 13: Mm. (Male)

Moderator: Why is it good that there are many different [apps]?

Respondent 12: It’s good and bad. It’s good because you can see where they come together [similarities in information].

Respondent 11: Mm.

Respondent 13: Good for … well.

Respondent 12: But then it’s bad because you don’t know what to choose.

Respondent 13: It’s good because many people want to exercise in different ways, so then there is … Each person can choose the one [app] they think is best. (Group 6)

Furthermore, participants stressed that gradual behaviour change was important. Smoking cessation may be an exception as it can be beneficial to quit smoking from one day to the next. Detailed planning of measurable goals and schedules for action was mainly described in regard to physical activity and food-habits, while strategies to reduce alcohol consumption were considered to
be less explicit in terms of goals and forward planning. Instead, planning could be made for specific occasions; for example, by deciding in advance how much to drink during the evening and not drinking at every party. However, the gradual adoption of new routines was also associated with a risk of losing interest, as new routines require patience and resilience. Participants stressed that a mindset to make a change for your own benefit can contribute to increased willpower to continue, especially provided that there is convenient access to support.

Convenient access to support was characterized as a supportive social context, and also the use of a mobile phone that ideally could serve as a digital assistant which facilitates good decisions in everyday life. For example, personalized mobile phone support that gives guidance based on various automatically collected data, and feedback in line with personal planning and defined goals. Also, participants reported that the opportunity to chat with professionals and other young people with similar goals, would increase resilience against falling back into old habits.

Respondent 14: Everybody is of course an individual, so that some who really, really want to change, they might be able to manage all [changes] at once, while others may feel that ... will be too much, so that they take one [change] at a time. (Female)

Respondent 15: You can achieve milestones. But I think that certain habits, such as physical activity and eating habits are connected. (Male) (Group 1)

Another aspect that was considered to drive the process of change forward was a holistic approach that recognizes health behaviour change as a part of life. For instance, the data showed that adolescents had knowledge about the complexity of health behaviours such as their effects on academic performance and quality of sleep. Participants therefore reasoned that considering all health behaviours at the same time was necessary to achieve results. The holistic approach was also described in terms of acceptance that planned activities sometimes do not fit the schedule of the day. Having an accepting attitude towards oneself and acknowledging when doing the best were considered to promote further well-being. In addition, balance means that one does not have to strive to achieve strict adherence to healthy behaviours, but to be able to vary between healthy and unhealthy behaviours by choice. Health behaviour changes which are balanced in this way seem to be associated with lack of motivation to make a real change, in periods of maintenance of healthier behaviours, or when the introduction of new patterns was the real reason for the health behaviour change.

Respondent 16: I also think that stress at school affects your sleep as well. Because it´s really like this. [...] in an hour and a half I will have to study, eat, get myself ready for bed. It´s kind of ... you don´t have time. It´s really like this, you have to put your priorities just right, otherwise it will crash. And I think it´s stressing you out more than you think. (Female) (Group 3).

Respondent 17: Mm, but it´s tastier food, but it´s more unhealthy, so I don´t know. Then you have to choose a little. (Male)

Respondent 18: Mm. (Male)

Respondent 17: Or you don´t have to choose. You can vary. (Group 6).

Discussion

This study aimed to explore high school students’ perceptions of health behaviour change and how mobile phones are used in the process of change. The main findings include that health behaviour change is perceived a continuous interaction between self-perception and social norms and expectations. These findings suggest that health behaviour change is a dynamic process that occurs through striving for social ideals and attempts in realizing these ideals. In addition, our data showed
that adolescents considered mobile phones to provide support that was conveniently accessible to due to competing interests in their daily life.

The social meanings of health behaviours can both promote and counteract attempts to initiate a health behaviour change. Health behaviour change that require deviating from friends’ shared health behaviours can be socially complicated and might therefore be associated with hesitation to initiate changes. Previous research has shown that social norms can contribute to health behaviours among adolescents. Incentives such as appearance and social popularity in specific social groups can motivate physical activity and dietary habits, resulting in perceptions of success (Wilhsson et al., 2017). In addition, engagement in health risk behaviours can be based on avoidance of social vulnerability rather than health risks (Randell et al., 2016; Van Amsterdam & Knoppers, 2018) as smoking and drinking alcohol has shown to strengthen the sense of belonging with friends (Randell et al., 2016). Koehn et al. (2016) argue that adolescents may lack structure and perceived competence to sustain health behaviours in contexts where friends do not engage in these behaviours. However, participants in this study emphasized that they must dare to be independent in order to break habits and explore new behaviours. Indeed, adoption of new health behaviours can be a strategy for establishing new friendships and to grow (Paulsson Do et al., 2020).

In fact, growing as a person was perceived as a process of self-realization which in turn was a central part of striving for ideals. The concept of success was understood by adolescents as achieving goals as well as continuously trying to improve and evolve as a person (Mac Intosh et al., 2020). The process of identifying and thoroughly testing new behaviours, which was described as an open approach, shows similarities of adult women’s experiences of health behaviour change as exploring between available options to create changes that fit everyday life (Ryan et al., 2020). In this respect, participants in our study reported that self-acceptance and balance were needed to address health behaviour change as one of many commitments in life.

Our findings echo the psychological constructs of the COM-B model (capability, opportunity and motivation). Capability refers to self-management skills grounded in sufficient knowledge of what is important and why, and physical and mental resources in terms of skills, strength, strategies and stamina (Michie et al., 2014). Participants expressed that their assessment of health behaviours stemmed from continuous comparisons with perceived norms. Adolescents also found that the vast amount of health information was challenging and requires critical thinking to navigate. However, the strategic use of others’ actions plans might indicate limited capability for behaviour change among this group. Convenient access to prompt support through friends or mobile phone was considered to be important for resilience and to prevent cravings or loss of interest, which were considered to be the main challenges. The construct of opportunity refers to social and physical opportunities to engage in behaviour change e.g., social norms or material resources (Michie et al., 2014). Participants’ desire for being able to chat online with professionals and other youths may possibly reflect the need for privacy due to perceived risks of deviating from friends’ shared behaviours. The social consequences and perceived chance of success (reaching the ideal) seem to be central in appraisal of the pros and cons of changing. Wanting is one of the aspects involved in the COM-B construct of motivation, in addition to needing, believing and planning to establish new habits (Michie et al., 2014).

As previously suggested, mHealth interventions need to consider end-users’ knowledge, skills, behaviour, motivations, culture and context (Gemert-Pijnen et al., 2011). Findings in this study suggest that peers’ health behaviours have an important influence on high school students’ health behaviours. mHealth interventions that address high school students might therefore benefit from providing users with insights on additional consequences of health behaviours’ influence on health and well-being. In addition, tips and strategies can facilitate users’ exploration of new behaviours in line with the suggested desire of convenient access to support. Intervention content may also support users’ development of self-confidence to abstain from shared health risk behaviours. Through providing templates for goal setting and conducting of action plans mHealth interventions
can contribute to the learning of self-management skills that increase users’ flexibility to developing a personal approach to health behaviour change.

As these findings are based on high school students representing a broad spectrum of abilities and experiences, future studies should focus on the perspectives of high school students with disabilities or other difficulties to apply health information. Such knowledge could be useful to appropriately tailor mHealth interventions targeting youths with another patterns of capability, opportunity, and motivation, compared with the general youth population.

**Method discussion**

Focus groups are considered to be an appropriate method for collecting data in adolescent research as it means a more natural situation (compared with one-to-one interviews) that can make it easier to relax which could potentially generate richer data (Gibson, 2007). The major limitations of this study are that five of six focus groups consisted of four or less participants, which are considered small group. Interaction and participants’ spontaneous reflections varied between the conducted focus groups. Bigger groups could potentially have acknowledged contrasting perspectives more effectively, since participants in small groups more probably seek for consensus rather than divergences (Gibson, 2007). However, the small groups might have been decisive for some individuals in choosing to participate in the study. In addition, the number of focus groups are considered more important for capturing understanding of a phenomenon than the number of participants in each focus group (Hennink et al., 2019).

Furthermore, participants were recruited purposefully from three educational profiles which are assumed to include different socioeconomic strata, to ensure that different perspectives would be represented. However, our results do not highlight how health behaviour change is possibly differently perceived among high school students in different socioeconomic strata, which may limit the ability to assess the transferability of the study results (Korstjens & Moser, 2018). Transferability could have been further increased by collecting and reporting participant data, for instance, mean age. Yet, our findings may be applicable to other adolescents in similar contexts reflecting on health behaviour changes.

We chose to conduct six focus groups because we assessed that the data could sufficiently respond the aim of the study. The interviewer aimed to let participants describe their own perceptions, but it is important to note that, to some extent, all interviews are shaped by the interactions between the participant and the researcher (M. Q. Patton, 2015). Trustworthiness was strengthened by the use of an interview guide, which was evaluated in a pilot interview. Techniques such as use of probing and clarifying questions were continuously used during data collection to deepen the discussions and stimulate full descriptions that increase the credibility in findings (Korstjens & Moser, 2018).

Two focus groups were shown screenshots of a prototype of an mHealth intervention, but as that was considered to inhibit participants by limiting their perspective, these were replaced by neutral illustrations (to use as prompts for discussion of physical activity, food habits, smoking, and alcohol consumption) in the subsequent focus groups.

We further endorsed credibility by involving all authors to develop a nuanced understanding of findings. The researchers’ various backgrounds in public health, nursing, and psychology, and overall experience of conducting qualitative research also strengthen the rigour of the study (Korstjens & Moser, 2018). Furthermore, the analysis followed the steps as described by Braun and Clarke (Braun & Clarke, 2006) to facilitate a systematic process, thus supporting the study’s dependability. In addition, the quotes provide transparency that strengthen the study in terms of confirmability (Korstjens & Moser, 2018). The consolidated criteria for reporting qualitative research (COREQ) 32-item checklist (Tong et al., 2007) have been used to report important aspects of our approaches throughout the study.
Conclusion

The present study highlights that high school students advocate independence, an open approach and self-acceptance to successfully adopt new healthy behaviours. Mobile phones can promote adoption and maintenance of healthier behaviours through conveniently accessible support that increase resilience to challenges due to competing interests in the daily environment.

Acknowledgements

This work was supported by the Swedish Research Council for Health, Working Life and Welfare under Grant of Forte 2018-01410, principal investigator: ML.

We would like to thank the high school students for taking part in this study and all the staff at the schools for their cooperation.

Disclosure of potential conflicts of interest

No potential conflict of interest was reported by the author(s).

Notes on contributor

Anna Seiterö is a doctoral student with an interest in young people’s health and lifestyle as well as self-management support to improve young people’s health. Orcid: 0000-0002-7780-8417

Kristin Thomas is an assistant professor with interest in the implementation of innovations in health care targeting health promotion among various populations. Orcid: 0000-0001-6434-4855

Marie Löf is a professor and leader of the MoBILE research program with interest in mobile phone technologies (mHealth) for health promotion across the lifespan with focus on dietary and physical activity behaviours. Orcid: 0000-0002-2273-4430

Ulrika Müssener is an associate professor with research focus on health behaviours and the interaction between people regarding lifestyle, health and changing habits. Orcid: 0000-0001-5173-5419

Funding

This work was supported by Forte 2018-01410; principal investigator: Marie Löf.

ORCID

Anna Seiterö http://orcid.org/0000-0002-7780-8417
Kristin Thomas http://orcid.org/0000-0001-6434-4855
Marie Löf http://orcid.org/0000-0002-2273-4430
Ulrika Müssener http://orcid.org/0000-0001-5173-5419

References


Kitzinger, J. (1994). The methodology of Focus Groups: The importance of interaction between research participants. *Sociology of Health & Illness, 16*(1), 103–121. https://doi.org/10.1111/1467-9566.ep11347023


