

# Tobacco cessation – as we want it! An interview study with young people.

Ingrid Edvardsson Aurin (✉ [ingrid.edvardsson@kronoberg.se](mailto:ingrid.edvardsson@kronoberg.se))

Lunds Universitet

Ingrid Edvardsson Aurin

Lunds universitet Medicinska fakulteten

Katarina Haraldsson

Goteborgs universitet Institutionen for medicin

Lena Lendahls

Linneuniversitet Fakulteten for halso och livsvetenskap

---

## Research article

**Keywords:** Tobacco ceccation, young people, interview study

**Posted Date:** December 4th, 2019

**DOI:** <https://doi.org/10.21203/rs.2.18185/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

# Abstract

**Background** Smoking is still common among teenagers and young adults, and about every third young smoker states that he/she wants to quit smoking. There are no obvious evidence-based methods for tobacco cessation for young adults, and therefore, the same methods are used for adolescents and adults. The aim was to study adolescents' and young adult's experiences and views about what support they would like for smoking cessation.

**Methods** A qualitative content study using a descriptive and exploratory design was conducted. Young smokers 16 - 29 years old (n=25) were interviewed in five focus groups in southern Sweden. Data were analyzed by content analysis.

**Results** The results illuminate young people's suggestions to develop a model for tobacco cessation. Four themes emerged; Finding your own motivation – a prerequisite for taking the first step towards giving up smoking. Existing support rejected - existing apps, support by SMS, and self-help brochures did not appeal to the adolescents. Agreement between friends – To sign an agreement between two friends, which included a fee for relapses. Supportive environment - To organize the model with duo groups and give adapted support, and create the opportunity to win simple prizes to celebrate achieved interim goals.

**Conclusions** The participants suggested that the model for tobacco cessation should contain adult support and involve an agreement between friends, as well as have elements of celebration and competition. The challenge will be to implement this model into environments where they live.

## Background

The first goal for tobacco prevention work is that adolescents remain non-smokers. According to the World Health Organization (WHO), the most important actions are price increases, non-smoking environments, limited access, including exposure prohibition, and limiting tobacco advertising [1, 2]. The social norms and the acceptance in society is of major significance, as, for example, non-smoking adults and tobacco-free school days will influence more adolescents to stay tobacco-free and lessen the risk that they start using tobacco. It is also imperative that a dialog between the school and the parents is initiated [3].

Smoking occurs in a social context where you are part of a circle of friends and are influenced by them. Adolescents value friendship highly and are eager to fit into a group, and they are strongly influenced by the group members. Adolescents select friends with similar attitudes and behavior regarding smoking as themselves [4]. Addiction to nicotine is developed early, [5, 6] but the adolescents themselves were often unaware that their symptoms were caused by abstinence problems [7]. Adolescents are probably thinking that they only intend to smoke or use snus for a short time period and overestimate their personal ability thinking they can quit before they become addicted, or become adults. They see no risk of becoming an addict, but have the attitude that they are in control and can quit whenever they want to [8, 9]. As an addiction develops rapidly, it can be difficult to quit even after a short period of smoking [3].

In Sweden, 19 percent of boys and 26 percent of 17-year-old girls were smoking (regardless of how often) in 2018 [10]. Of these, 22 percent of the boys and 27 percent of girls said they wanted to quit smoking. Quitting smoking in the future was something that appealed to a larger group, about 40 percent. A study from Canada showed that up to 60 percent of adolescents aged 15–19 wanted to quit smoking within six months [11]. According to Swedish guidelines, adolescents who develop a tobacco addiction should be offered help and support to quit [12].

The WHO Framework Convention on Tobacco Control underlines the need to develop and implement evidence-based programs for quitting that should be accessible to everyone [2]. A Cochrane review report on tobacco cessation programs for young people showed that the most successful programs used some form of motivational interviewing in combination with support for a change of behavior [13]. The present situation was summarized by concluding that there is not yet sufficient evidence that recommending a widespread implementation of any model, and that there is still a need for well-designed intervention studies for adolescent smokers. In Sweden and in many other countries, there is still a lack of evidence-based methods for adolescents and young adults who want support to quit smoking.

## **Aim**

The aim was to study adolescents' and young adult's experiences and views about what support they would like for smoking cessation.

## **Methods**

A qualitative design with focus group discussions was chosen as the data collection method and qualitative content analysis for the data analysis.

### **Setting**

The study was conducted in the county of Kronoberg in southern Sweden, with nearly 200,000 inhabitants in eight municipalities. The participants were recruited from a high school, a youth clinic and a university.

### **Participants**

A targeted sampling procedure was chosen for the study, and the inclusion criterion was adolescents and young adults (16-29 years old) who smoked on a regular basis. The participants were recruited through one high school nurse who had a relatively good knowledge of the students' tobacco habits. At a youth clinic, visiting adolescents who were smokers were invited. Recruitment was also done by invitation to tobacco users when they were in the "smoking areas" at the university.

**Data collection**

Five focus group interviews were performed between February and March 2017. A total of five males and 17 females participated in the study, with between three and five in each group. The group interviews took place at a high school, one at a youth clinic and three at the university. The interviews lasted between 40 and 60 minutes. An interview guide with open-ended questions, constructed by the research team, was used. The interview started with the question: “Please tell us your thoughts on quitting smoking”. The interviews were performed by the first and last authors and an assessor attended the interviews to take notes and make sure that all questions from the interview guide were asked. If needed, the questions were followed by probing questions in order to clarify and deepen the understanding of the answers. The interviews were recorded and transcribed verbatim.

**Ethical considerations**

The study was approved by the Ethical Board in Linkoping, Sweden (Dnr 2015/469-31), and performed in accordance with the Helsinki Declaration (WMA Declaration of Helsinki). Before the interviews, the participants gave their written informed consent for participation. All data was protected by confidentiality and kept within the research group. If any of the respondents wanted support to give up their tobacco use, an opportunity was given to meet a professional tobacco addiction therapist.

**Data analysis**

Data was analyzed using qualitative content analysis with a descriptive and exploratory approach as presented by Graneheim and Lundman [14]. The material was read thoroughly a number of times to obtain a sense of the overall picture. Then, the text was divided into meaning units that corresponded with the aim of the study and were then condensed. The condensed meaning units were abstracted and labeled with a code. The various codes were compared based on similarities and differences and sorted into four themes. Off topic/nonsense material, when the informants moved away from the topic, were left without codes. All steps were regularly discussed among all authors in the research group to reach consensus. Representative quotes are presented in italics and the group origin is given in brackets.

**Table 1. Example of the analysis process.**

Meaningful unit	Condensation	Code	Theme
If you are with a group studying, and everyone smokes ... quitting yourself is almost impossible, but if everyone make a joint decision, then you can support and motivate each other. But then you have to find friends who smoke.	If you are studying and everyone smokes, it is impossible for you to stop. But if you make a joint decision, you can support and motivate each other.	Smokers can support each other	Agreement between friends

## Results

The results illuminate adolescents' and young adult's experiences and views about what support they would like for quitting smoking. The analysis resulted in the following four themes; *Finding your own motivation*, *Existing support rejected*, *Agreement between friends*, and *Supportive environment*.

### *Finding your own motivation*

When thoughts came to stop smoking, you were afraid of losing the friends you socialized with. Belonging to a group was important, and the fear of ending up outside the group was strong, especially for younger adolescents. In addition, other benefits of smoking, e.g. tasty, take a break, soothing, relaxing, energizing and a way to deal with strong emotions. At the same time, they realized the disadvantages of continuing to smoke from both an economic and health point of view. This ambivalent attitude was found among most adolescents, and they felt the ideal would be to be a party smoker.

*"On the one hand, I think there is no reason to smoke - it is very bad in every way. But I also like to smoke and have no ambitions to quit smoking right now"*Interview 3

Those who stopped smoking said they were unaware of being addicted until they tried to quit smoking. Then they became aware of the craving for cigarettes and that the abstinence presented itself in different ways, e.g. restlessness, worry, irritation and depression.

Nobody likes to have someone else decide that they should quit smoking. They all felt that you must be motivated and find your own motivation in order to quit smoking permanently. It does not work when someone else tells you to quit. The decision must be your own.

*"I hate it when people make decisions for me that have nothing to do with me. Then you want to go the opposite way"*Interview 2

The participants agreed that there were factors that could influence a person's motivation and facilitate for that person to stop smoking. For the teenagers, the family was a motivator. What the parents considered was important, as well as wanting to be a role model and take responsibility for the protection of younger siblings from tobacco use. Other factors that motivated them to quit were changes in appearance (teeth, hair, nails). Health-related factors such as impaired fitness and an increased risk of illness were also highlighted. The teenage girls said that during a pregnancy it was obvious not to smoke,

while the teenagers had not considered this. In the future, none of the smoking participants wanted their own children to become smokers. One thing that also motivated some was to get quick feedback with benefits such as better finances, while others felt that as long as they got money from their parents, the cost was not a major factor.

*“Whiter teeth, improved fitness and money”*

#### Interview 1

For some, deterrent photos of people damaged by tobacco worked, and they said fear could motivate them to quit smoking. The young adults believed that legislation, e.g. age limits, smoke-free environments and pricing were factors at society level that could motivate and facilitate smoking cessation.

*“There are non-smoking work hours, so why not smoke-free school hours?”*

#### Interview 3

*“They could raise the age limit to twenty or something like that, because then you are actually more ... I mean, there are fifteen, sixteen-year-olds who of course know an eighteen-year-old ... know someone who knows someone, but not many people know a twenty-year-old.”* Interview 3

The participants also considered their own contributions as important non-smoking role models in their future professions, such as teachers and nurses. These professionals should inspire and influence young and old alike to healthy lives. Some of the participants reflected on their own smoking in relation to their own career choices and realized the danger of double standards if they continued to be smokers. They were also positive to smoke-free school/work hours.

*“Thinking of us becoming teachers ... as a teacher, I don’t want to smoke because I want to inspire them to healthy lives, and it feels like double standards to be standing there smoking”* Interview 5

Some of the participants interviewed were looking for motivation to quit, and many reiterated the need for an alternative to the break that was the result of going out to smoke. Many of them felt it was important to find something to do that replaced smoke breaks, because they had an important function, both socially and as an opportunity to get away for a while. Take a break from tasks that were tiring or bothersome. They gave examples of companies that had a table tennis or pool table on their premises to allow the staff to have five minutes of relaxing table tennis.

*“It is not like smoking creating a need for breaks, but rather that you have a need for breaks and smoking becomes one way to get them”*

#### Interview 4

Existing support rejected

Most of them emphasized the importance of needing help and support to quit smoking. However, most of the methods offered today were rejected. There was a fairly unanimous opinion that neither “the quit line app” nor a text message could help them quit smoking. Both apps and text messages were perceived as impersonal and that you could easily “fool” them. On the contrary, receiving a text message about not smoking, or opening an app, would attract more smoking.

*“I don’t think I would have called them, or that it would have helped me. That some person thinks I should quit smoking and tries to coach me to quit, when he/she does not really care about me as a person - it gets so impersonal”*Interview 2

*“And the problem, as I see it, is that it’s so very easy to ignore it. It is so very easy not to enter that cigarette you have taken. That you have cheated. Because the app will not know.”*Interview 3

Brochures and self-help materials were not attractive, as they could receive equivalent information via the Internet. Also, getting help and support from a tobacco addiction therapist at a health center or over the phone was not an option for the participants. The therapists were described as impersonal, and the adolescents and the young adults did not feel comfortable to go to/call a person with whom they had no relationship. It was felt that the health center only offered nicotine patches and encouraging cheers.

*“I don’t think I would have called them, or that it would have helped me. It just felt like a robot was sitting there talking to me about something completely unimportant.”*Interview 1

Some participants were hesitant to sitting in a group talking as this would trigger the desire to smoke. Someone else had been looking for less dangerous ways to smoke and found a filter that would clean the cigarette smoke. However, this had not worked as expected.

### Agreement between friends

During the focus group interviews, the idea of quitting smoking with a friend was proposed. Someone with whom you feel confident, who is in the same class or is taking the same course/program at the university, and with whom you can also discuss other things than smoking.

*“You may need to have some common denominator, e.g. studying at the university, because then you can also talk about this. That you know what it’s like to be a student. ”*

### Interview 2

*“It is probably easier if you are two, I think. Then you at least have someone you can ask: Well, Klara, how was the weekend? Did you smoke?”*Interview 4

Two people who know each other and decide to stop smoking together. They can support each other, but also keep track of each other. They make an agreement in the form of a contract, about how the smoking cessation should be implemented and what will happen if they break the agreement and start smoking again. Someone said that the contract did not have to be in writing but more “moral”.

*"Well, I would have such a guilty conscience if I were to smoke, so to have something in writing is not necessary."* Interview 2

Others, on the other hand, felt that it was good to have a contract in writing that stated what would happen, e.g. in case of a relapse. The contract could also include a penalty system with fines for relapses to a joint account with the friend.

*"Now I had a cigarette. Now I have to deposit an extra SEK 100"* Interview 3

The idea of quitting together with a friend, forming a friendship "duo" was something that appealed to the adolescents. They felt it was more difficult to lie to a friend, and they could also "boost" each other.

*"I think the contract will be about morale. Something like that. If we were to decide that we will quit now. Then I would have such a guilty conscience if I smoked, so no ..."*

Interview 1

### *Supportive environment*

The importance of being able to decide for yourself if and when to quit smoking was emphasized all the time, but personal support without reprimands was something they considered necessary. Preferably from a person with whom they have a good relationship. It could also be someone who has had first-hand experience of quitting themselves, e.g. a parent or a friend.

*"I also think it can be good to bring along someone who is a professional. Otherwise, it feels like it could easily come to nothing."*

Interview 3

A professional person, a coach, may be needed as support and initiator. That person should keep the group together and organize meetings every month. It is important that there is a good atmosphere in the group and that you get feedback and knowledge. Several duos can be together with one leader. The support should be found where you feel it is safe to go, e.g. the student health or a youth clinic. The leader is important and should ideally be someone the participants know, who is able to give praise, who is competent and who understands the meaning of quitting. It is important that they have identified the reasons why they smoke and that they get adequate guidance from the group and the leader.

*"To have a student health coordinator, and that you have a larger group, and then duos that are monitored during the week, you know. Then you have joint meetings where you motivate and push each other."*

Interview 1

The coaches may be helpful in making arrangements in the duo groups, for example that they keep in touch via SMS messages to motivate each other. The duo and the coach should also work together to



prevent relapses, preferably with different types of activities.

There could also be a financial incentive whereby the duo has a common goal to which they save up money. Together, they can suggest different types of rewards for not smoking, a nice activity that you saved money towards when you have quit, for example a trip with a night in a hotel. The coach can help take initiatives to this and organize it.

*"I would absolutely do it, if it is with someone you know, and you could have saved together and then do something together with that money. It could be something like a spa weekend. That it is a treat. Because then it is also something you do together. You have a goal and you get something out of doing it."* Interview 3

There were also suggestions of encouragement for the duo by raffling movie tickets, free lunches or similar at a certain time of being a non-smoker. This could be organized and funded by coach activities (e.g. at the student health, or a youth clinic).

*"I think if both of them in the duo have been non-smokers for a year, they should get something for it. If I get a free lunch, I think it's pretty nice. Something like that. After all, it does not have to be a big thing. Or get a movie ticket, a dinner voucher or a concert ticket. It does not need to be so much, just that you actually get a reward to show that what you do is actually appreciated. That there is actually a value in what you have been fighting for."* Interview 1

## Discussion

### Method Discussion

The strength of this study is that young smokers themselves have been able to talk about what kind of support they would like if they were to quit smoking. It is valuable to get the adolescents and young adults involved, and that they are given the opportunity to design a model for tobacco cessation that affects them

Although not all of them had experiences of quitting smoking, they all had opinions on what kind of help they would like in the event of a future smoking cessation. The young adults found it easier to picture the situation of quitting and had started to think about it. The younger adolescents had not come that far in the process.

The results illuminate the participant's suggestions to develop a model for tobacco cessation. The discussions in the focus groups allowed the participants to inspire each other during the conversation, and a statement was often confirmed by another group participant. Most often, data collection using focus groups gives extensive descriptions, and although two groups only had three and four participants, respectively, the number was sufficient. The other three groups consisted of five participants, which may be considered an optimum group size. Groups with more participants would probably have given a broader picture of the problem, but would have given each participant less opportunity to speak [15].

However, it would have been desirable to have more male participants, and this would possibly have affected the result.

The participants were recruited from three different contexts, a youth clinic, a high school and a university, which provided the opportunity for a variety of opinions and experiences of smoking cessation. This strengthens the credibility of the study.

Confirmability is given by presenting the entire approach to the conduct of the study in an open way and by quotes from all the themes in the result. Continuous comparison was made throughout the analysis process. Coding and creation of themes was carried out in a peer review process by the first and last author, and author number two validated the analysis, thereby increasing trustworthiness.

Dependability was ensured using an interview guide, which meant that the same questions were raised for discussion in all groups. The interviewer and assessor were both public health researchers with long-standing experience of talking about the topic in question, and they were therefore able to ask relevant follow-up questions during the interviews. We believe that the results of this study are transferable to adolescents and young adults throughout Sweden, and also to young people in countries with a similar context.

## Results Discussion

In this study, participants' experiences, views and suggestions on how they would like help to quit smoking are highlighted. This is in line with the Ottawa Charter for Health Promotion which emphasizes the importance of participation from the relevant target group [16]. Some of the interviewees wanted to see politicians take strong action to reduce the use of tobacco. Measures mentioned were price increases, more smoke-free environments and better adherence to the age limit for tobacco purchase. These measures are completely in line with what WHO considers to be success factors in preventing the use of tobacco among adolescents [1, 17]. They were positive to measures that prevented the recruitment of smokers - as long as they were not affected themselves, they wanted to smoke undisturbed, but at the same time they did not want younger adolescents to start smoking. It was easier to hand over solutions to others than to tackle the problem of quitting themselves.

Quitting in the future is usually something that appeals to a large proportion of young smokers, about 40 percent [10]. Young smokers did not see themselves smoking in the future, without stating exactly how far away that would be. They are not aware (unknowing) of their nicotine addiction, but they believe it is possible to quit when they want to themselves, that they are in control [6, 7].

Knowledge of health risks due to smoking and its disadvantages is well known among teenagers, but the facts are not enough to quit smoking. The motivation must come from themselves. According to the interviewees, the motivation could be based on improving their health, getting pregnant, or being able to gain something from quitting.

Group pressure is a strong reason, and a difficult one to get at, for new recruitment of tobacco users. A large proportion of the participants interviewed had started smoking at a party with friends who smoked. After a while, they felt that the party was over and they were smoking even in their everyday life - but the glamor was gone. It is not easy for the young smokers to resist friends who pressurize them and offer cigarettes. Socializing only with smokers makes it easy to get the idea that “everyone smokes”. It is well known that friends’ tobacco habits affects whether the individual uses tobacco or not [18]. Therefore, there is a strength in the proposal of quitting with a friend, as it is difficult to be alone and stand up against an offer to participate in smoking if you belong to a group of smoking friends. Then it is effective to seek support from a friend in a group where the majority is using tobacco.

The idea of the duo is not a new one. It has also been a successful method for preventive work among children and adolescents regarding the use of tobacco [19]. The concept “Tobacco-free duo” offers students to sign a contract, with a tobacco-free adult, where they undertake to support each other in not using tobacco during primary school. Parents, siblings and other family members are valuable in the tobacco prevention work with adolescents. They can be a factor in motivating them to want to quit, as you do not want to make them sad and you want to be a good role model. The results of the study show that young people want support from an adult, parent or other professional adult with whom they have a relationship. Relationships are important for the participants, and that is perhaps the reason why the participants in this study rejected existing apps because they do not have to be truthful to them and can ignore them completely if they want to. However, studies show that they do have an effect [20].

Being able to choose and to have control over what you do was important. It was also important to feel competent and confident in coping with new situations. Therefore, staff who meet young smokers should be aware of the importance of supporting them in making independent choices, encouraging friendship rather than providing reprimands and good advice. This is in agreement with the ideas of the theory of self-determination that have proven to be successful in lifestyle changes in, for example, exercise and training [21].

### Clinical Implications

This study does not provide a complete picture of how tobacco cessation should be designed for adolescents and young adults. However, it gives perceptions among young smokers about what they would like when it comes to help and support to stop using tobacco, the day they are sufficiently motivated. Hopefully, the study can give a part of the picture, but further research among young smokers is required to develop a customized program that is as good as possible.

## Conclusions

The participants suggested that the model for tobacco cessation would contain adult support, involve an agreement between friends, and have elements of celebration and competition. The intention is to develop and implement a model for tobacco cessation for young people.

# Declarations

## Abbreviations

WHO: World Health Organization

## Acknowledgements

The authors would like to thank the young smokers who participated in this study. Their generous support and sharing made this study possible.

## Authors' contributions

IEA was involved in the study design, data collection, analysis, interpretation, and in writing the manuscript. LL was involved in data collection, analysis, interpretation, and in writing the manuscript. KH was involved in analysis, interpretation, and in writing the manuscript.

## Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

## Competing interests

Not applicable.

## Consent for publication

Not applicable.

## Ethics approval and consent to participate

The study was approved by the Ethical Board in Linköping, Sweden (Dnr 2015/469-31), and performed in accordance with the Helsinki Declaration (WMA Declaration of Helsinki). Written consent was obtained from the participants for participation and data publication.

## Funding

This study was funded by the Department of Research and Development, Region Kronoberg, Växjö, Sweden and by the Public Health Agency of Sweden. The funders did not have any influence on the study design, collection, analysis, and interpretation of data or writing the report and the decision to submit the article for publication.

# References

1. U.S. Department of Health and Human Services. *Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General*. In. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2012.; 2012.
2. World Health Organization.: *WHO Framework Convention on Tobacco Control*. Geneva: World Health Organization; 2003.
3. Bear GG, Yang, C. Pasipanodya, E.: *Assessing School Climate: Validation of a Brief Measure of the Perceptions of Parents*. *Journal Of Psychoeducational Assessment* 2015, 33((2)):115–129.
4. de Vries H, Candel M, Engels R, Mercken L: *Challenges to the peer influence paradigm: results for 12–13 year olds from six European countries from the European Smoking Prevention Framework Approach study*. *Tob Control* 2006, 15(2):83–89.
5. DiFranza JR, Savageau JA, Fletcher K, O'Loughlin J, Pbert L, Ockene JK, McNeill AD, Hazelton J, Friedman K, Dussault G et al: *Symptoms of tobacco dependence after brief intermittent use: the Development and Assessment of Nicotine Dependence in Youth–2 study*. *Arch Pediatr Adolesc Med* 2007, 161(7):704–710.
6. DiFranza JR, Sweet M, Savageau JA, Ursprung WW: *The assessment of tobacco dependence in young users of smokeless tobacco*. *Tob Control* 2011.
7. Edvardsson I, Troein M, Ejlertsson G, Lendahls L: *Snus user identity and addiction. A Swedish focus group study on adolescents*. *BMC Public Health* 2012, 12(1):975.
8. Baillie L, Lovato CY, Johnson JL, Kalaw C: *Smoking decisions from a teen perspective: a narrative study*. *American journal of health behavior* 2005, 29(2):99–106.
9. Aryal UR, Petzold M, Krettek A: *Perceived risks and benefits of cigarette smoking among Nepalese adolescents: a population-based cross-sectional study*. *BMC Public Health* 2013, 13:187.
10. Zetterqvist M: *Skolelevers drogvanor 2018, Rapport 178*. In., vol. CAN rapport 178. CAN, Centralförbundet Alkohol och Narkotika upplysning; 2018.
11. Reid JL HD, Tariq U, Burkhalter R, Rynard VL, Douglas O.: *Tobacco Use in Canada: Patterns and Trends*. In., Waterloo edn: ON: Propel Centre for Population Health Impact, University of Waterloo.; 2019.
12. Socialstyrelsen: *Nationella riktlinjer för prevention och behandling vid ohälsosamma levnadsvanor. Stöd för styrning och ledning*. In.; 2018.
13. Stanton A, Grimshaw G: *Tobacco cessation interventions for young people*. *Cochrane Database Syst Rev* 2013(8):Cd003289.

- 14.Graneheim UH, Lundman B: *Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness*. *Nurse Educ Today* 2004, 24(2):105–112.
- 15.Krueger RA CM: *Focus groups: A practical guide for applied research*; 2014.
- 16.WHO: *Ottawa charter for health promotion*. *Can J Public Health* 1986, 77(6):425–430.
- 17.WHO *Framework Convention on Tobacco Control: Guidelines for Implementation of Article 5.3, Article 8, Article 11, and Article 13*. Geneva: World Health Organization; 2009.
- 18.Edvardsson I LL, Andersson T, Ejlertsson G: *The social environment is most important for not using snus or smoking among adolescents*. *Health* 2012, Vol.4 No.12, December 2012
- 19.Nilsson M, Stenlund H, Bergstrom E, Weinehall L, Janlert U: *It takes two: reducing adolescent smoking uptake through sustainable adolescent-adult partnership*. *J Adolesc Health* 2006, 39(6):880–886.
- 20.Valdivieso-Lopez E, Flores-Mateo G, Molina-Gomez JD, Rey-Renones C, Barrera Uriarte ML, Duch J, Valverde A: *Efficacy of a mobile application for smoking cessation in young people: study protocol for a clustered, randomized trial*. *BMC Public Health* 2013, 13:704.
- 21.Weman-Josefsson K, Lindwall M, Ivarsson A: *Need satisfaction, motivational regulations and exercise: moderation and mediation effects*. *The international journal of behavioral nutrition and physical activity* 2015, 12:67.